

**City of Marlborough
Contributory Retirement System**

**Meeting Materials
May 25, 2021**

Fund Evaluation Report

Agenda

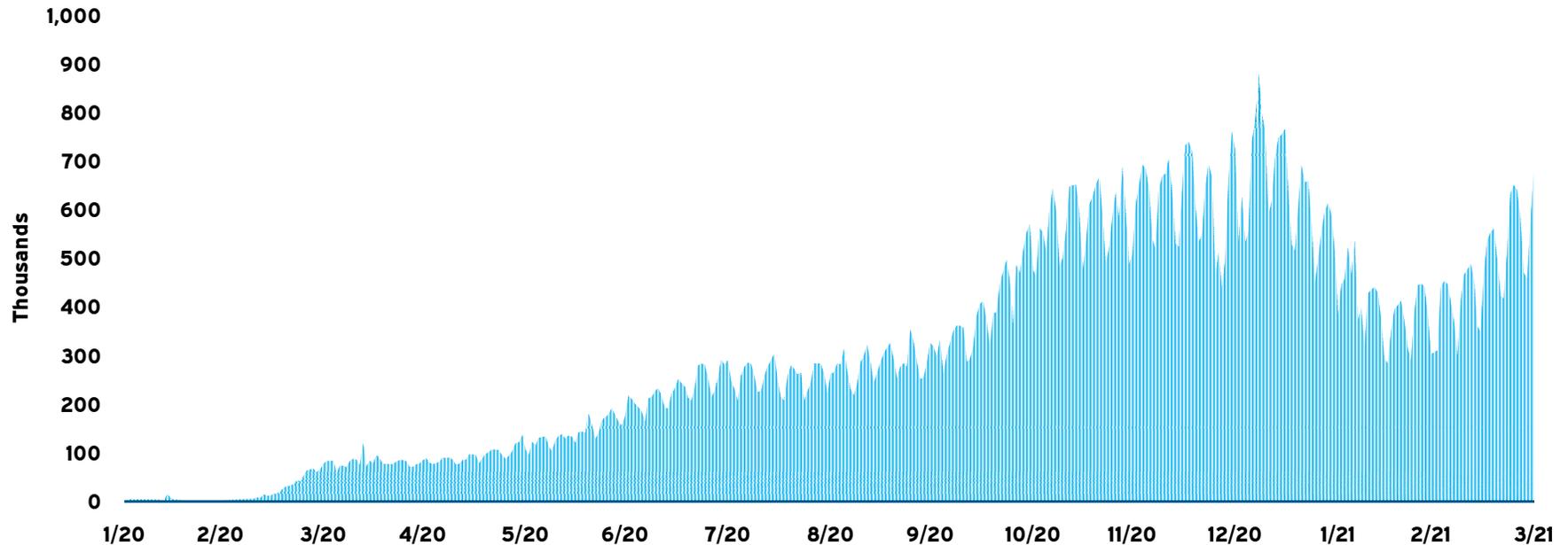
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Economic and Market Update

Data as of March 31, 2021



Global Daily Cases¹

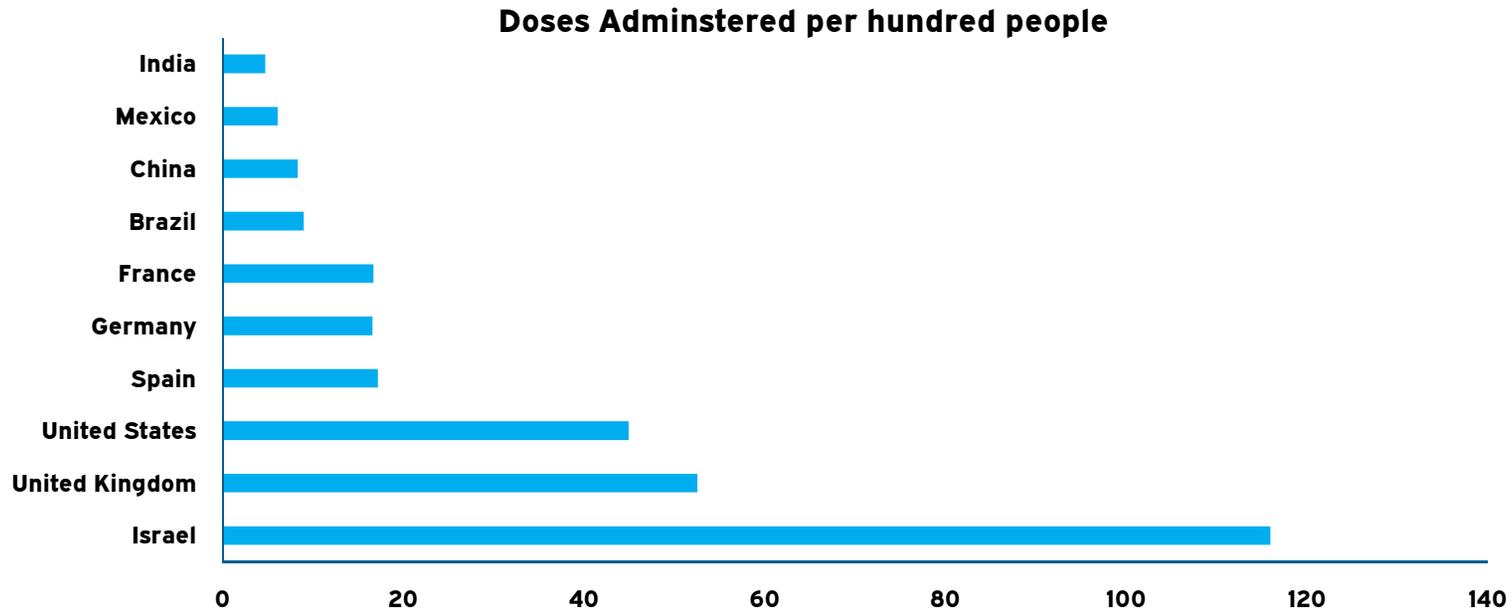


- After peaking in early January at ~858,000, the number of global daily cases steadily declined to ~303,000 at the end of February, before increasing again in March, driven by new variants.
- Looking ahead, the rollout of multiple vaccines continues to gather momentum, with roughly 800 million total doses administered as of mid-April.²
- In the US, the Biden administration set a goal of the vaccine being available to the general population by April 19.

¹ Source: Our World in Data. Data is as of March 31, 2021.

² Source: Bloomberg. <https://www.bloomberg.com/graphics/covid-vaccine-tracker-global-distribution/?sref=sA9cMIUe>

Vaccinations by Country¹



- Vaccine distribution has ramped up in many countries, including the Pfizer-BioNTech, Moderna, and Johnson & Johnson vaccines in the US. Outside the US, vaccines have also been developed by China, Russia, India, and the UK.
- Some countries have done better with the vaccine rollout, with Israel being at the forefront. The United Kingdom’s and the United States’ vaccination rates have exceeded many other countries. Early immunization efforts focused on the most vulnerable populations with eligibility expanding recently.

¹ Source: Our World in Data. Data is as of March 31, 2021. Vaccination totals include first and second doses.

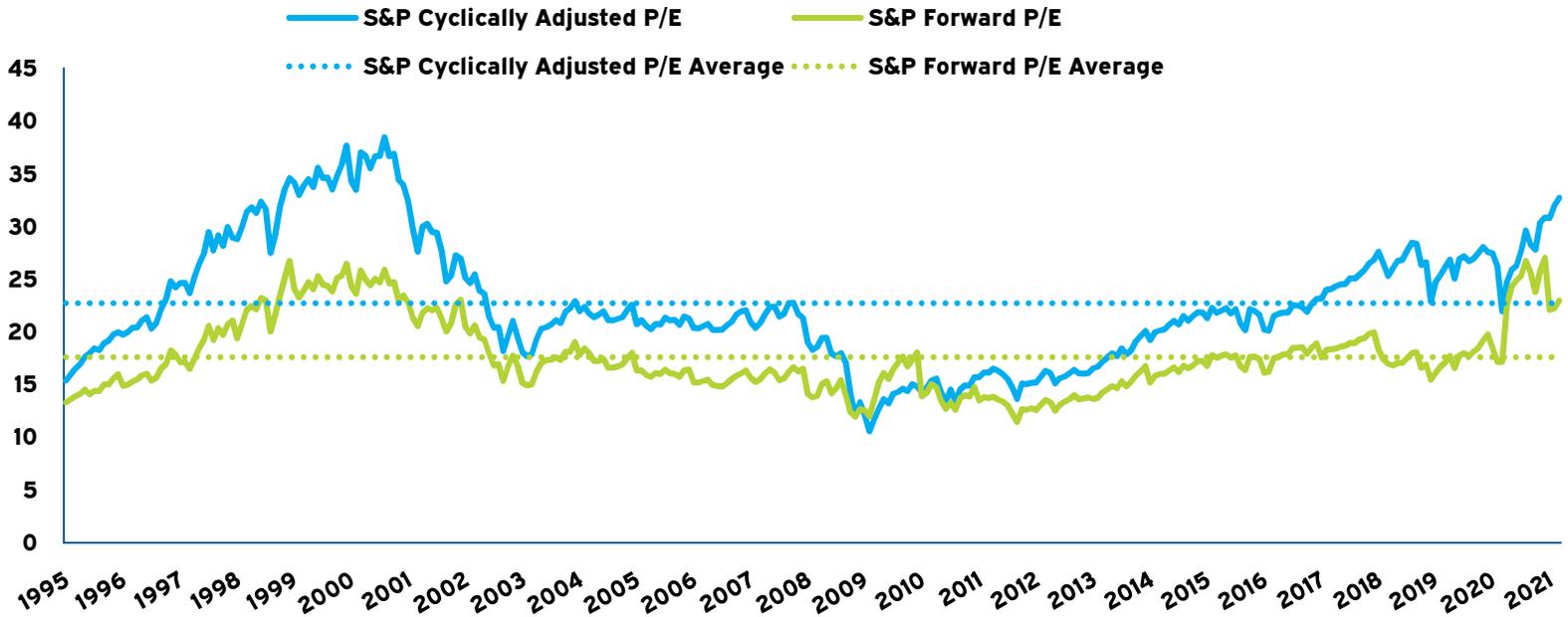
Market Returns¹

Indices	March	YTD	1 Year	3 Year	5 Year	10 Year
S&P 500	4.4%	6.2%	56.4%	16.8%	16.3%	13.9%
MSCI EAFE	2.3%	3.5%	44.6%	6.0%	8.9%	5.5%
MSCI Emerging Markets	-1.5%	2.3%	58.4%	6.5%	12.1%	3.7%
MSCI China	-6.3%	-0.4%	43.6%	8.2%	16.1%	7.3%
Bloomberg Barclays Aggregate	-1.3%	-3.4%	0.7%	4.7%	3.1%	3.4%
Bloomberg Barclays TIPS	-0.2%	-1.5%	7.5%	5.7%	3.9%	3.4%
Bloomberg Barclays High Yield	0.2%	0.9%	23.7%	6.8%	8.1%	6.5%
10-year US Treasury	-3.1%	-7.0%	-8.1%	4.7%	1.7%	3.7%
30-year US Treasury	-6.1%	-15.8%	-20.6%	5.6%	2.7%	6.5%

- Over the last year, global risk assets produced significant returns, largely driven by record fiscal and monetary policy stimulus and positive developments with the COVID-19 vaccine. One-year returns are also being heavily influenced by the roll-off the significant declines in March 2020.
- In March, rising inflation and US economic growth expectations continued to drive longer-dated Treasury yields higher, leading to negative returns across most maturities.
- Equity markets across developed economies showed a notable level of resilience to the tighter financial conditions. Emerging markets were impacted by rising COVID-19 cases and re-shuttering of some economies, as well as rising inflation risks prompting some central banks to consider tightening measures.

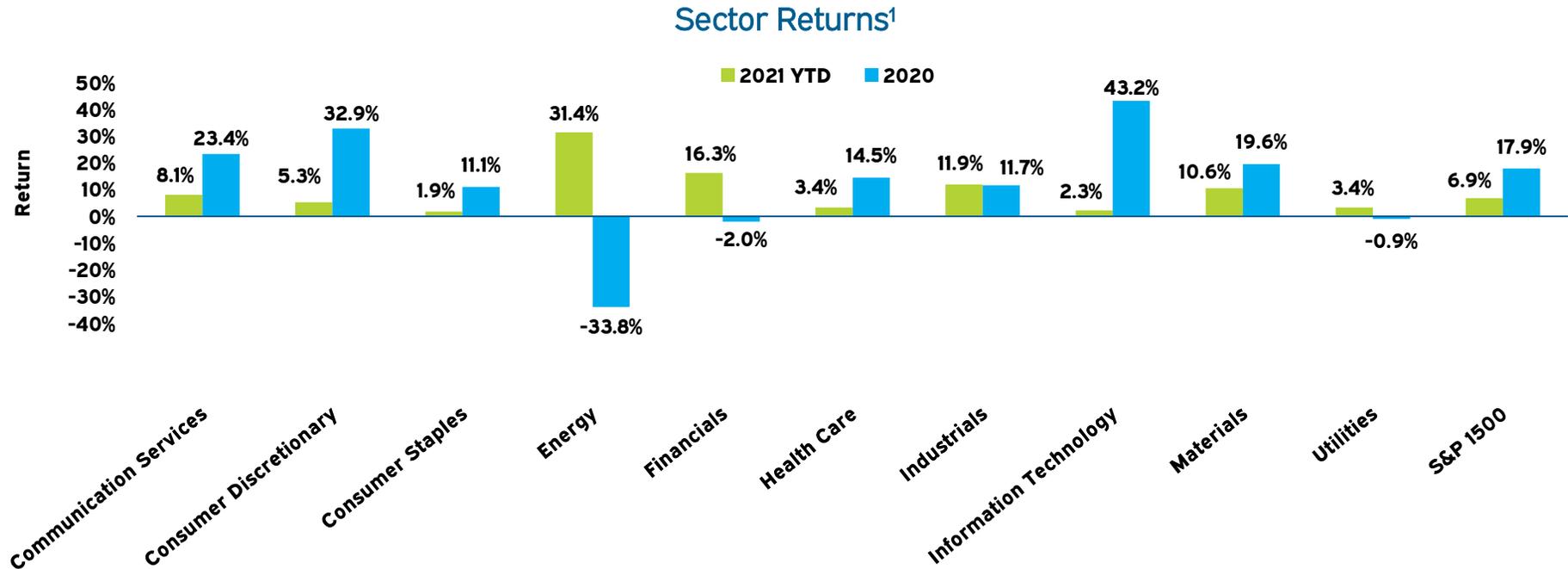
¹ Source: Investment Metrics and Bloomberg. Data is as of March 31, 2021.

S&P Equity Valuations¹



- With positive developments regarding COVID-19 vaccines, valuations based on backward-looking earnings rose to levels not seen since 2001.
- By contrast, valuations based on forward-looking earnings recently declined due to continued improvements in earnings expectations. Despite the decline in forward P/E ratios, they remain well above long-term averages.

¹ Source: Bloomberg. Data is as of March 31, 2021.

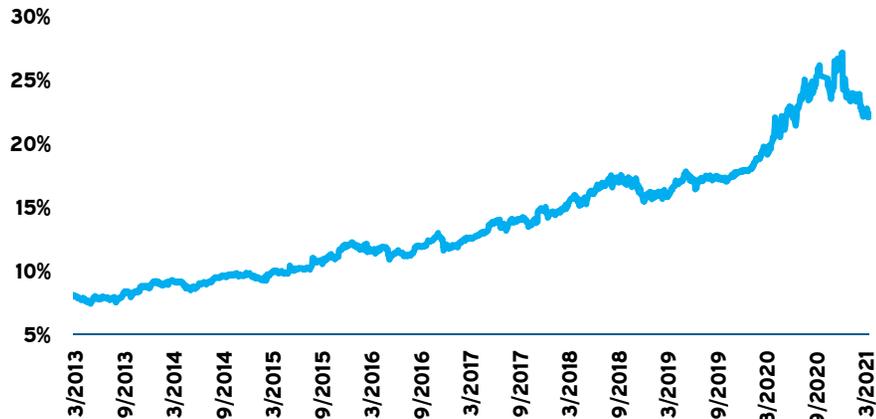


- Cyclical sectors like energy and financials have led the way in 2021, as investors rotate out of the stay-at-home focused companies in the technology sector.
- The recent rotation into value stocks has largely been driven by expectations for the economy to reopen, potentially higher taxes, and rising interest rates. Growth stocks typically produce more of their cash flows further into the future and increased interest rates lead to a larger discounts, reducing present value.
- Energy has been a particular standout this year, supported by record low active rig counts, Saudi Arabia's reductions in output, and expectations of rising demand later in 2021.
- Higher interest rates have benefited lending institutions within the financial sector.

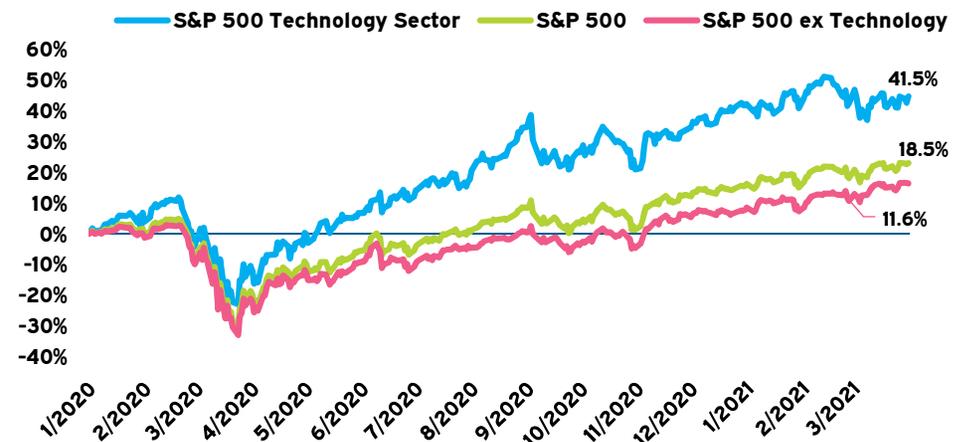
¹ Source: Bloomberg. Data is as of March 31, 2021

Growth stocks led the way for most of 2020, but have recently lagged

FAANG+M Share of S&P 500¹



Returns from Start of 2020 through March 31 2021²

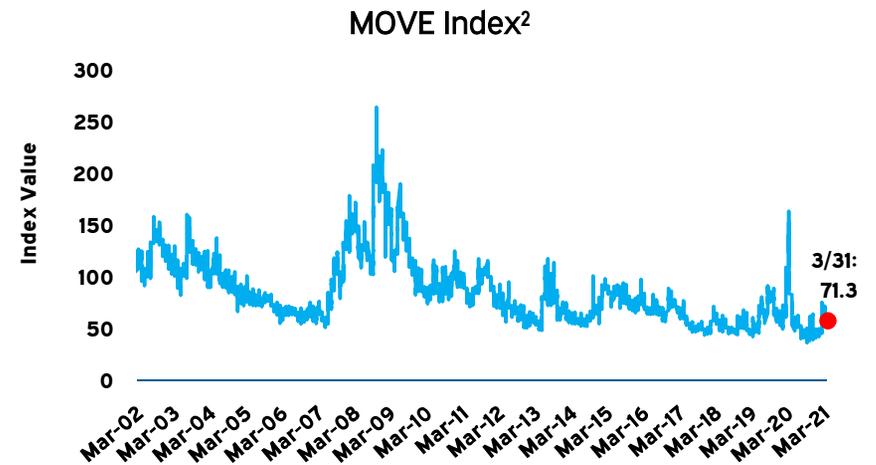
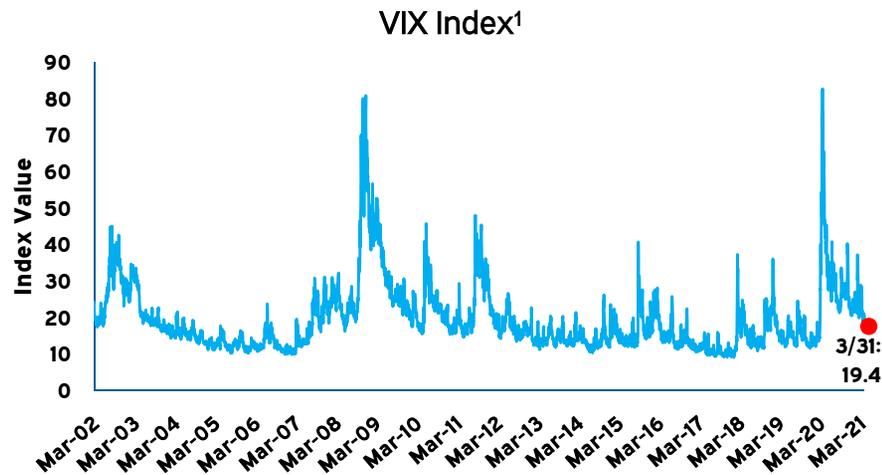


- During much of 2020, market gains were driven by a few technology companies that benefited from the stay-at-home environment related to the virus.
- The outsized relative returns of these companies last year caused them to comprise an increasingly large portion of the S&P 500, making their performance going forward impactful to overall market results.
- Recently, their proportion of the index declined as value stocks outpaced growth stocks by over 10% in 2021.

¹ FAANG+M = Facebook, Amazon, Apple, Netflix, Google (Alphabet), and Microsoft. The percentage represents the aggregate market capitalization of the 6 companies compared to the total market capitalization of the S&P 500 as of March 31, 2021.

² Each data point represents the price change relative to the 12/31/2019 starting value.

Volatility



- Equity market volatility, as measured by the VIX, declined over the month to levels last experienced just prior to the spike of market volatility in March 2020.
- Counter to the experience in equity markets, volatility levels within fixed income, as represented by the MOVE index, increased in March due to building expectations for higher growth and inflation. Uncertainty regarding the future path of interest rates could keep fixed income volatility elevated.

¹ Source: Chicago Board of Exchange. Data is as of March 31, 2021.

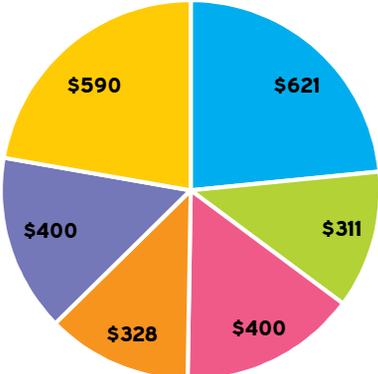
² Source: Bloomberg. Data is as of March 31, 2021.

Key Elements of the Latest Round of US Fiscal Stimulus

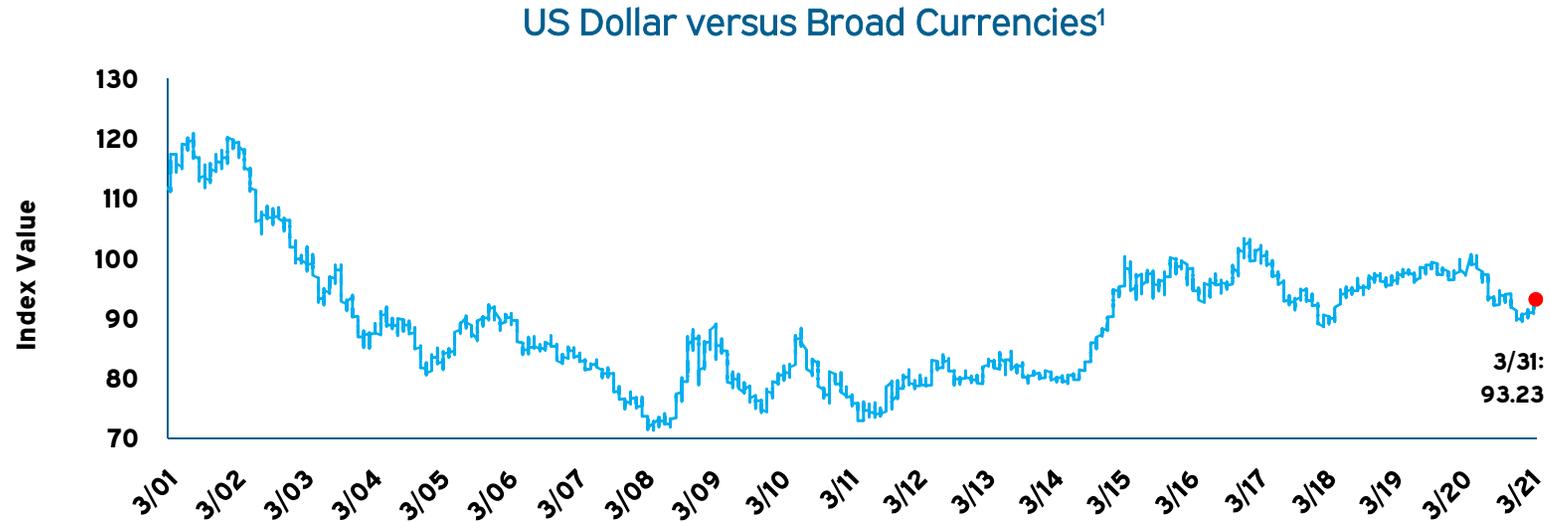
Joint Proposal	
Status	Signed by President Biden on March 11, 2021
Direct Payments	Up to \$1,400 per eligible recipient
Enhanced Unemployment	\$300 per week through September
State & Local Aid	\$360 billion
Vaccines, testing and tracing	\$123 billion
School aid/Education Grants	\$176 billion
Health Insurance Support	\$105 billion
Transportation	\$56 billion
Food / Agriculture aid	\$16 billion
Rental Assistance	\$1 billion
Small Business Assistance	\$59 billion
Total	\$1.9 trillion

- Fiscal stimulus totaling ~\$900 billion, representing the second largest package in history at the time, was finalized in late December 2021.
- President Biden signed an additional \$1.9 trillion stimulus package in March that includes another round of direct payments to individuals, \$300 extra per week in unemployment benefits, and aid to state and local governments.
- Concerns have increased significantly that the historic infusion into the economy could lead to excessive inflation and put pressure on borrowing costs.

Key Elements of the ~\$2.65 Trillion American Jobs Plan (2021 – 2031)

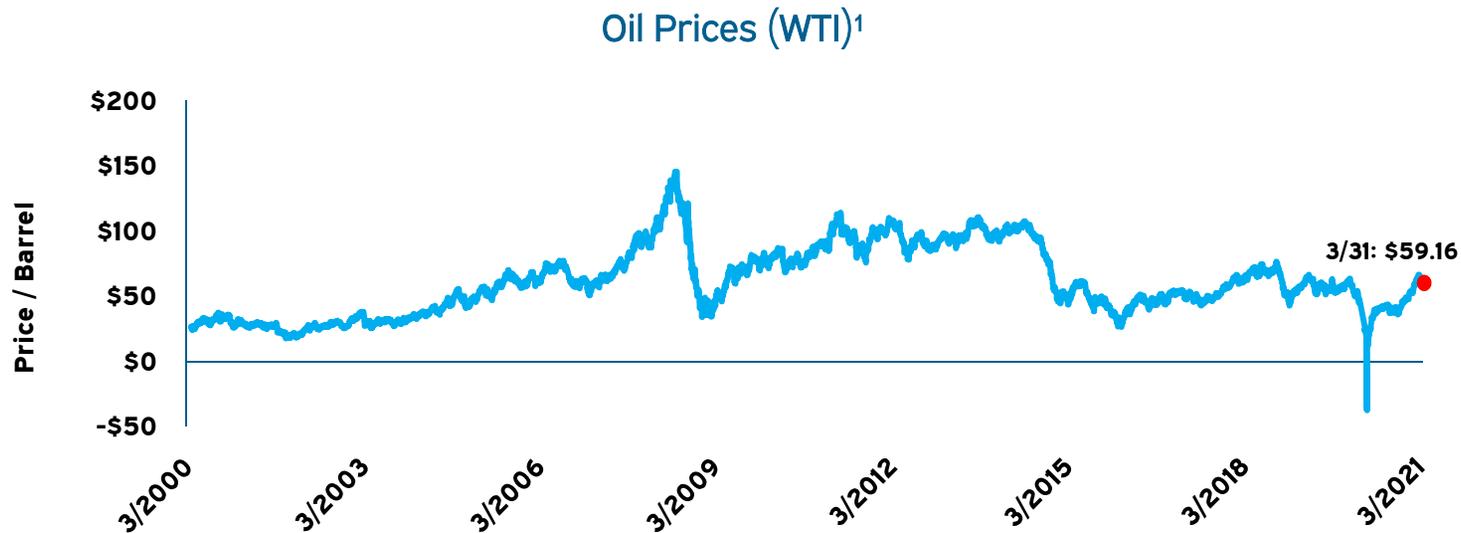
	Key Pillars	Plan Highlights
<p>Key Elements of Proposal \$ Billions</p> <ul style="list-style-type: none"> ■ Transportation Infrastructure ■ Broadband, Electrical Grid, and Clean Drinking Water ■ Caregivers for Elderly & Disabled ■ Improve Housing Stock, Schools and other Facilities ■ Clean Energy Tax Credits ■ Domestic Manufacturing, R&D, and Job Training Initiatives 	<p>Transportation</p> <p>Quality of life at home: Invest in broadband, the electrical grid, and clean drinking water</p> <p>Improve housing stock, schools, and other facilities</p> <p>Caregivers for elderly and people with disabilities</p> <p>Research, development, and manufacturing</p>	<ul style="list-style-type: none"> • \$174B to electric vehicles-replacing diesel school buses and transport vehicles • \$115B to fix roads and bridges • \$165B to the transit system • \$80B to Amtrak • \$25B to airports • \$17B to ports and ferries <ul style="list-style-type: none"> • \$111B on clean water • \$100B on broadband networks • \$100B on electrical transmission upgrades <ul style="list-style-type: none"> • \$213B on affordable homes and commercial buildings • \$100B on modernizing schools <ul style="list-style-type: none"> • Improve access to quality, affordable home or community-based care for the elderly • Expand the Medicaid program to make more services available • It would also boost pay for care workers. <ul style="list-style-type: none"> • \$100B for domestic manufacturing and supply chains • \$50B to semiconductor manufacturing and research • \$100B for worker training and increasing of worker protection

¹ Dollar amounts are estimates. Source: <https://www.crfb.org/blogs/whats-president-bidens-american-jobs-plan>.



- The US dollar has benefited from higher US growth estimates and rising interest rates. Growth and interest rate differentials have put pressure on emerging market asset prices.
- A stronger US dollar may deepen the US trade deficit and offer a competitive advantage to exporters in Asia and Europe.
- Going forward, the dollar's safe-haven quality and the higher interest rates in the US could continue to provide support.

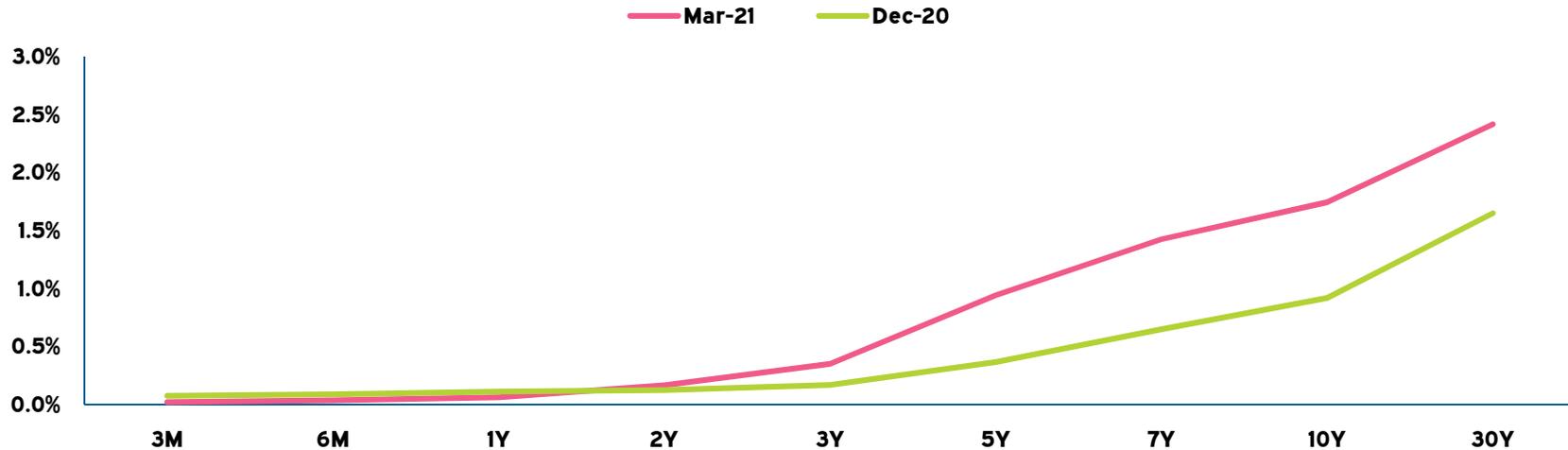
¹ Source: Bloomberg. Represents the DXY Index. Data is as of March 31, 2021.



- Global oil prices rallied from April 2020 lows, and have recovered to pre-crisis levels.
- In 2020 the collapse in global oil demand led to the shuttering of active drilling in North America and international markets and production capacity has been slow to come back online.
- In a surprise decision, OPEC+ recently announced they would not be increasing production despite signs that the global economy could absorb the additional supply.
- Low production capacity and tight supply may help balance oil markets and drawdown reserves offering support for oil prices as global demand recovers.
- Once reserves are used, and if production remains tight, oil prices could continue to rise, contributing to inflationary pressures, and weighing on the global economic recovery.

¹ Source: Bloomberg. Represents WTI first available futures contract. Data is as of March 31, 2021.

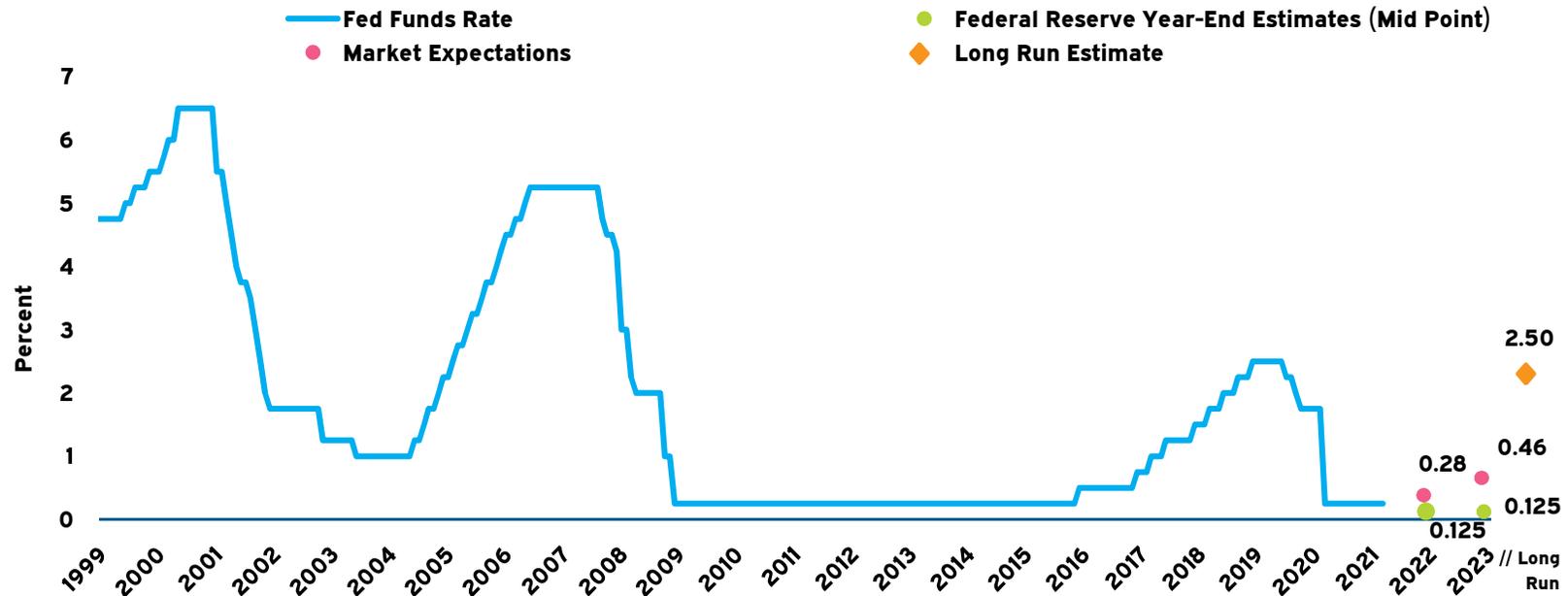
US Yield Curve Steepens¹



- The US Treasury yield curve declined materially during 2020, driven by safe-haven demand, Federal Reserve policies (policy rate cuts and the quantitative easing program), and weak US economic fundamentals.
- Thus far in 2021, the curve has steepened on inflation fears related to gradual signs of economic improvement, vaccine developments, and expectations for increased Treasury issuance to support fiscal policy measures.
- Higher yields relative to other countries, and the Fed potentially extending the duration of QE purchases to mitigate tightening financial conditions, could counterbalance steepening trends, but the risk remains that the yield curve could continue to steepen if growth and inflationary pressures build.

¹ Source: Bloomberg. Data is as of March 31, 2021.

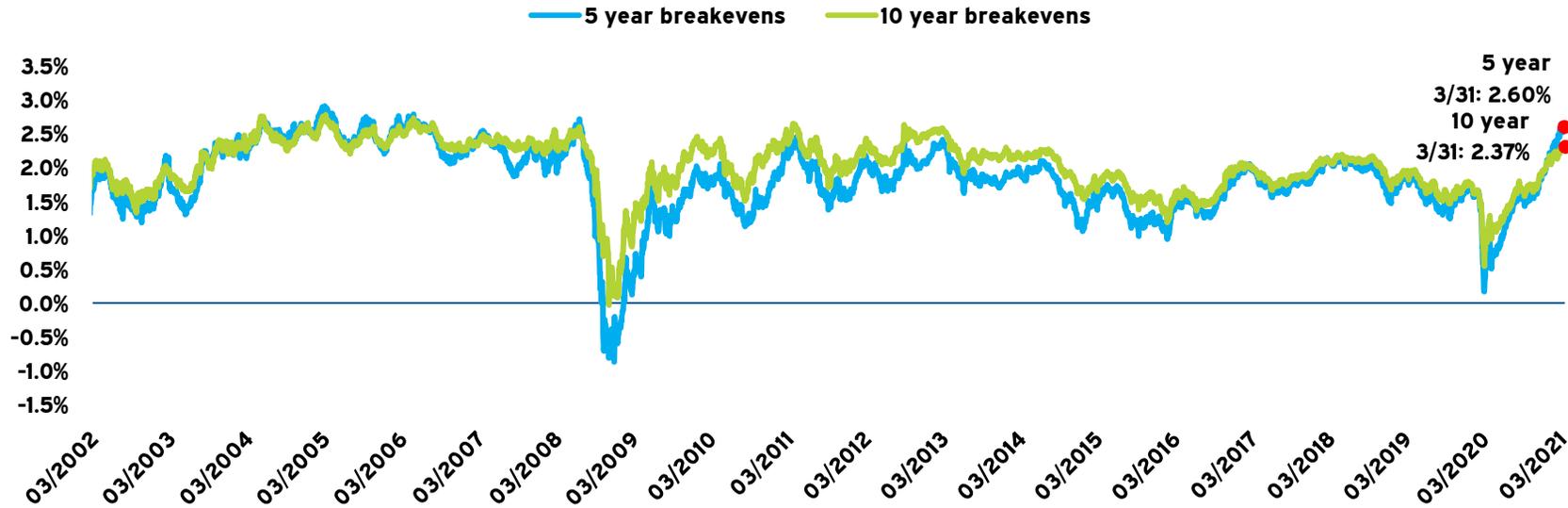
Dot Plot Continues to Indicate Rate Hikes are Some Time Away¹



- The FOMC continues to indicate they do not anticipate increasing policy rates for the next few years, as delivered through the FOMC’s meeting statements and the supporting Summary of Economic Projections report (aka the “Dot Plot”).
- Policy expectations as measured by current asset prices, including fed funds futures, are suggesting more aggressive policy actions, with 1-2 policy rate increases by the end of 2023.

¹ Source: Bloomberg. Data is as of the March 17, 2021 FOMC meeting. Market Expectations reflect Fed Fund Futures

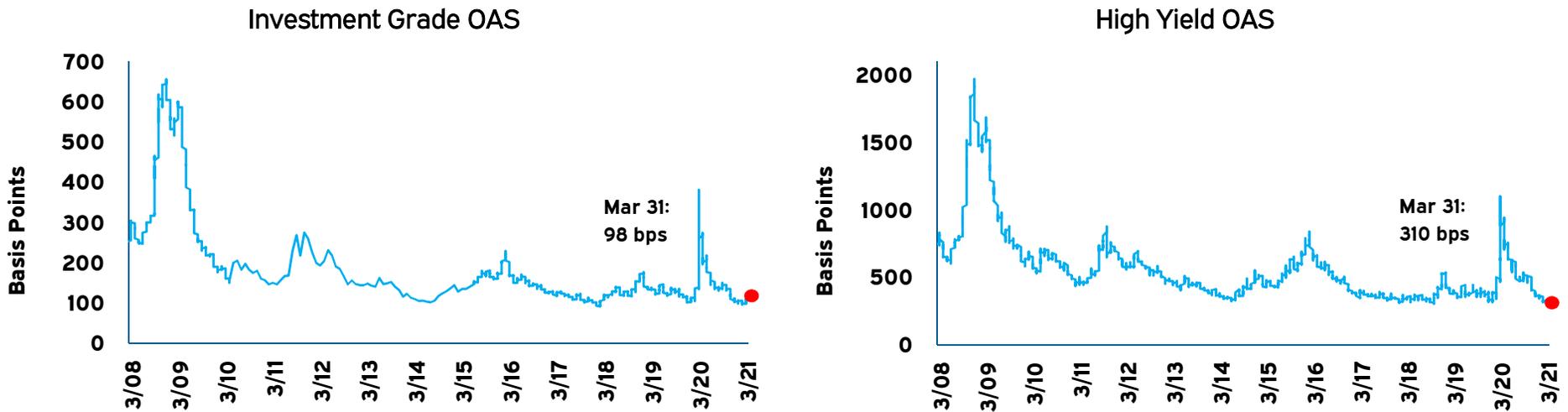
10-Year Breakeven Inflation¹



- Inflation breakeven rates declined sharply in early 2020, due to a combination of lower growth and inflation expectations, as well as liquidity dynamics in TIPS during the height of market volatility. Breakeven rates increased as deflationary concerns moderated.
- Inflation expectations have risen abruptly in recent months to slightly above long-term averages, with the vaccine roll-out and expected additional fiscal stimulus as key drivers.
- Looking forward, the track of economic growth and the inflationary effects of the unprecedented US fiscal response will be key issues. Additionally, changes to Fed policy focused on an average inflation target may play a role in the inflation market dynamics going forward.

¹ Source: Bloomberg. Data is as of March 31, 2021.

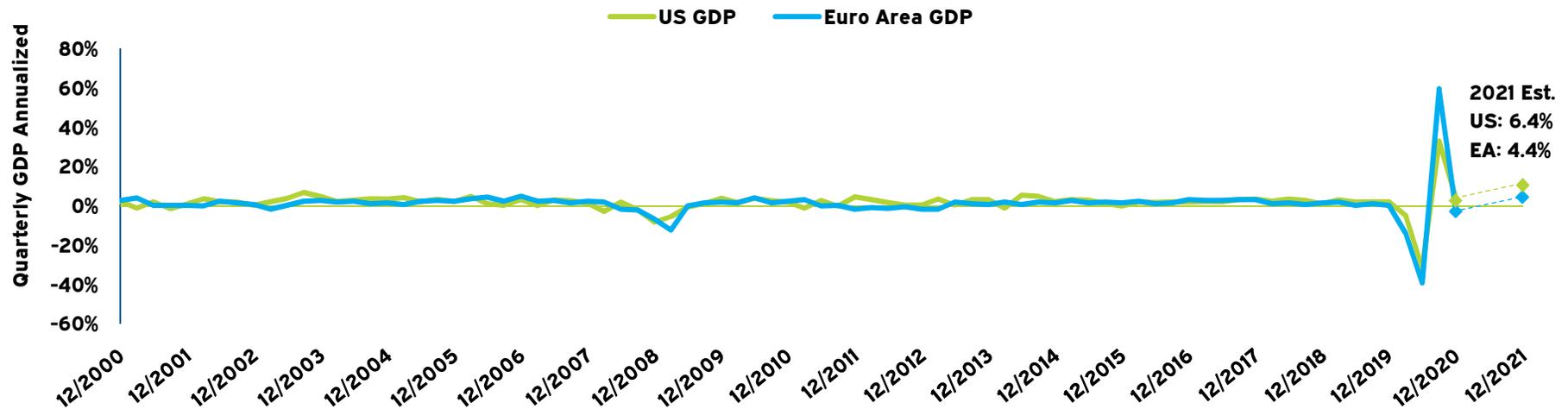
Credit Spreads (High Yield & Investment Grade)¹



- Credit spreads (the spread above a comparable maturity Treasury) for investment grade and high yield corporate debt widened sharply at the start of the pandemic as investors sought safety.
- Policy support, the search for yield in the low rate environment, and recent increases in Treasury rates have led to a decline in credit spreads to below long-term averages, particularly for high yield.

¹ Source: Bloomberg. High Yield represents US Corporate High Yield average OAS. Investment grade represents liquid investment grade corporate average OAS. Data is as of March 31, 2021.

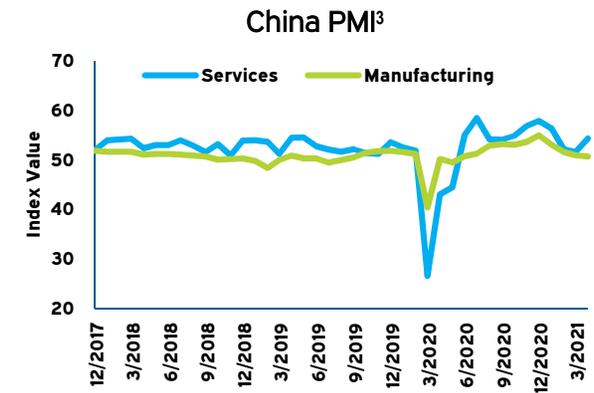
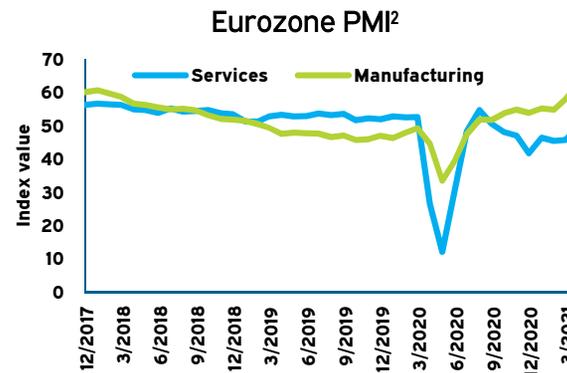
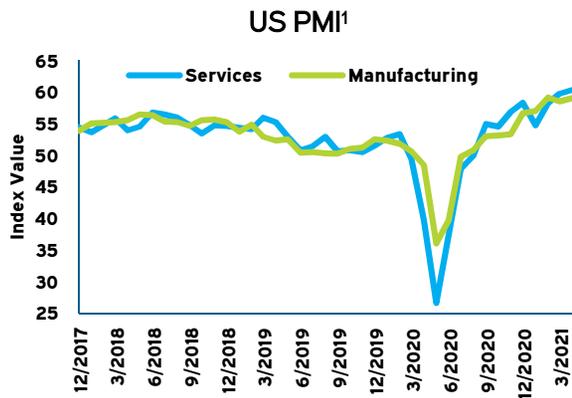
GDP Data Shows Projected Improvements in 2021¹



- The global economy faced major recessionary pressures last year, but significant optimism remains for improvements in 2021 as economies are gradually reopening. The IMF is forecasting US 2021 growth at 6.4% and 2022 growth at 3.5%. The IMF has projected 4.4% euro area growth for 2021 and 3.8% in 2022
- Historic declines in US and European growth during the second quarter were followed by record increases in the third quarter of 2020, due to pent-up demand from the lockdown measures earlier in the year.
- Fourth quarter 2020 US GDP growth was 4.1% (QoQ annualized). Full year US GDP growth declined 2.4%, better than the IMF's forecasted decline of 3.4%.
- In the euro area, increased virus cases and a return to restrictions weighed on fourth quarter growth (-2.8% QoQ annualized). For the year, the euro area economy declined 4.9%, worse than the US, but also ahead of forecasts of a 7.2% decline.

¹ Source: Bloomberg, and IMF; Euro Area figures annualized by Meketa. Projections via April 2021 IMF World Economic Outlook and represent annual numbers.

Global PMIs



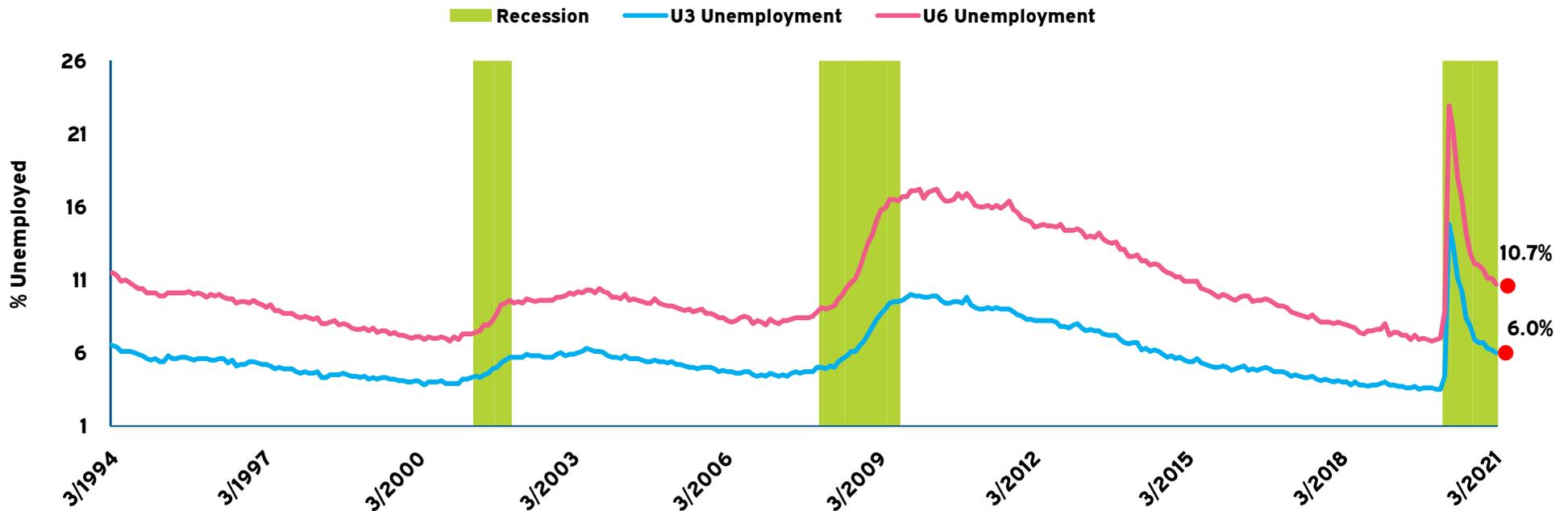
- Purchasing Managers Indices (PMI), based on surveys of private sector companies, initially collapsed across the world to record lows, as closed economies depressed output, new orders, production, and employment.
- Readings below 50 represent contractions across underlying components and are a leading indicator of economic activity, including the future paths of GDP, employment, and industrial production.
- After a period of underperformance, US services and manufacturing are accelerating. In Europe, manufacturing continues to improve, led by Germany, with services lagging given on-going restrictions. After a notable return to full economic activity in the second half of 2020, the Chinese economy has stabilized in positive territory.

¹ Source: Bloomberg. US Markit Services and Manufacturing PMI. Data is as of March 2021.

² Source: Bloomberg. Eurozone Markit Services and Manufacturing PMI. Data is as of March 2021.

³ Source: Bloomberg. Caixin Services and Manufacturing PMI. Data is as of March 2021.

US Unemployment¹

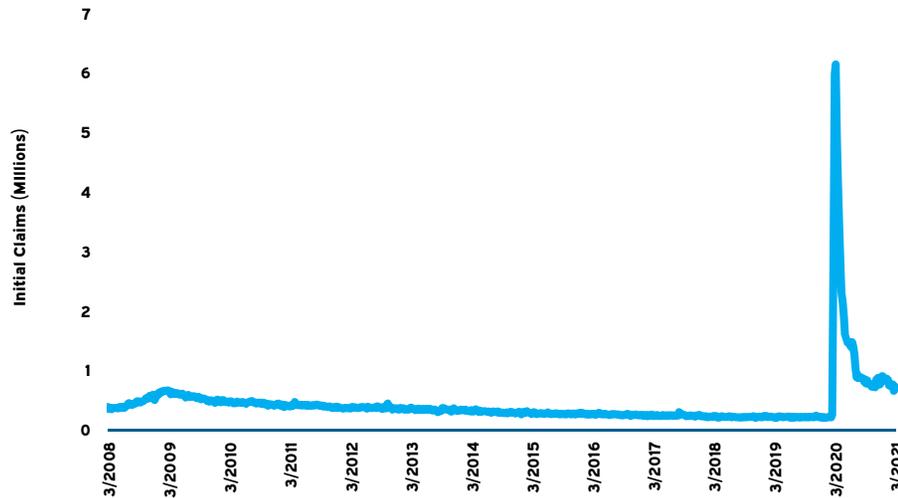


- In March, the unemployment rate (U3) continued its steep decline from the April 2020 peak of 14.7%, falling to 6.0%.
- The broader measure of unemployment (U6) that includes discouraged and underemployed workers is much higher at 10.7%, showing further evidence of the slack in the labor market.
- Despite recent improvements, unemployment levels remain above pre-virus readings and are likely higher than reported, as the total labor force participation rate remains below pre-COVID levels.
- A counterforce to the recent inflation concerns remains the slack in the labor market and corresponding weak wage pressures.

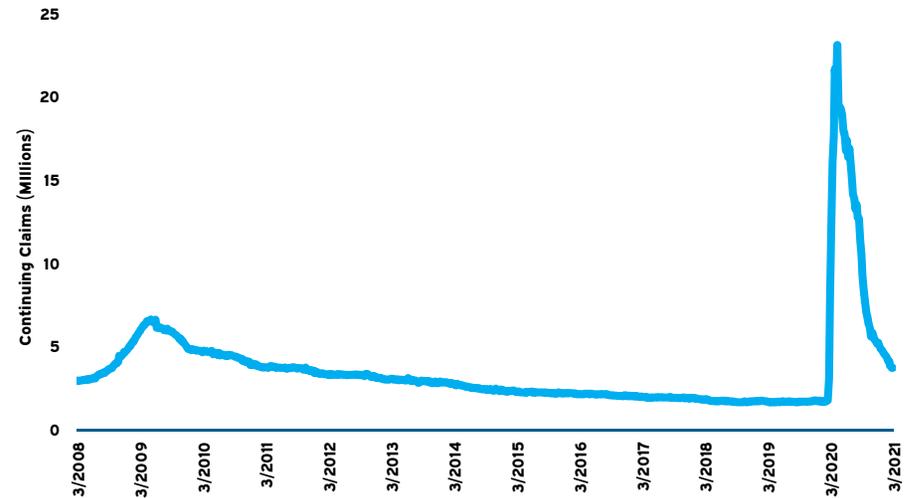
¹ Source: Bloomberg. Data is as of March 31, 2021. Bars represent recessions as observed by the National Bureau of Economic Research.

US Jobless Claims

US Initial Jobless Claims¹



Continuing Claims²

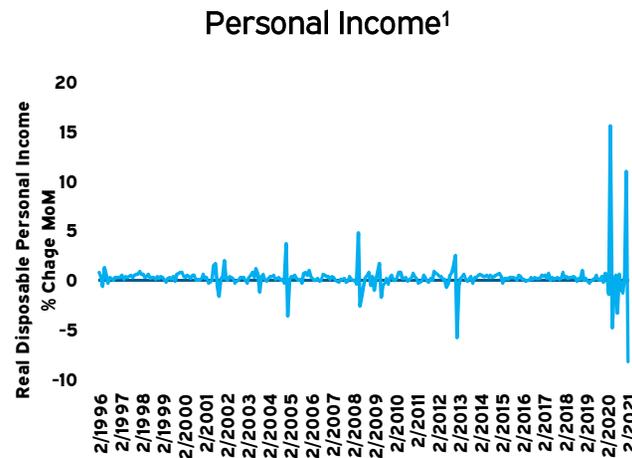


- Since the start of the crisis, ~78 million people filed for initial unemployment. This level is approaching four times the 22 million jobs added since the GFC, highlighting the unprecedented impact of the virus.
- Despite the stabilization in initial jobless claims to below one million per week, levels remain near the worst reading during the Global Financial Crisis.
- Continuing jobless claims (i.e., those currently receiving benefits) have also declined from record levels but remain elevated at 3.7 million.

¹ Source: Bloomberg. First reading of seasonally adjusted initial jobless claims. Data is as of March 26, 2021.

² Source: Bloomberg. US Continuing Jobless Claims SA. Data is as of March 26, 2021.

Savings, Wages and Spending



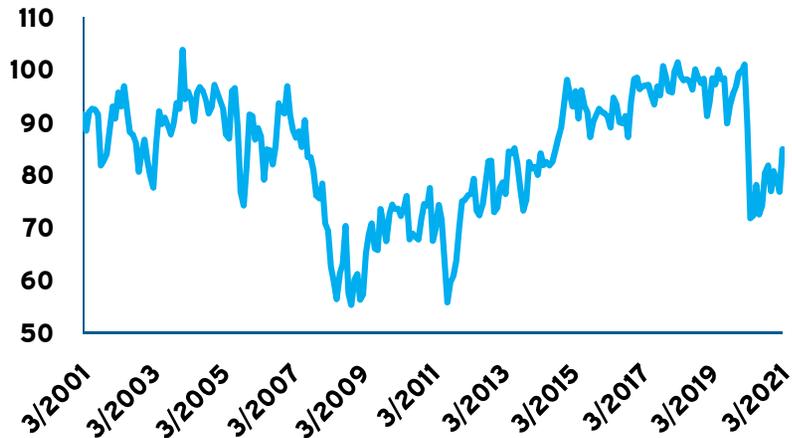
- Fiscal programs including stimulus checks, enhanced unemployment benefits, and loans to small businesses through the Paycheck Protection Program (PPP) have largely supported income levels through the shutdown.
- While estimates of personal income have been extremely volatile since 2020, wage growth has remained relatively stable.
- Despite the income support, the savings rate increased due to the decline in consumer spending, driven by the initial lock-down of the economy, and by uncertainties about the future of the job market and stimulus programs.
- More recently, the savings rate declined from its peak as spending increased with the economy slowly reopening. Going forward, questions remain about how consumers will use the recently approved stimulus programs with concerns over the potential inflationary impacts.

¹ Source: Bloomberg. Latest data is as of February 2021.

² Source: Bloomberg. Represents Atlanta FED wage growth tracker. Latest data is as of March 2021.

Sentiment Indicators

University of Michigan Consumer Sentiment¹



Small Business Confidence²

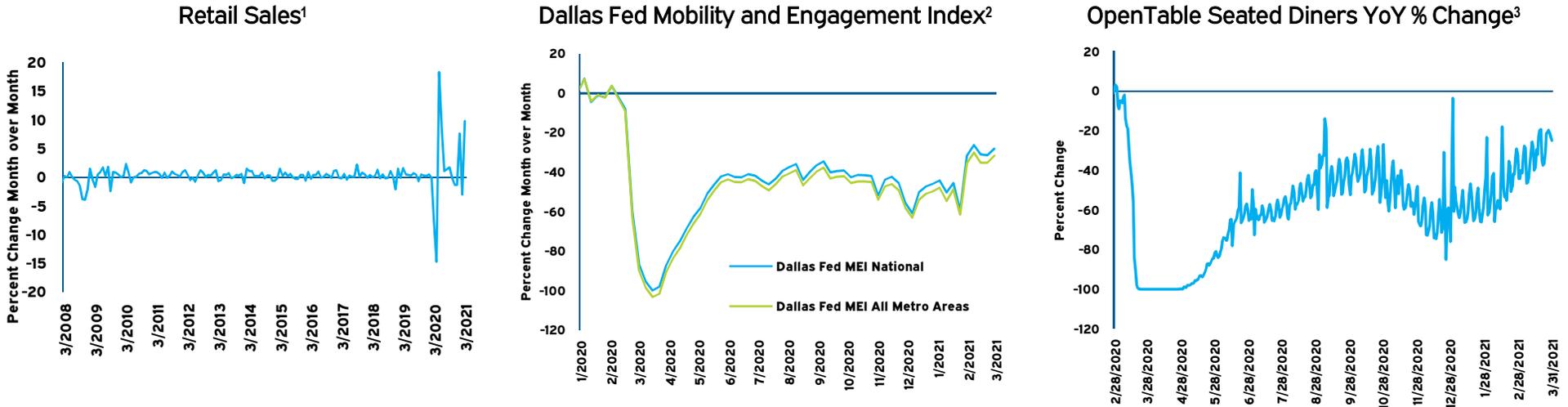


- The attitudes of businesses and consumers are useful indicators of future economic activity.
- Consumer spending comprises close to 70% of US GDP, making the attitudes of consumers an important driver of economic growth. Additionally, small businesses generate around half of US GDP, making sentiment in that segment important.
- Sentiment indicators showed improvements as the economy re-opened, particularly for small businesses. Increasing cases, including from new variants, and the initial slow vaccine rollout have recently weighed on short-term sentiment. This trend could change based on improvements in vaccine distribution and the recent fiscal stimulus.

¹ Source: Bloomberg. University of Michigan Consumer Sentiment Index. Data is as of March 31, 2021.

² Source: Bloomberg. NFIB Small Business Optimism Index. Data is as of March 31, 2021.

US Consumers are beginning to venture out again



- There have been improvements in high frequency data, but overall levels remain well below historical averages, and have slowed in some instances given the recent spike in cases.
- Generally, people have become more active as restrictions eased and stores reopened. Retail sales recovered from a record decline with five consecutive months of growth, and notably beat estimates for March as consumers spent recently received stimulus checks.
- Restaurants saw initial improvements before declining with the fall spike in cases and rising again after the holidays. In-store dining has been cited as a key contributor to increases in infections.

¹ Source: Bloomberg. Data is as of March 31, 2021 and represents the US Retail Sales SA MoM%.

² Source: Bloomberg. Data is as of March 26, 2021 and represents the deviation from normal mobility behaviors induced by COVID-19 (formerly the "Social Distancing Index"). The index represents a weighted average of various lengths of time that a mobile device, like a cell phone, leaves its "home" or place of residence, and/or how long a device stays at home. A decline in this index represents a mobile device at home for a longer period than average.

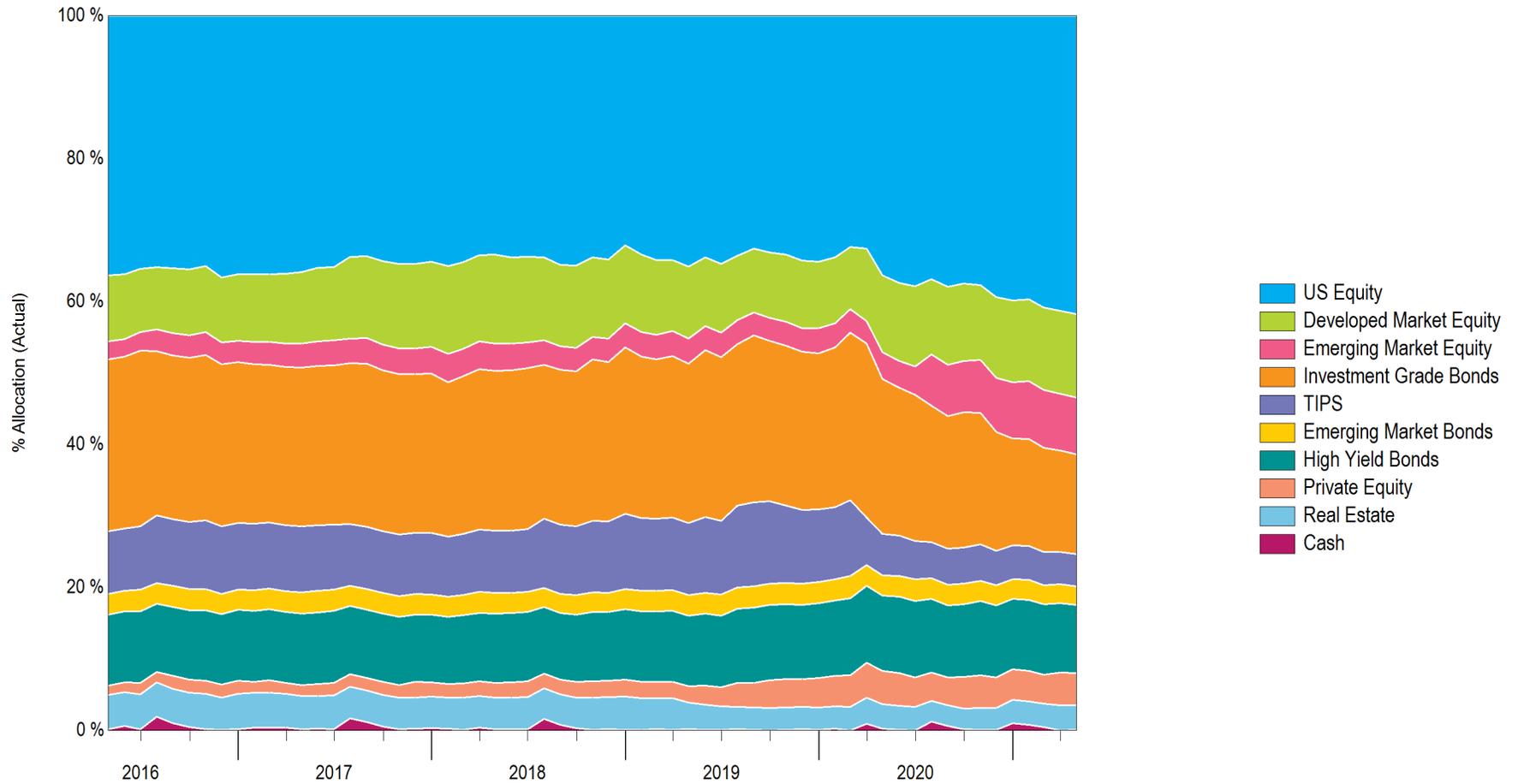
³ Source: Bloomberg. This data shows year-over-year seated diners at restaurants on the OpenTable network across all channels: online reservations, phone reservations, and walk-ins. Only states or cities with 50+ restaurants in the sample are included. All such restaurants on the OpenTable network in either period are included. Data is as of March 31, 2021. Index start date 2/19/20.

First Quarter 2021 Investment Review

Retirement System Summary

Allocation vs. Targets and Policy				
	Current Balance	Current Allocation	Policy	Policy Range
US Equity	\$92,289,146	42%	38%	28% - 42%
Developed Market Equity	\$25,858,723	12%	12%	5% - 15%
Emerging Market Equity	\$17,516,671	8%	10%	1% - 12%
Investment Grade Bonds	\$30,889,348	14%	12%	10% - 25%
TIPS	\$9,986,646	5%	0%	0% - 10%
Emerging Market Bonds	\$5,804,728	3%	2%	1% - 5%
High Yield Bonds	\$21,152,389	10%	5%	5% - 12%
Private Equity	\$9,912,970	4%	5%	3% - 7%
Real Estate	\$7,554,979	3%	7%	2% - 10%
Infrastructure	--	--	5%	0% - 5%
Private Debt	--	--	4%	0% - 5%
Cash	\$240,111	0%	0%	0% - 5%
Total	\$221,205,711	100%	100%	

Asset Allocation History
5 Years Ending April 30, 2021



Asset Class Performance Summary											
	Market Value (\$)	% of Portfolio	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
Total Retirement System (net)	221,205,711	100.0	3.0	6.1	30.1	11.1	10.1	8.0	7.0	8.0	Jul-88
<i>55% MSCI World & 45% Barclays Aggregate</i>			2.9	4.1	23.1	10.5	9.3	7.2	6.2	7.3	Jul-88
<i>65% MSCI World / 35% Barclays Aggregate</i>			3.3	5.3	27.8	11.3	10.4	7.9	6.4	7.5	Jul-88
Domestic Equity Assets (net)	92,289,146	41.7	5.1	11.7	51.5	15.2	15.0	12.4	7.7	9.5	Oct-06
<i>Russell 3000</i>			5.2	11.8	50.9	18.9	17.7	14.0	8.7	10.5	Oct-06
International Developed Markets Equity Assets (net)	25,858,723	11.7	3.1	6.7	39.9	6.5	9.1	4.3	--	3.8	Oct-06
<i>MSCI EAFE</i>			3.0	6.6	39.9	6.3	8.9	5.2	5.3	4.1	Oct-06
International Emerging Markets Equity Assets (net)	17,516,671	7.9	2.8	5.4	53.6	9.2	13.4	--	--	9.1	Jan-15
<i>MSCI Emerging Markets</i>			2.5	4.8	48.7	7.5	12.5	3.6	9.9	8.0	Jan-15
Investment Grade Bonds Assets (net)	30,889,348	14.0	0.8	-2.6	-0.2	5.2	3.2	3.4	4.6	6.0	Jul-88
<i>BBgBarc US Aggregate TR</i>			0.8	-2.6	-0.3	5.2	3.2	3.4	4.6	6.1	Jul-88
High Yield Bond Assets (net)	21,152,389	9.6	0.9	1.4	16.7	6.5	6.5	5.8	--	6.7	Sep-03
<i>BBgBarc US High Yield TR</i>			1.1	1.9	19.7	7.0	7.5	6.4	7.7	7.8	Sep-03
TIPS Assets (net)	9,986,646	4.5	1.4	-0.1	6.0	6.1	4.0	3.3	--	4.1	Oct-05
<i>BBgBarc US TIPS TR</i>			1.4	-0.1	6.1	6.2	4.1	3.3	5.1	4.1	Oct-05
Emerging Market Debt Assets (net)	5,804,728	2.6	2.6	-2.1	20.1	5.0	5.7	--	--	5.4	Jan-15
<i>JP Morgan EMBI Global Diversified</i>			2.2	-2.4	16.0	5.3	5.1	5.7	8.2	5.3	Jan-15
Open-Ended Real Estate (net)	5,784,940	2.6	0.0	2.2	3.1	5.9	6.8	10.1	6.8	7.9	Oct-95
<i>NCREIF ODCE</i>			0.0	2.1	2.3	4.9	6.2	9.7	7.5	8.7	Oct-95
Total Closed End Real Estate (net)	1,770,039	0.8	0.0	-4.6	-8.0	-18.5	-7.5	--	--	1.7	Jan-13
Private Equity Assets (net)	9,912,970	4.5	0.0	12.7	31.5	20.2	11.0	8.6	--	7.3	Oct-06
Cash (net)	240,111	0.1									

Trailing Performance													
	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date	
Total Retirement System	221,205,711	100.0	--	3.0	6.1	30.1	11.1	10.1	8.0	7.0	8.0	Jul-88	
55% MSCI World & 45% Barclays Aggregate				2.9	4.1	23.1	10.5	9.3	7.2	6.2	7.3	Jul-88	
65% MSCI World / 35% Barclays Aggregate				3.3	5.3	27.8	11.3	10.4	7.9	6.4	7.5	Jul-88	
Domestic Equity Assets	92,289,146	41.7	41.7	5.1	11.7	51.5	15.2	15.0	12.4	7.7	9.5	Oct-06	
Russell 3000				5.2	11.8	50.9	18.9	17.7	14.0	8.7	10.5	Oct-06	
RhumbLine S&P 500 Index	36,267,493	16.4	39.3	5.3	11.8	45.8	18.6	17.4	14.1	8.4	7.7	Mar-99	
S&P 500				5.3	11.8	46.0	18.7	17.4	14.2	8.3	7.7	Mar-99	
Frontier Capital Appreciation	25,584,432	11.6	27.7	3.7	14.3	80.2	16.0	16.2	--	--	14.1	Feb-13	
Russell 2500 Growth				3.5	6.1	67.3	21.6	20.5	14.2	10.2	16.5	Feb-13	
RhumbLine HEDI	30,437,221	13.8	33.0	5.7	9.4	--	--	--	--	--	23.8	Nov-20	
Russell 1000 HEDI Moderate GR USD				5.7	9.4	40.8	19.8	17.7	15.4	10.6	23.9	Nov-20	
International Developed Markets Equity Assets	25,858,723	11.7	11.7	3.1	6.7	39.9	6.5	9.1	4.3	--	3.8	Oct-06	
MSCI EAFE				3.0	6.6	39.9	6.3	8.9	5.2	5.3	4.1	Oct-06	
RhumbLine MSCI EAFE Index	25,858,723	11.7	100.0	3.1	6.7	39.9	6.5	9.1	--	--	5.3	Aug-14	
MSCI EAFE				3.0	6.6	39.9	6.3	8.9	5.2	5.3	5.1	Aug-14	

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
International Emerging Markets Equity Assets	17,516,671	7.9	7.9	2.8	5.4	53.6	9.2	13.4	--	--	9.1	Jan-15
<i>MSCI Emerging Markets</i>				2.5	4.8	48.7	7.5	12.5	3.6	9.9	8.0	Jan-15
DFA Emerging Markets	9,530,041	4.3	54.4	2.7	8.1	54.9	6.5	11.3	--	--	7.5	Jan-15
<i>MSCI Emerging Markets</i>				2.5	4.8	48.7	7.5	12.5	3.6	9.9	8.0	Jan-15
Driehaus Emerging Market Equity	7,986,630	3.6	45.6	2.9	2.3	51.8	11.5	15.1	--	--	10.5	Jan-15
<i>MSCI Emerging Markets</i>				2.5	4.8	48.7	7.5	12.5	3.6	9.9	8.0	Jan-15
Investment Grade Bonds Assets	30,889,348	14.0	14.0	0.8	-2.6	-0.2	5.2	3.2	3.4	4.6	6.0	Jul-88
<i>BBgBarc US Aggregate TR</i>				0.8	-2.6	-0.3	5.2	3.2	3.4	4.6	6.1	Jul-88
SSgA U.S. Aggregate Bond Index	30,889,348	14.0	100.0	0.8	-2.6	-0.2	5.2	3.2	3.4	4.6	4.6	May-01
<i>BBgBarc US Aggregate TR</i>				0.8	-2.6	-0.3	5.2	3.2	3.4	4.6	4.6	May-01
High Yield Bond Assets	21,152,389	9.6	9.6	0.9	1.4	16.7	6.5	6.5	5.8	--	6.7	Sep-03
<i>BBgBarc US High Yield TR</i>				1.1	1.9	19.7	7.0	7.5	6.4	7.7	7.8	Sep-03
Shenkman Capital	21,152,389	9.6	100.0	0.9	1.4	16.7	6.5	6.5	5.8	--	6.7	Apr-06
<i>BBgBarc US High Yield TR</i>				1.1	1.9	19.7	7.0	7.5	6.4	7.7	7.4	Apr-06
TIPS Assets	9,986,646	4.5	4.5	1.4	-0.1	6.0	6.1	4.0	3.3	--	4.1	Oct-05
<i>BBgBarc US TIPS TR</i>				1.4	-0.1	6.1	6.2	4.1	3.3	5.1	4.1	Oct-05
SSgA TIPS Index-NL	9,986,646	4.5	100.0	1.4	-0.1	6.0	6.1	4.0	3.3	--	4.1	Oct-05
<i>BBgBarc US TIPS TR</i>				1.4	-0.1	6.1	6.2	4.1	3.3	5.1	4.1	Oct-05

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
Emerging Market Debt Assets	5,804,728	2.6	2.6	2.6	-2.1	20.1	5.0	5.7	--	--	5.4	Jan-15
<i>JP Morgan EMBI Global Diversified</i>				2.2	-2.4	16.0	5.3	5.1	5.7	8.2	5.3	Jan-15
Payden Emerging Market Bond <i>JP Morgan EMBI Global Diversified</i>	5,804,728	2.6	100.0	2.6	-2.1	20.1	5.0	5.7	--	--	5.4	Jan-15
				2.2	-2.4	16.0	5.3	5.1	5.7	8.2	5.3	Jan-15
Open-Ended Real Estate	5,784,940	2.6	2.6	0.0	2.2	3.1	5.9	6.8	10.1	6.8	7.9	Oct-95
<i>NCREIF ODCE</i>				0.0	2.1	2.3	4.9	6.2	9.7	7.5	8.7	Oct-95
Clarion Partners <i>NCREIF ODCE</i>	5,784,940	2.6	100.0	0.0	2.2	3.1	5.9	6.8	10.1	--	7.1	Oct-02
				0.0	2.1	2.3	4.9	6.2	9.7	7.5	7.7	Oct-02
Total Closed End Real Estate	1,770,039	0.8	0.8	0.0	-4.6	-8.0	-18.5	-7.5	--	--	1.7	Jan-13
Rockwood Capital Real Estate Partners Fund XI, L.P.	1,770,039	0.8	100.0	0.0	-4.6	-4.6	--	--	--	--	-3.3	Dec-19
Private Equity Assets	9,912,970	4.5	4.5	0.0	12.7	31.5	20.2	11.0	8.6	--	7.3	Oct-06
North American Strategic Partners 2006	366,535	0.2	3.7									
Ironsides Partnership Fund IV	2,375,102	1.1	24.0									
Ironsides Direct Investment Fund IV	2,118,593	1.0	21.4									
Ironsides Partnership Fund V, L.P.	488,614	0.2	4.9									
Ironsides Direct Investment Fund V, L.P.	2,670,308	1.2	26.9									
HarbourVest 2019 Global Fund	1,893,818	0.9	19.1									
Cash	240,111	0.1	0.1									

Private Equity market values are as of December 31, 2020 and adjusted for subsequent flows.

	Calendar Year Performance									
	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)
Total Retirement System	14.2	17.5	-4.5	13.0	8.7	-0.2	6.3	14.0	10.9	2.4
<i>55% MSCI World & 45% Barclays Aggregate</i>	12.9	19.1	-4.6	13.6	5.5	0.0	5.5	13.0	10.7	0.7
<i>65% MSCI World / 35% Barclays Aggregate</i>	13.7	21.0	-5.5	15.5	5.9	-0.2	5.4	15.9	11.9	-0.7
Domestic Equity Assets	13.4	27.6	-6.9	20.1	14.6	-1.6	13.1	33.1	15.3	0.0
<i>Russell 3000</i>	20.9	31.0	-5.2	21.1	12.7	0.5	12.6	33.6	16.4	1.0
RhumbLine S&P 500 Index	18.3	31.4	-4.4	21.8	11.9	1.4	13.6	32.2	16.0	2.1
<i>S&P 500</i>	18.4	31.5	-4.4	21.8	12.0	1.4	13.7	32.4	16.0	2.1
Frontier Capital Appreciation	18.1	28.9	-13.9	19.1	20.5	-6.5	12.4	--	--	--
<i>Russell 2500 Growth</i>	40.5	32.7	-7.5	24.5	9.7	-0.2	7.1	40.6	16.1	-1.6
RhumbLine HEDI	--	--	--	--	--	--	--	--	--	--
<i>Russell 1000 HEDI Moderate GR USD</i>	18.5	32.7	-0.9	23.4	11.4	4.8	15.4	30.9	13.9	9.0
International Developed Markets Equity Assets	7.9	22.3	-13.5	24.9	1.4	-0.8	-8.7	21.2	15.0	-14.1
<i>MSCI EAFE</i>	7.8	22.0	-13.8	25.0	1.0	-0.8	-4.9	22.8	17.3	-12.1
RhumbLine MSCI EAFE Index	7.9	22.3	-13.5	24.9	1.4	-0.8	--	--	--	--
<i>MSCI EAFE</i>	7.8	22.0	-13.8	25.0	1.0	-0.8	-4.9	22.8	17.3	-12.1

Total Retirement System | As of April 30, 2021

	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)
International Emerging Markets Equity Assets	21.1	20.7	-15.4	39.7	9.4	-12.7	--	--	--	--
<i>MSCI Emerging Markets</i>	18.3	18.4	-14.6	37.3	11.2	-14.9	-2.2	-2.6	18.2	-18.4
DFA Emerging Markets	13.9	16.0	-15.2	36.6	12.4	-14.9	--	--	--	--
<i>MSCI Emerging Markets</i>	18.3	18.4	-14.6	37.3	11.2	-14.9	-2.2	-2.6	18.2	-18.4
Driehaus Emerging Market Equity	28.0	25.3	-15.6	43.0	6.5	-10.6	--	--	--	--
<i>MSCI Emerging Markets</i>	18.3	18.4	-14.6	37.3	11.2	-14.9	-2.2	-2.6	18.2	-18.4
Investment Grade Bonds Assets	7.5	8.7	0.0	3.6	2.6	0.6	6.0	-2.0	4.3	7.8
<i>BBgBarc US Aggregate TR</i>	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0	4.2	7.8
SSgA U.S. Aggregate Bond Index	7.5	8.7	0.0	3.6	2.6	0.6	6.0	-2.0	4.3	7.8
<i>BBgBarc US Aggregate TR</i>	7.5	8.7	0.0	3.5	2.6	0.5	6.0	-2.0	4.2	7.8
High Yield Bond Assets	6.3	14.0	-1.8	6.5	12.6	-2.3	2.9	6.4	12.4	6.0
<i>BBgBarc US High Yield TR</i>	7.1	14.3	-2.1	7.5	17.1	-4.5	2.5	7.4	15.8	5.0
Shenkman Capital	6.3	14.0	-1.8	6.5	12.6	-2.3	2.9	6.4	12.4	6.0
<i>BBgBarc US High Yield TR</i>	7.1	14.3	-2.1	7.5	17.1	-4.5	2.5	7.4	15.8	5.0
TIPS Assets	10.9	8.4	-1.4	3.0	4.7	-1.4	3.6	-8.6	6.9	13.5
<i>BBgBarc US TIPS TR</i>	11.0	8.4	-1.3	3.0	4.7	-1.4	3.6	-8.6	7.0	13.6
SSgA TIPS Index-NL	10.9	8.4	-1.4	3.0	4.7	-1.4	3.6	-8.6	6.9	13.5
<i>BBgBarc US TIPS TR</i>	11.0	8.4	-1.3	3.0	4.7	-1.4	3.6	-8.6	7.0	13.6
Emerging Market Debt Assets	6.2	16.5	-7.0	12.0	11.5	-0.8	--	--	--	--
<i>JP Morgan EMBI Global Diversified</i>	5.3	15.0	-4.3	10.3	10.2	1.2	7.4	-5.3	17.4	7.3
Payden Emerging Market Bond	6.2	16.5	-7.0	12.0	11.5	-0.8	--	--	--	--
<i>JP Morgan EMBI Global Diversified</i>	5.3	15.0	-4.3	10.3	10.2	1.2	7.4	-5.3	17.4	7.3

Total Retirement System | As of April 30, 2021

	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)
Open-Ended Real Estate	2.2	7.3	8.6	7.9	9.1	15.7	13.2	12.8	10.9	18.7
<i>NCREIF ODCE</i>	1.2	5.3	8.3	7.6	8.8	15.0	12.5	13.9	10.9	16.0
Clarion Partners	2.2	7.3	8.6	7.9	9.1	15.7	13.2	12.8	10.9	18.7
<i>NCREIF ODCE</i>	1.2	5.3	8.3	7.6	8.8	15.0	12.5	13.9	10.9	16.0
Total Closed End Real Estate	-5.3	-38.2	-1.8	15.1	9.5	23.8	13.3	18.8	--	--
Rockwood Capital Real Estate Partners Fund XI, L.P.	0.0	--	--	--	--	--	--	--	--	--
Private Equity Assets	23.2	17.7	10.2	-5.3	-2.8	8.6	5.5	9.1	12.2	3.6
North American Strategic Partners 2006										
Ironsides Partnership Fund IV										
Ironsides Direct Investment Fund IV										
Ironsides Partnership Fund V, L.P.										
Ironsides Direct Investment Fund V, L.P.										
HarbourVest 2019 Global Fund										
Cash										

Statistics Summary

5 Years Ending April 30, 2021

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Total Retirement System	10.1%	8.5%	0.4	1.0	1.1	1.7%
55% MSCI World & 45% Barclays Aggregate	9.3%	8.3%	--	1.0	1.0	0.0%
Equity Assets	13.6%	15.4%	-1.3	1.0	0.8	3.1%
Russell 3000	17.7%	15.6%	--	1.0	1.1	0.0%
Domestic Equity Assets	15.0%	16.3%	-1.0	1.0	0.9	2.7%
Russell 3000	17.7%	15.6%	--	1.0	1.1	0.0%
RhumbLine S&P 500 Index	17.4%	15.0%	-1.2	1.0	1.1	0.0%
S&P 500	17.4%	15.0%	--	1.0	1.1	0.0%
Frontier Capital Appreciation	16.2%	23.0%	-0.6	1.1	0.7	7.1%
Russell 2500 Growth	20.5%	19.5%	--	1.0	1.0	0.0%
RhumbLine HEDI	--	--	--	--	--	--
Russell 1000 HEDI Moderate GR USD	17.7%	13.9%	--	1.0	1.2	0.0%
International Developed Markets Equity Assets	9.1%	14.6%	0.8	1.0	0.5	0.2%
MSCI EAFE	8.9%	14.7%	--	1.0	0.5	0.0%
RhumbLine MSCI EAFE Index	9.1%	14.6%	0.8	1.0	0.5	0.2%
MSCI EAFE	8.9%	14.7%	--	1.0	0.5	0.0%
International Emerging Markets Equity Assets	13.4%	16.3%	0.3	1.0	0.8	2.5%
MSCI Emerging Markets	12.5%	16.4%	--	1.0	0.7	0.0%

RhumbLine HEDI funded on 10/5/2020. Statistics will be reflected after first full calendar year.

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
DFA Emerging Markets	11.3%	17.6%	-0.3	1.0	0.6	3.8%
MSCI Emerging Markets	12.5%	16.4%	--	1.0	0.7	0.0%
Driehaus Emerging Market Equity	15.1%	15.6%	0.7	0.9	0.9	4.0%
MSCI Emerging Markets	12.5%	16.4%	--	1.0	0.7	0.0%
Investment Grade Bonds Assets	3.2%	3.3%	-0.1	1.0	0.6	0.1%
BBgBarc US Aggregate TR	3.2%	3.3%	--	1.0	0.6	0.0%
SSgA U.S. Aggregate Bond Index	3.2%	3.3%	-0.1	1.0	0.6	0.1%
BBgBarc US Aggregate TR	3.2%	3.3%	--	1.0	0.6	0.0%
High Yield Bond Assets	6.5%	6.7%	-1.0	0.9	0.8	1.0%
BBgBarc US High Yield TR	7.5%	7.4%	--	1.0	0.9	0.0%
Shenkman Capital	6.5%	6.7%	-1.0	0.9	0.8	1.0%
BBgBarc US High Yield TR	7.5%	7.4%	--	1.0	0.9	0.0%
TIPS Assets	4.0%	3.6%	-1.2	1.0	0.8	0.1%
BBgBarc US TIPS TR	4.1%	3.6%	--	1.0	0.8	0.0%
SSgA TIPS Index-NL	4.0%	3.6%	-1.2	1.0	0.8	0.1%
BBgBarc US TIPS TR	4.1%	3.6%	--	1.0	0.8	0.0%
Emerging Market Debt Assets	5.7%	10.4%	0.3	1.1	0.4	2.1%
JP Morgan EMBI Global Diversified	5.1%	9.1%	--	1.0	0.4	0.0%
Payden Emerging Market Bond	5.7%	10.4%	0.3	1.1	0.4	2.1%
JP Morgan EMBI Global Diversified	5.1%	9.1%	--	1.0	0.4	0.0%

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Open-Ended Real Estate	6.8%	3.3%	0.7	1.1	1.7	0.8%
NCREIF ODCE	6.2%	3.0%	--	1.0	1.7	0.0%
Clarion Partners	6.8%	3.3%	0.7	1.1	1.7	0.8%
NCREIF ODCE	6.2%	3.0%	--	1.0	1.7	0.0%
Total Closed End Real Estate	-7.5%	21.7%	-0.6	0.4	-0.4	21.7%
NCREIF ODCE	6.2%	3.0%	--	1.0	1.7	0.0%
Rockwood Capital Real Estate Partners Fund XI, L.P.	--	--	--	--	--	--
NCREIF-ODCE	6.2%	3.0%	--	1.0	1.7	0.0%
Comerica Short Term Fund	0.4%	0.2%	-2.0	-0.1	-3.1	0.3%
91 Day T-Bills	1.1%	0.2%	--	1.0	0.0	0.0%

Rockwood Capital XI statistics will be reflected after first full calendar year.

Annual Investment Expense Analysis				
As Of April 30, 2021				
Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Equity Assets		\$135,664,540		
Domestic Equity Assets		\$92,289,146		
RhumbLine S&P 500 Index	0.07% of First 25.0 Mil, 0.05% of Next 25.0 Mil, 0.04% Thereafter	\$36,267,493	\$23,134	0.06%
Frontier Capital Appreciation	0.79% of Assets	\$25,584,432	\$202,117	0.79%
RhumbLine HEDI	0.05% of Assets	\$30,437,221	\$15,219	0.05%
International Equity Assets		\$43,375,394		
International Developed Markets Equity Assets		\$25,858,723		
RhumbLine MSCI EAFE Index	0.08% of First 25.0 Mil, 0.07% of Next 25.0 Mil, 0.05% Thereafter	\$25,858,723	\$20,601	0.08%
International Emerging Markets Equity Assets		\$17,516,671		
DFA Emerging Markets	0.52% of Assets	\$9,530,041	\$49,556	0.52%
Driehaus Emerging Market Equity	0.90% of Assets	\$7,986,630	\$71,880	0.90%
Fixed Income Assets		\$67,833,110		
Investment Grade Bonds Assets		\$30,889,348		
SSgA U.S. Aggregate Bond Index	0.04% of Assets	\$30,889,348	\$12,356	0.04%
High Yield Bond Assets		\$21,152,389		
Shenkman Capital	0.45% of Assets	\$21,152,389	\$95,186	0.45%
TIPS Assets		\$9,986,646		
SSgA TIPS Index-NL	0.04% of Assets	\$9,986,646	\$3,995	0.04%
Emerging Market Debt Assets		\$5,804,728		
Payden Emerging Market Bond	0.69% of Assets	\$5,804,728	\$40,053	0.69%

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Real Estate Assets		\$7,554,979		
Open-Ended Real Estate		\$5,784,940		
Clarion Partners	1.10% of Assets	\$5,784,940	\$63,634	1.10%
Total Closed End Real Estate		\$1,770,039		
Rockwood Capital Real Estate Partners Fund XI, L.P.		\$1,770,039		
Private Equity Assets		\$9,912,970		
North American Strategic Partners 2006	0.8% on drawn and undrawn capital less investments sold or written off 5% carried interest, 8% preferred return	\$366,535		
Ironsides Partnership Fund IV	0% Management fee, 8% Preferred Return, 5% Carried Interest	\$2,375,102		
Ironsides Direct Investment Fund IV	0.5% Management fee, 8% Preferred Return, 15% Carried Interest	\$2,118,593		
Ironsides Partnership Fund V, L.P.		\$488,614		
Ironsides Direct Investment Fund V, L.P.	0.5% Management fee, 8% preferred return, 15% carried interest	\$2,670,308		
HarbourVest 2019 Global Fund	0.69% average annual management fee; 8.0% preferred return on secondary and direct investments and with corresponding carried interest of 12.5% on secondary and direct investments	\$1,893,818		
Cash		\$240,111		
Comerica Short Term Fund		\$240,111		
Total		\$221,205,711	\$597,729	0.27%

IFM Review

IFM Global Infrastructure Fund (“GIF”)

Rating Criteria	Score	Rationale
Overall	Highly Advantageous	<ul style="list-style-type: none"> IFM is a leading core infrastructure manager with a long history and robust track record. GIF’s NAV as of December 31, 2020 is \$33.1 billion, representing 17 active investments. The Fund has displayed consistent historical performance, generating returns that fall in line with, and for some periods above, underwriting targets.
Organization	Highly Advantageous	<ul style="list-style-type: none"> IFM is a privately-owned, global asset management firm founded in 2004 with AUM of approximately \$116.8 billion across infrastructure, debt, listed equity, and private equity strategies. The Firm is based out of 10 international offices in Australia, Europe, North America, and Asia. GIF has deployed \$27.8 billion of capital since inception.
Team	Advantageous	<ul style="list-style-type: none"> The infrastructure team comprises more than 100 investment and asset management professionals, with significant prior experience and strong continuity at the Firm. The GIF investment team has 30 in North America, 26 in Europe, six in Asia, and 24 in Australia. The investment team has experienced meaningful turnover with seven senior-level departures occurring in recent years.
Investment Philosophy & Process	Advantageous	<ul style="list-style-type: none"> GIF pursues global investments in core infrastructure assets that display monopoly-like characteristics, strong market positions, reliable regulatory environments, and high barriers to entry, limited demand-elasticity, exposure to inflation and economic growth, and long lives. The investment team pursues large scale opportunities across several sectors including Transportation, Power, Utilities, and Telecommunications, among others. Existing investments have ranged between \$350 million and \$7 billion in size. The Fund will target net returns of 8% to 12% IRR over the long-term.
Performance	Highly Advantageous	<ul style="list-style-type: none"> Since inception in 2004, GIF has a gross IRR of 11.1%, cash yield of 6.1% and net TWR of 8.9% as of December 31, 2020. GIF has displayed consistent historical performance, generating returns that fall in line with underwriting targets.
Fees ¹	Highly Advantageous	<ul style="list-style-type: none"> Terms: 0.77% annual management fee based on net asset value; 8.0% preferred return; 10.0% carried interest.
Current Queue Estimate		<ul style="list-style-type: none"> 12-18 months

¹ Discounts available for large investors.

Fee

IFM	
Score	Highly Advantageous
Management Fee	0.77% of NAV
Preferred Return	8%
Carried Interest	10%

Performance

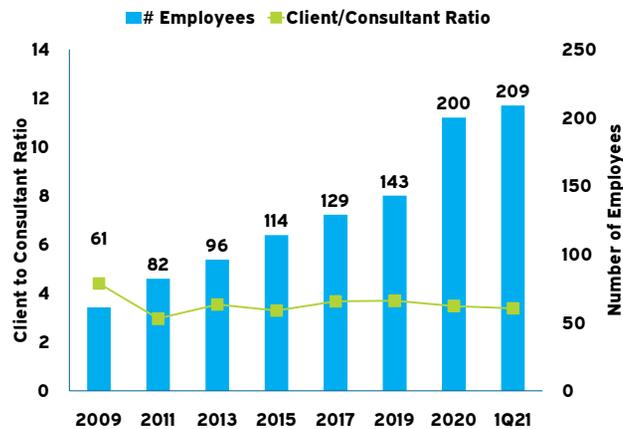
IFM	
Vintage	2004
Gross TWR	11.0%
Net TWR	8.9%
As of Date	12/31/20

Appendices

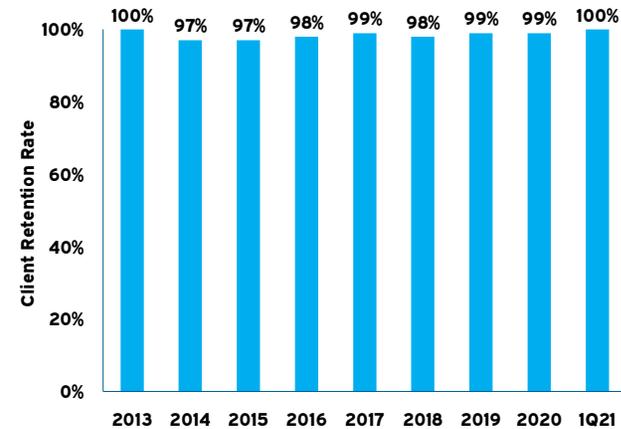
**Meketa Investment Group
Corporate Update**

- Staff of 215, including 142 investment professionals and 43 CFA Charterholders
- 220 clients, with over 350 funds throughout the United States
- Significant investment in staff and resources
- Offices in Boston, Chicago, Miami, New York, Portland (OR), San Diego, and London
- We advise on \$1.6 trillion in client assets
 - Over \$125 billion in assets committed to alternative investments
 - Private Equity
 - Infrastructure
 - Natural Resources
 - Real Estate
 - Hedge Funds
 - Commodities

Client to Consultant Ratio¹



Client Retention Rate²



Meketa Investment Group is proud to work for over 5 million American families everyday.

¹ On March 15, 2019, 31 employees joined the firm as part of the merger of Meketa Investment Group and Pension Consulting Alliance.

² Client Retention Rate is one minus the number of clients lost divided by the number of clients at prior year-end.

Asset Classes Followed Intensively by Meketa Investment Group

Domestic Equities	International Equities	Private Equity	Real Assets	Fixed Income	Hedge Funds
<ul style="list-style-type: none"> - Passive - Enhanced Index - Large Cap - Midcap - Small Cap - Microcap - 130/30 	<ul style="list-style-type: none"> - Large Cap Developed - Small Cap Developed - Emerging Markets - Frontier Markets 	<ul style="list-style-type: none"> - Buyouts - Venture Capital - Private Debt - Special Situations - Secondaries - Fund of Funds 	<ul style="list-style-type: none"> - Public REITs - Core Real Estate - Value Added Real Estate - Opportunistic Real Estate - Infrastructure - Timber - Natural Resources - Commodities 	<ul style="list-style-type: none"> - Short-Term - Core - Core Plus - TIPS - High Yield - Bank Loans - Distressed - Global - Emerging Markets 	<ul style="list-style-type: none"> - Long/Short Equity - Event Driven - Relative Value - Fixed Income Arbitrage - Multi Strategy - Market Neutral - Global Macro - Fund of Funds - Portable Alpha

Disclaimer, Glossary, and Notes

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PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

Credit Risk: Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security).

Duration: Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

Information Ratio: This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

Jensen's Alpha: A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk. $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} * (\text{market return} - \text{Risk Free Rate})]$.

Market Capitalization: For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

Market Weighted: Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

Maturity: The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

Prepayment Risk: The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

Price-Book Value (P/B) Ratio: The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

Price-Earnings (P/E) Ratio: A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about its future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

Quality Rating: The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

Sharpe Ratio: A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

STIF Account: Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

Standard Deviation: A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

Style: The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

Tracking Error: A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.

Yield to Maturity: The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a “basis book.” For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\% \text{ (discount)}}{5 \text{ (yrs. to maturity)}} = 1\% \text{ pro rata, plus } 5.26\% \text{ (current yield)} = 6.26\% \text{ (yield to maturity)}$$

Yield to Worst: The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

NCREIF Property Index (NPI): Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE): Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: [Investment Terminology](#), International Foundation of Employee Benefit Plans, 1999.
[The Handbook of Fixed Income Securities](#), Fabozzi, Frank J., 1991

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.