The Big Picture

Steepest Economic Decline Since World War II

According to the World Bank, the global economy is expected to shrink by about 5.2% in 2020 as a result of the coronavirus pandemic, making it one of the four most severe downturns in 150 years. Never before have so many countries entered a recession at once, even during three more severe episodes—the Great Depression and the downturns following the two world wars.

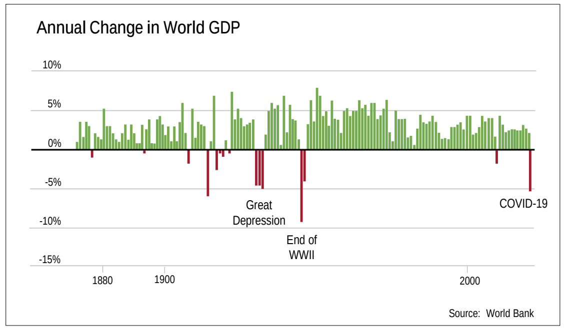
Their semiannual forecast for the global economy predicts a rebound next year, with growth of 4.2%. Even so, the report underscores the extent of the damage that has been wrought on economic activity around the world, even as many wealthy countries begin to emerge from lockdowns. While wealthy countries are reopening, many emerging markets are still entering a deepening phase of the coronavirus crisis—Brazil, Russia, India and Peru have seen their case counts grow rapidly. The U.S. economy is forecast to shrink 6.1% in 2020, followed by a 4% rebound next year. The euro area is expected to shrink 9.1%, followed by a 4.5% rebound.

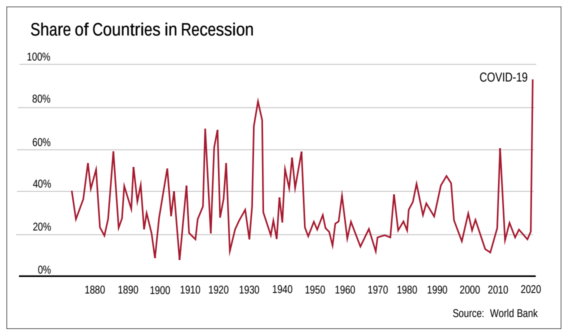
Unprecedented Fiscal & Monetary Stimulus

To stem the deterioration, Congress and the Federal Reserve have introduced record levels of economic stimulus over a short period of time. Congress has authorized almost $3 trillion in various loans, guarantees, tax and spending measures while the Fed is projected to accumulate over $8 trillion on its balance sheet through its quantitative easing programs.

Fixed Income Continues Gains/Equity Markets Rebound

Investors demonstrated an appetite for risk during the quarter. While bonds continued to rally due to the Fed's quantitative easing program, high yield bonds led the way posting a 10% return. Much of the stock market's recent rally can also be attributed to the massive provisions of liquidity and income support from the Federal Reserve and Congress—providing relief measures equal to nearly 30% of the Congressional Budget Office's 2020 estimated U.S. gross domestic product. Investors overwhelmingly favored growth stocks over value stocks.





The economic damage caused by COVID-19 has been unprecedented. While the duration of the Great Depression extended to 3-plus years, the speed and severity of the current economic decline is exceeded only by the two world wars. In fact, at the end of Q2, 92% of economies worldwide were in recession.

Asset Class Returns

Data as of 06/30/2020

	1st Quarter	Value	2nd Quarter	Growth	1 Year	3 Year	5 Year	10 Year
					Annualized Total Return %			
Stable Principal								
Cash Equivalents *90-Day U.S. Treasury Bills*	0.30		0.04		1.26	1.70	1.17	0.62
Fixed Income								
High Grade Bonds *BBgBarc US Aggregate Bond Index*	3.15		2.90		8.74	5.32	4.30	3.82
High Yield Bonds *CSFB High Yield Bond Index*	-13.88		10.00		-1.78	2.64	4.28	6.27
International Bonds *FTSE Citigroup World Gov't Bond Index*	-1.88		2.98		0.86	2.87	3.32	1.81
Equity								
Large Cap Stocks *S&P 500 Index*	-19.60	13.15	20.54	26.23	7.51	10.73	10.73	13.99
Mid Cap Stocks *Russell Mid Cap Index*	-27.07	19.95	24.61	30.26	-2.24	5.79	6.76	12.35
Small Cap Stocks *Russell 2000 Index*	-30.61	18.91	25.42	30.58	-6.63	2.01	4.29	10.50
International Stocks *MSCI EAFE Index*	-22.83	12.43	14.88	16.95	-5.13	0.81	2.05	5.73
Other								
Commodities *S&P GSCI Index*	-42.34		10.47		-33.90	-8.71	-12.54	-8.53
Real Estate *Dow Jones US Real Estate Index*	-24.39		13.91		-6.85	3.40	6.28	9.79

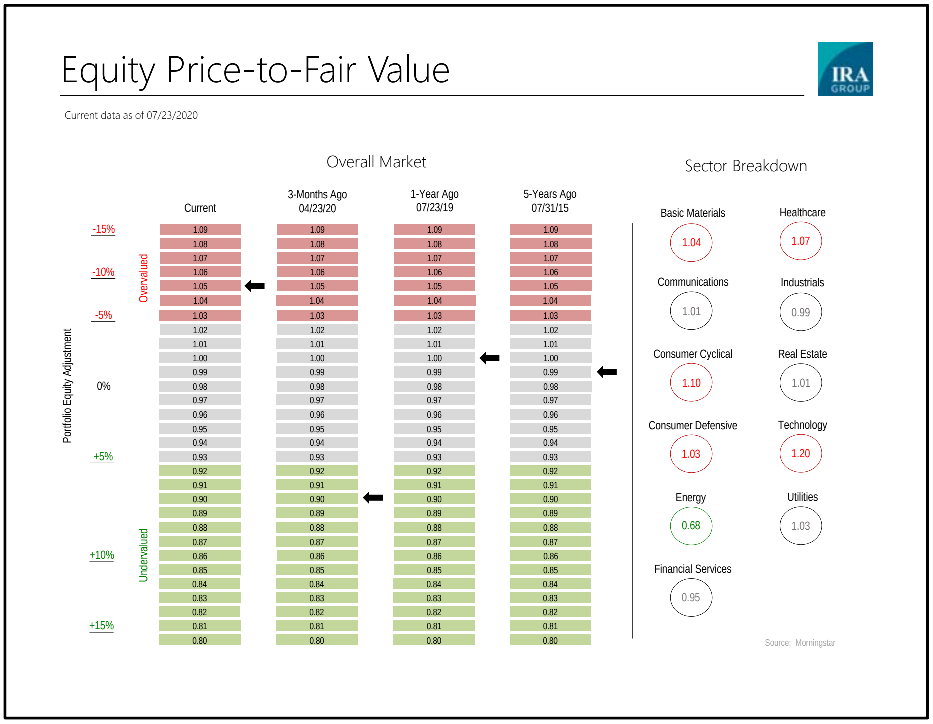
Source: Morningstar. Indices are not actively managed, and investors cannot invest directly in indices. Past performance is no guarantee of future results.

What a difference a quarter makes! Despite the gloomy economic environment, financial markets staged a remarkable comeback during the 2nd quarter with all major asset classes posting positive returns. Investors demonstrated a renewed appetite for risk as equities led the way with small caps being the dominant performer.
Growth stocks dominated value stocks during the quarter with the technology, healthcare and consumer cyclical sectors representing the “anti-COVID” trade.

Within the fixed income asset class, high yield bonds (“junk bonds”) recovered much of their Q1 decline as default fears subsided amid the fiscal and monetary stimulus packages and signs of strengthening in select sectors. High yield bond performance significantly exceeded that of high grade and international bonds.

Real estate rebounded nicely although performance is still well below the highs reached earlier in the year. Much of the improvement can be attributed to investors’ search for yield in this historic low interest rate environment. Real estate securities are generally viewed as a riskier alternative to traditional bonds because of their historically high dividend yields.

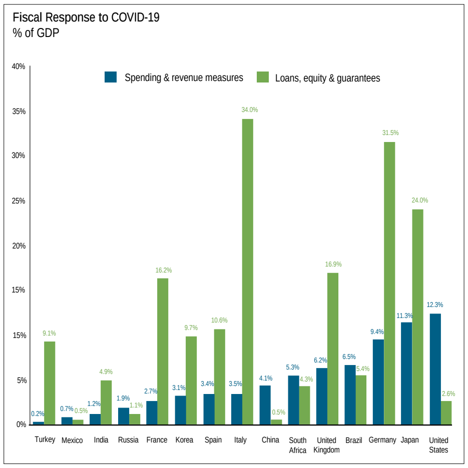
Commodities recovered slightly during the quarter with the semi-recovery in oil prices. This is a sector to keep an eye on if economic growth accelerates to an above-average level during the expected recovery in 2021. Accelerating growth strains the supply and demand economics of natural resources – particularly when so much production capacity (supply) has been extracted due to falling prices.



Not surprisingly, with the unprecedented rebound in stock prices during the quarter, equity valuations have become less attractive. After reaching a price-to-fair value low of 0.70 (30% discount) on March 23rd, the rally has pushed valuations to 1.05, a 5% premium. This is a bit outside of our valuation "comfort zone", buying equities in this market environment should be done with caution.

Interestingly, the dominant performance of growth over value during the quarter manifests itself in the sector valuations to the right. Notice the overvaluations of the Consumer Cyclical, Healthcare and Technology sectors.

Policy Response #1 – Fiscal Stimulus



U.S. Fiscal Acts to Offset COVID-19 Recession

Amount $ Billions	Measure
$293	One-time recovery rebate checks of $1,200 per adult and $500 per child up to certain income limits
$268	Boost to unemployment benefits, adding $600 per week to every check until July 31st, expanding program to cover contractors and self-employed and extending program from 26 to 39 weeks.
$27	Grants to airlines and businesses deemed important for national security. Non-forgivable loans through Fed are excluded as they are assumed to be repaid.
$760	Small business relief, mostly "forgivable loans" for spending on payroll, rent and utilities.
$150	Direct aid to state and local governments
$425	Health-related spending
$517	Other spending and tax breaks

Source: CBO, J.P. Morgan Asset Management. JPMAM estimates include costs of CPRSA, FFCR, CARES and PPPHCE Acts, signed into law on March 6, 18 and 27 and April 24 as estimated by CBO. Charts on right add impacts of these acts, interest cost of additional debt, an assumed extra $1 trillion in further acts in 2020 and 2021 and recession impacts on revenues, spending and GDP. Congressional Budget Office (CBO) March 2020 Baseline Budget Forecast. Note: Years shown are fiscal years (Oct. 1 through Sep. 30). Data are as of June 30, 2020.

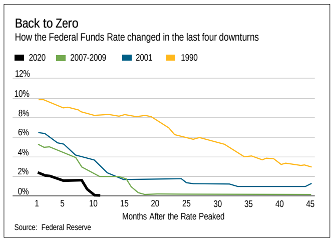
So why is the equity market rallying in a prevailing economic environment that could be considered bleak at best? Generally, markets price expected economic conditions in advance. Today's economic climate was priced into equities earlier in the year. That was the impetus behind the selloff and is reflective of expectations for a poor economy mid-year. That is exactly what we have today.

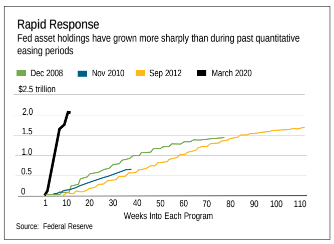
However, there have been massive amounts of fiscal and monetary stimulus introduced over the past several months with potentially more to come. The United States has introduced just shy of $3 trillion in fiscal stimulus including various loans, guarantees, tax and spending measures. The intent is to maintain consumer cash flows (stimulus checks, unemployment benefit increase & extension, Paycheck Protection Program) and provide funding and loan guarantees to businesses to "bridge" the period economic shutdowns/social distancing and eventual return to normalcy. Due to the continued spread of COVID, it is likely that there will another round of fiscal stimulus during the 3rd quarter.

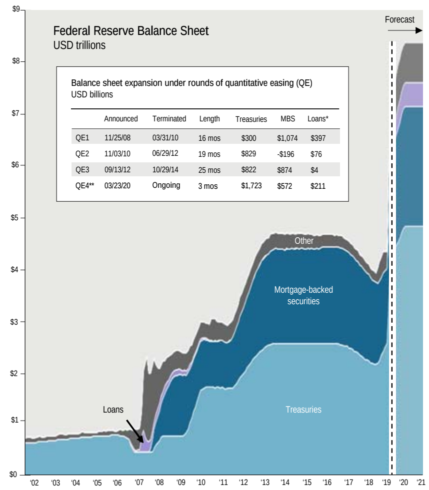
The equity market is responding favorably to all of this stimulus with expectations for economic acceleration in Q4 or Q1. Remember, investors price expected economic conditions in advance. Given current market valuations though, there is some concern that all of the expected "good news" in already reflected in current pricing. Any disappointment could materially affect equity pricing.

Interestingly, the chart on the left indicates that the U.S. has taken a much different course than the rest of the world with fiscal stimulus. Our emphasis has been on government spending and tax policy in lieu of loans, guarantees and equity for the rest of the world. It remains to be seen which approach produces the better and quicker result but the former will most certainly result in significantly higher taxes in the U.S. which could negatively affect future economic growth rates.

Policy Response #2 – Monetary Stimulus…







Balance sheet expansion under rounds of quantitative easing (QE)
USD billions

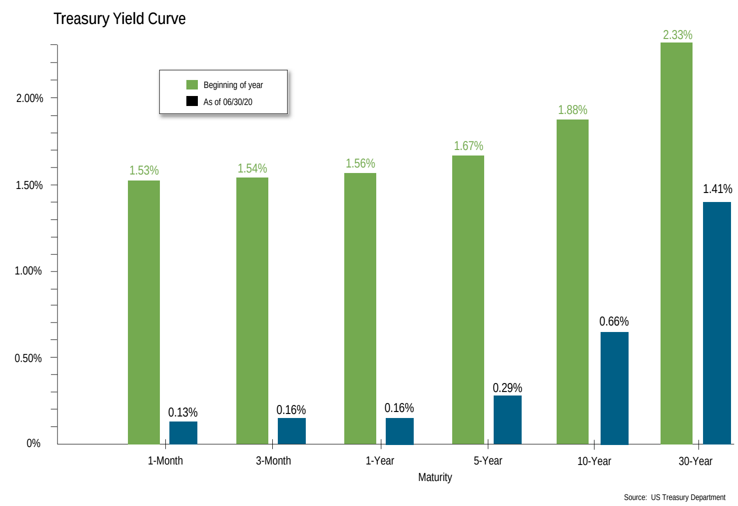
	Announced	Terminated	Length	Treasuries	MBS	Loans*
QE1	11/25/08	03/31/10	16 mos	$300	$1,074	$397
QE2	11/03/10	06/29/12	19 mos	$829	-$196	$76
QE3	09/13/12	10/29/14	25 mos	$822	$874	$4
QE4**	03/23/20	Ongoing	3 mos	$1,723	$572	$211

Source: FactSet, Federal Reserve, J.P. Morgan Investment Bank, J.P. Morgan Asset Management.
Currently, the balance sheet contains $4.2 trillion in Treasuries and $1.9 trillion in MBS. The end balance forecast is $4.7 trillion in Treasuries and $2.2 trillion in MBS by December 2020. Balance sheet forecast assumes the Federal Reserve maintains its current pace of purchases of Treasuries and MBS through December 2020 as outlined in the June 2020 FOMC meeting. *Loans include primary, secondary and seasonal loans, maiden lane securities and loans extended through newly established corporate credit facilities. Loan figures shown are max usage over the QE period referenced and are not growth of loan portfolio over the period. **QE4 is ongoing and the expansion figures are as of the most recent Wednesday close as reported by the Federal Reserve.

The second area that is impacting equity pricing is the massive amounts of monetary stimulus introduced by the Federal Reserve. As shown in the charts on the left, the Fed has acted swiftly and with authority in creating liquidity in the markets and driving down interest rates at all maturity lengths along the yield curve. Through a combination of reducing the Fed Funds Rate to 0% and re-introducing quantitative easing (QE) programs, the Fed is projected to accumulate over $10 trillion in securities on its balance sheet. This represents a combination of the $2.5 trillion still on its balance sheet from the 2008-2012 QE programs plus all new purchases.

But is it working?

…Resulting in Lower Interest Rates

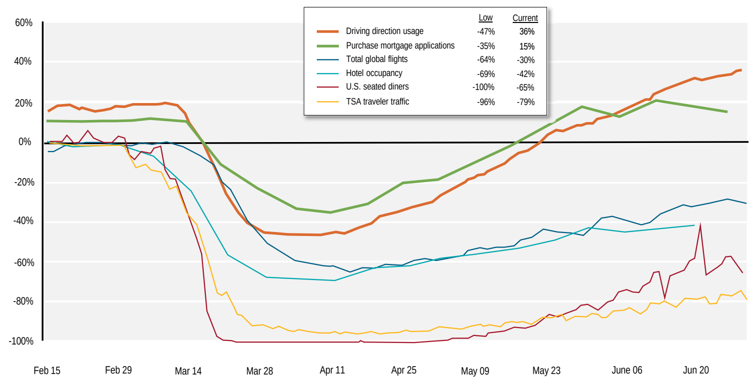


Yes. The chart above compares yields on various Treasury securities at the beginning of the year versus the end of the 2nd quarter. Notice the significant reduction in yields between 1-month and 10-years. These are the yields/interest rates that drive a variety of fixed income vehicles used in our economy – primarily mortgages. As with the fiscal policy measures adopted, monetary policy maintains a strong emphasis on the consumer since consumer spending represents two-thirds of the U.S. economy. What better way to stimulate growth than to focus on the largest percentage of the economy.

By reducing interest rates, consumer cash flows improve via lower financing costs (i.e. mortgage expense). In fact, mortgage re-financings are accelerating dramatically. With lower monthly outlays for, in most cases, consumers' largest debt expense, consumers have more discretionary cash and a greater capacity to spend.

A Quick Look…Is It Working?

High Frequency Data (Year-over-year % change)

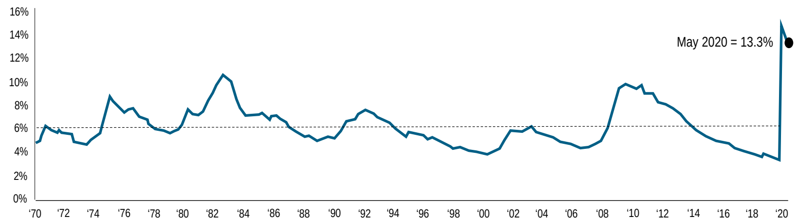


Source: Apple Inc., FlightRadar24, Mortgage Bankers Association (MBA), OpenTable, STR, Transportation Security Administration (TSA), J.P. Morgan Asset Management. *Driving directions and total global flights are 7-day moving averages and are compared to a pre-pandemic baseline. Data are as of June 30, 2020.

It is too soon to tell. However, a quick look at the high frequency data (readily available with no reporting lag) seems to suggest meaningful improvement off of the March lows. Driving direction usage would be directly related to social distancing and the pursuit of alternative activities. Notice the increase in mortgage applications (reference prior slide).

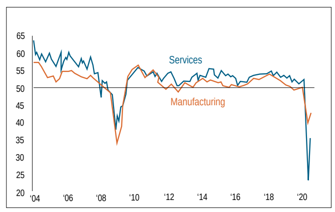
Unemployment Declining, Activity Up

Civilian Unemployment Rate for Private Production and Non-Supervisory Workers
Seasonally adjusted, percent



Source: BLS, FactSet, J.P. Morgan Asset Management.

Global Purchasing Managers Index (PMI)
May 2020



Source: J.P. Morgan Asset Management

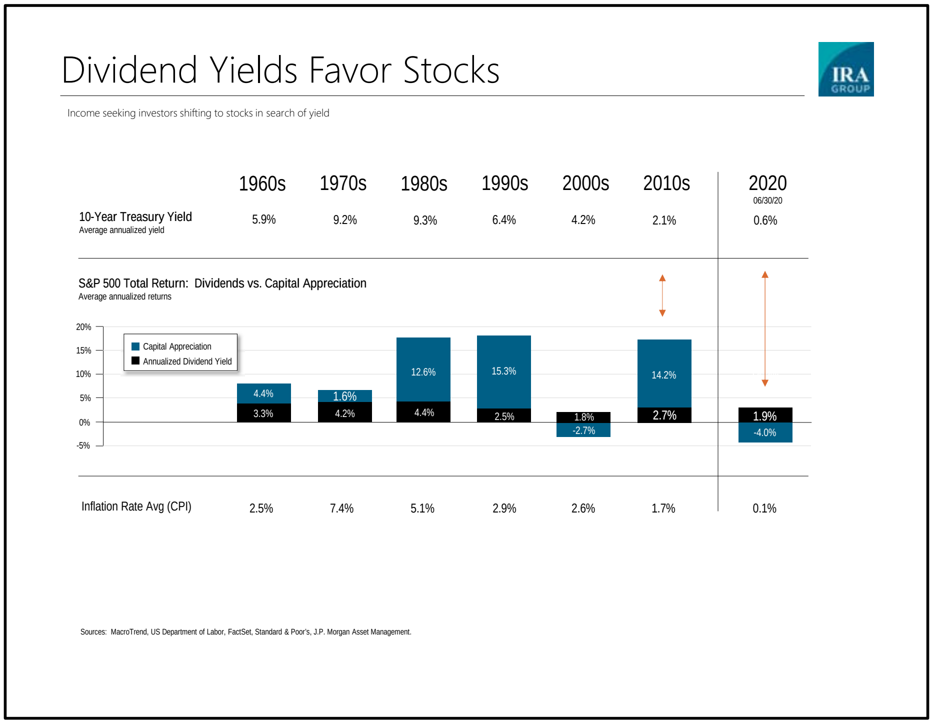
Purchasing Managers Index (PMI) by Country
June 2020

	Overall		Manufacturing		Services	
	May	June	May	June	May	June
Australia	28.1	52.7	41.6	51.5	27.1	31.6
Brazil	28.1	40.5	38.3	51.6	27.6	35.9
China	54.5	55.7	50.7	51.2	55.0	58.4
France	32.1	51.7	40.6	52.3	31.1	50.7
Germany	32.3	47.0	36.6	45.2	32.6	47.3
India	14.8	37.8	30.8	47.2	12.6	33.7
Italy	33.9	47.6	45.4	47.5	28.9	46.4
Japan	27.8	40.8	38.4	40.1	26.5	45.0
Russia	35.0	48.9	36.2	49.4	35.9	47.8
United Kingdom	30.0	47.7	40.7	50.1	29.0	47.1
United States	37.0	47.9	39.8	49.8	37.5	47.9

Source: Tradingeconomics.com

While more data is necessary, there are signs of recovery starting to materialize. After a sharp increase in March and April, the U.S. unemployment rate declined to 13.3% in May and we have started to see improvement in the Global Purchasing Managers Index. After carrying the global economy for the better part of 10 years, the Services sector is now meaningfully lagging the Manufacturing sector. This is primarily a function of COVID-19 and social distancing policies which have negatively affected all types of service-related industries including hospitality, restaurants, entertainment and travel.

Of note is the consistency in improvement of the overall PMI across economies from May to June with Australia, China and France posting expansionary numbers in June (above 50).



One possible reason for the rebound in stock prices is the unattractive yields that fixed income (bond) investments currently offer. As the chart above shows, yields on U.S. Treasuries have historically exceeded the dividend yields on stocks. For investors seeking income, this differential supports the use of Treasuries in a portfolio for their low volatility and income producing characteristics. However, with the advent of extremely accommodative monetary policy in the 2010s as a result of the Great Recession and continuing in 2020 with the pandemic, bond yields are at a level that incents investors looking for income to consider stocks. For the past 10 years, the annualized dividend yield on S&P 500 stocks has exceeded the yield on the 10-year Treasury bond. This yield "reversal" in the 2010s had the effect of influencing income-seeking investors to shift from bonds to equities. This put upward pressure on stock prices and inflated asset values – exactly the Fed's intent to positively impact consumer finances. It would not be surprising if this continues under the current accommodative monetary policy. Right now, there is no other attractive alternative to stocks for yield and/or total return (yield + capital appreciation).

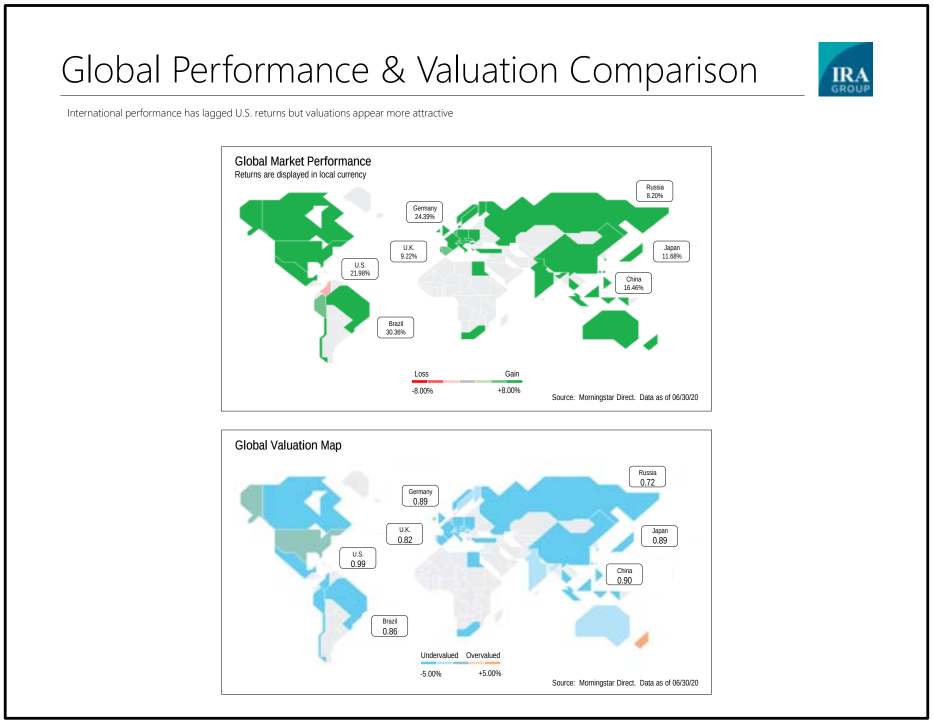
A Vaccine is Coming

1) Moderna Therapeutics	Phase 2	mRNA-1273 is a synthetic messenger RNA that encodes for a protein found on the surface of the novel coronavirus. By compelling cells to produce that protein, the vaccine would spur an immune response, causing the body to generate antibodies that would protect against infection. The company set a drug industry record with mRNA-1273, identifying a vaccine candidate just 42 days after the novel coronavirus was sequenced.
2) Sinovac	Phase 2	Developing a vaccine using an inactivated version of the novel coronavirus. The company used the same technology to craft approved vaccines for hepatitis A and B; swine flu; avian flu; and the virus that causes hand, foot, and mouth disease.
3) CanSino Biologics	Phase 1	Developing a coronavirus vaccine using the technology that led to a China-approved Ebola virus vaccine. CanSino's approach involves taking a snippet of coronavirus' genetic code and entwining it with a harmless virus, thereby exposing healthy volunteers to the novel infection and spurring the production of antibodies.
4) Inovio Pharmaceuticals	Phase 1	Developing a DNA vaccine it believes can generate protective antibodies and keep patients from infection.
5) University of Oxford/ Astrazenca	Phase 1	Developing a potential vaccine that uses a harmless virus engineered to contain the genetic sequence that encodes for a protein on the surface of the novel coronavirus. The researchers, from the University's Jenner Institute and Oxford Vaccine Group, are working at uncommon speed, starting a placebo-controlled clinical trial while finalizing the manufacturing of their potential vaccine. British drug maker AstraZeneca has partnered on the project.
6) BioNTech/Pfizer	Phase 1	Working on a multitude of mRNA vaccines for the novel coronavirus, planning to develop them in parallel. Like its competitors, the company uses strands of mRNA to generate protective antibodies. Earlier this month, Shanghai's Fosun Pharma signed a deal to market BioNTech's vaccine in China if it's eventually approved. Pfizer has agreed to co-develop the vaccine in the rest of the world.
7) Novavax	Phase 1	Working on a coronavirus vaccine that begins in the ovaries of an insect. The company's vaccine platform involves genetically engineering a harmless virus and exposing it to cells isolated from worms. Those cells then churn out the proteins needed to stimulate antibodies, and those proteins become vaccines. For Covid-19, Novavax has isolated the spike protein found on the surface of the novel coronavirus.
8) Johnson & Johnson	Pre-clinical	Using its Ebola and Zika technologies to develop a vaccine for the novel coronavirus. J&J's vaccine is made by grafting the coronavirus genes that confer immunity onto a harmless virus, injecting it triggering an immune response without causing infection.
9) Arcturus Therapeutics	Pre-clinical	Developing a vaccine that relies on engineering RNA. The company plans to take an RNA virus that has been edited to encode for proteins that will protect against infection and load it into a liquid nanoparticle. The resulting vaccine promises a better immune response at a lower dose than competing mRNA approaches.
10) Clover/GlaxoSmithKline	Pre-clinical	Developing a vaccine that would inject patients with a protein found on the surface of the novel coronavirus.
11) CureVac	Pre-clinical	Using a man-made mRNA to spur the production of proteins and protective antibodies.
12) Imperial College London	Pre-clinical	Developing an RNA-based vaccine for the novel coronavirus. The scientists have engineered a virus-derived RNA strand that will get into cells, spur the production of the coronavirus's signature protein, and then replicate itself. In animal studies, the vaccine has resulted in the generation of protective antibodies.
13) Sanofi & GlaxoSmithKline	Pre-clinical	Employing the same technology it employs for flu vaccines, which uses a genetically modified version of a virus to create proteins that train the immune system to react. The company is combining its approach with GlaxoSmithKline's proprietary adjuvant, an additive that makes vaccines more potent.
14) University of Queensland GlaxoSmithKline	Pre-clinical	Developing a coronavirus vaccine since January. Queensland has a proprietary technology meant to make protein vaccines more effective at triggering an immune response. Called a molecular clamp, the university's approach keeps the coronavirus's key protein in its natural shape before grafting it onto the vaccine.
15) Merck	Pre-clinical	Developing an experimental Covid-19 vaccine based on a measles vaccine. It is also partnering with the nonprofit IAVI on the development of a coronavirus vaccine related to the company's existing Ebola vaccine.
16) Sanofi/Translate Bio	Pre-clinical	Developing potential vaccines using synthetic messenger RNA, which would compel the body to produce antibodies against the novel coronavirus.

Source: Johnson & Johnson 07/06/20

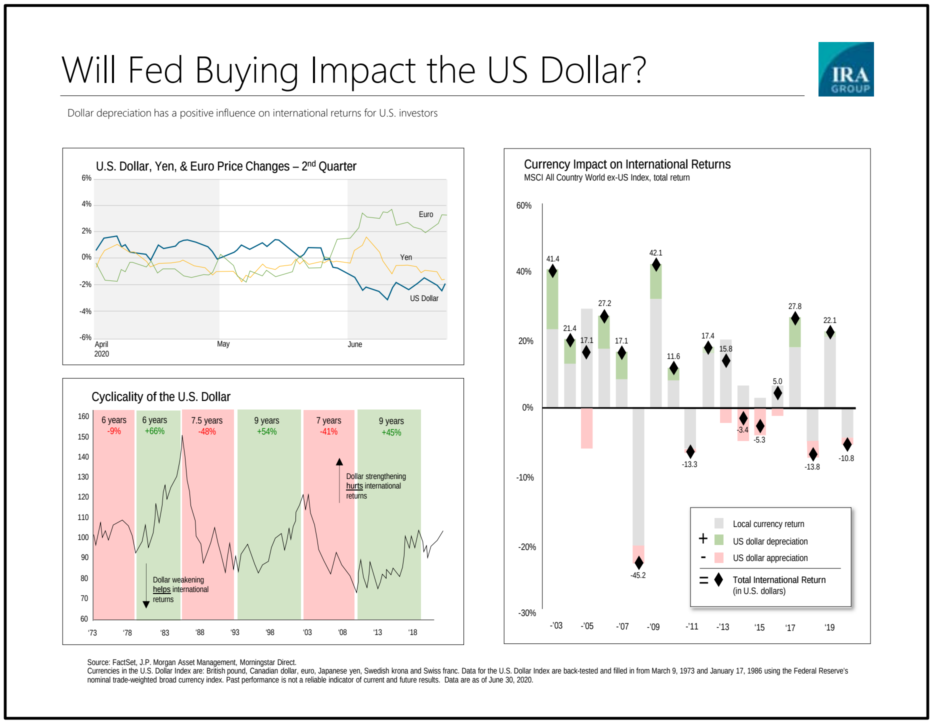
The equity market is also reacting favorably to the progress with vaccine development. <u>This is absolutely the key to a return to economic normalcy.</u>

The chart above shows the vaccines in process and their various stages of development. It appears that consensus suggests that a vaccine will be available early next year. The challenge will be production volume. Ultimately, the demand could be for 6.5 billion treatments across the globe. That's 6.5 billion treatments, 6.5 billion test tubes, 6.5 billion syringes or pills, etc. Capital is already being committed to ramping up production capabilities in advance of a vaccine.



While the U.S. equity markets rallied significantly during the 2nd quarter, the international markets, while positive, did not participate in the rally as much. As a result, international valuations appeared to be more attractive than the U.S. at the end of the 2nd quarter.

The important thing to remember when considering international investments is that returns for U.S. investors are contingent on two variables: Price movement and currency fluctuation.



In assessing the impact of currency fluctuation on international returns, note that a rising U.S. dollar negatively impacts international returns for U.S. investors. When the investment is made overseas, dollars are converted to local currency at the prevailing exchange rate and the security is purchased. Assume that the investment appreciates 8% in local currency and the investor decides to sell and convert the proceeds back to U.S. dollars. If the U.S. dollar has appreciated by 8% during the investment period, the total return for the investor is 0% because the currency conversion buys 8% less in U.S. dollars. Likewise, if the U.S. dollar depreciates during the investment period, this results in a "plus-up" to the appreciation of the security. In the example above, if the dollar had depreciated by 8% during the investment period, the total return for the investor would have been 16%.

Currency appreciation and depreciation generally move in 7-9 year cycles (bottom left chart). We are currently in an 11-year bull market for the U.S. dollar. This had had a negative impact on total international returns for U.S. investors (right chart). With the unprecedented monetary stimulus associated with COVID, the world is awash in U.S. dollars. This increased supply could have a negative impact on the U.S. dollar valuation going forward. In fact, since mid-May, the U.S. dollar has begun to depreciate against the Euro and Yen (upper left chart). If this continues, it could have a positive influence on international returns prospectively.

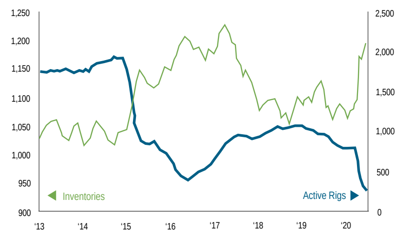
Energy Sector Update

Drop in production to meet shrinking demand increases price

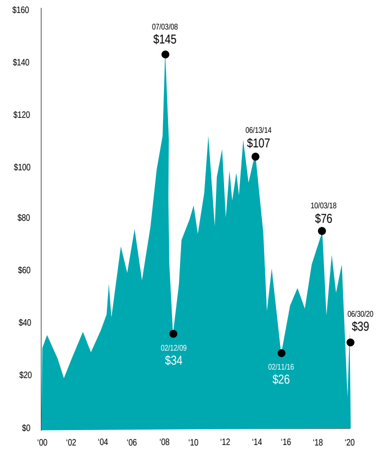
Change in Production & Consumption of Liquid Fuels
Millions of barrels per day

Production	2017	2018	2019	2020*	2021*	Growth since 2017
U.S.	15.7	17.9	19.5	18.6	18.1	+15.4%
OPEC	36.8	36.8	34.7	31.3	33.2	-10.0%
Russia	11.2	11.4	11.5	10.5	11.0	-2.0%
Global	98.1	100.8	100.7	94.8	97.4	-0.7%
Consumption						
U.S.	20.0	20.5	20.5	18.1	19.5	-2.5%
China	13.6	14.0	14.5	13.6	15.3	+12.9%
Global	98.8	100.0	100.9	92.5	99.7	+1.0%
Inventory Change	-0.6	0.8	-0.2	2.2	-2.3	

U.S. Crude Oil Inventories & Rig Count**
Millions barrels, number of active rigs

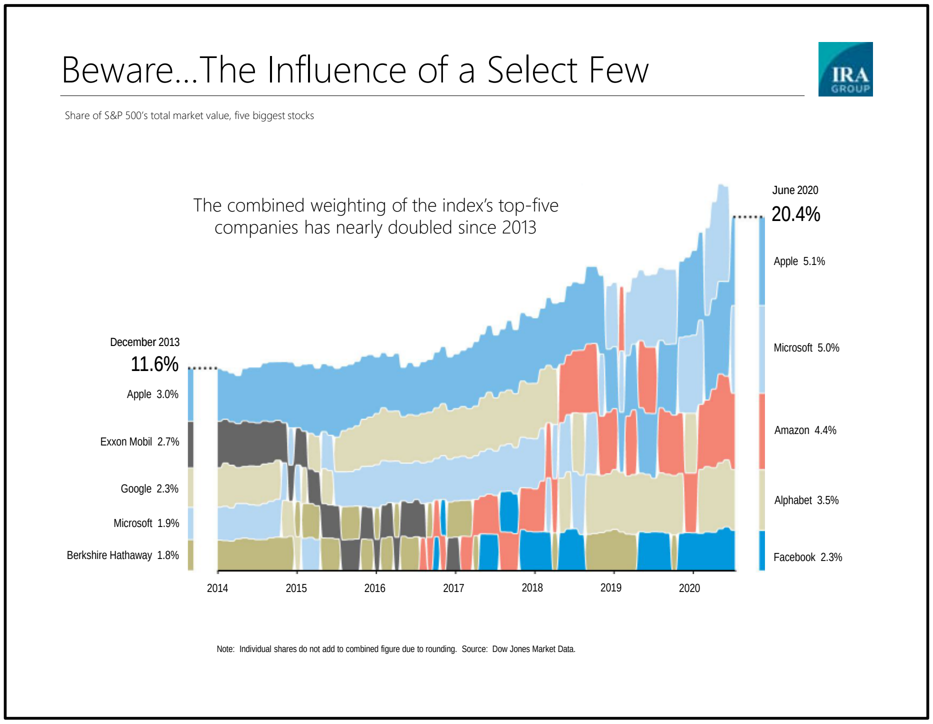


Price of Oil
WTI crude, nominal prices, USD/barrel



Source: J.P. Morgan Asset Management; (Top and bottom left) EIA; (Right) FactSet; (Bottom left) Baker Hughes.
*Forecasts are from the June 2020 EIA Short-Term Energy Outlook and start in 2020. **U.S. crude oil inventories include the Strategic Petroleum Reserve (SPR). Active rig count includes both natural gas and oil rigs. WTI crude prices are continuous contract NYM prices in USD. Data are as of June 30, 2020.

These charts represent a continuation of the 1st quarter discussion regarding oil prices. Notice the declining production in the U.S. from 2019-2021 (upper left chart). This is a function of declining demand associated with the deteriorating economy as consumption declines. To counteract declining demand and create stability in prices, the number of active rigs in the U.S. has declined precipitously since 2019 (bottom left). This has resulted in supply/demand balance and stabilization in pricing (right chart).



Fun chart for the quarter. The S&P 500 Index is a capitalization-weighted index which means the bigger the company, the more weight they have in the index. The above chart looks at the top 5 constituents of the S&P 500 in 2013 versus the top 5 in 2020. Notice the sector shift toward technology. Also notice the aggregate weighting differential. This supports the notion that "the big are getting bigger" and that the technology sector has led the way economically in the U.S.

Re-Election Dashboard

A series of economic indicators that have historically been predictive of re-election results

Indicators		Threshold	Eisenhower 1956	Johnson 1964	Nixon 1972	Ford 1976	Carter 1980	Reagan 1984	Bush 1992	Clinton 1996	Bush 2004	Obama 2012	Trump 07/31/20
Disposable income growth	Rolling 11 months	> 1%	-	4.64%	5.35%	1.50%	0.51%	3.69%	0.82%	1.73%	1.39%	1.82%	7.5%
Unemployment rate change	Rolling 10 months	< 0%	-0.1%	-0.6%	-0.4%	-0.6%	1.7%	-1.1%	0.5%	-0.3%	-0.4%	-0.6%	7.5%
S&P 500 performance	Rolling 3 months	> 0%	-2.6%	2.6%	6.9%	-0.1%	6.7%	4.8%	-1.2%	8.2%	2.2%	2.5%	12.9%
Average consumer confidence	Election yr average	> 95	-	-	100.7	93.3	71.9	102.5	59.6	103.1	95.8	66.6	106.3
GDP growth	Years 3 & 4	> 0%	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	No
- Year 3	-	> 0%	7.1%	4.4%	3.3%	-0.2%	3.2%	4.6%	-0.1%	2.7%	2.9%	1.6%	2.3%
- Year 4	-	> 0%	2.1%	5.8%	5.3%	5.4%	-0.3%	7.2%	3.5%	3.8%	3.8%	2.2%	-5.5%
Average approval rating	Election yr average	> 50%	71.9%	74.7%	56.0%	47.3%	39.6%	55.3%	39.1%	55.0%	50.6%	47.0%	45.1%
Favorable indicators			3 / 4	5 / 5	6 / 6	2 / 6	1 / 6	6 / 6	0 / 6	6 / 6	6 / 6	4 / 6	3 / 6
Election result			Won	Won	Won	Loss	Loss	Won	Loss	Won	Won	Won	?

Source: Bloomberg 2020, Strategas
2020 GDP growth represents Bloomberg consensus estimate for 2020

Disclosures

This report was prepared by Investment Research & Advisory Group, Inc., a registered investment adviser. A copy of the firm's Form ADV which contains important disclosures is available upon request.

Investment Research & Advisory Group, Inc. does not render legal or tax advice. Data contained in this report was obtained from sources believed to be reliable: Morningstar. However, no assurance can be made as to the report's completeness or accuracy. The information, data, analyses, and opinions contained herein are provided solely for informational purposes and therefore are not an offer to buy or sell a security. The information provided should be used only as a general guide to investment performance. The figures presented should not be relied upon for tax purposes.

The performance data presented is historical and should not be considered indicative of future results. Principal value and investment return will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original value. Client assets are not FDIC-insured and may lose value. Investment returns are net of all fees. In certain instances, performance of funds structured as separate accounts or commingled/collective trusts may be presented on a gross basis (before the deduction of fees). Mutual fund performance reflects performance without adjusting for sales charges or the effects of taxation, but is adjusted to reflect all actual ongoing fund expenses and assumed reinvestment of dividends and capital gains. If adjusted for sales charges and the effects of taxation, the performance would be reduced.

In certain instances, return comparisons to various market indices have been made throughout this report. However, indices are not actively managed and investors cannot invest directly in indices. When used as a comparative benchmark though, indices can be a useful gauge of security or mutual fund performance when the characteristics of the index are comparable to the security or fund being analyzed. Please refer to the index definitions provided for more information.

INVESTMENT RISK

International/Emerging Market Funds: Investors should note that funds that invest in international securities involve special additional risks. These risks include, but are not limited to, currency risk, political risk, and risk associated with varying account standards. Investing in emerging markets may accentuate these risks. Sector Funds: Investors should note that funds that invest exclusively in one sector or industry involve additional risks. The lack of industry diversification subjects the investor to increased industry-specific risks. Small Cap Funds: Investors should note that funds that invest in stocks of small companies involve additional risks. Smaller companies typically have a higher risk of failure, and are not as well-established as larger blue-chip companies. Historically, smaller-company stocks have experienced a greater degree of market volatility than the overall market average. Mid Cap Funds: Investors should note that funds that invest in companies with market capitalizations below $10 billion involve additional risks. The securities of these companies may be more volatile and less liquid than the securities of larger companies. Large Cap Funds: Stocks in the top 70% of the capitalization of the U.S. equity market are defined as large-cap. These portfolios tend to invest across the spectrum of U.S. industries, and owing to their broad exposure, the portfolios' returns are often similar to those of the S&P 500 Index.
High Yield Bond Funds: Investors should note that funds that invest in lower-rated debt securities involve additional risks because of the lower credit quality of the securities in the portfolio. The investor should be aware of the possible higher level of volatility and increased risk of default.

FIXED-INCOME PORTFOLIO STATISTICS

Duration
A time measure of a bond’s interest rate sensitivity. Average effective duration is a weighted average of the duration of the underlying fixed income securities within the portfolio.

Portfolio Turnover Ratio
A proxy for how frequently a manager trades his or her portfolio. The inverse of a fund’s turnover ratio is the average holding period for a security in the fund. As turnover increases, a fund’s brokerage costs typically rise as well.

RISK MEASURES

Standard deviation:
A statistical measure of the volatility of the fund’s returns. Alpha: A measure of the difference between a fund’s actual returns and its expected performance, given its level of risk (as measured by beta). Alpha is often seen as a measure of the value added or subtracted by a portfolio manager. Beta: A measure of a fund’s sensitivity to market movements. A portfolio with a beta greater than 1 is more volatile than the market, and a portfolio with a beta less than 1 is less volatile than the market. R-squared: Reflects the percentage of a fund’s movements that are explained by movements in its benchmark index, showing the degree of correlation between the fund and the benchmark. This figure is also helpful in assessing how likely it is that alpha and beta are statistically significant. Portfolio Analysis: The Morningstar Style Box reveals a fund’s investment strategy. For equity funds the vertical axis shows the market capitalization of the stocks owned and the horizontal axis shows investment style (value, blend or growth). % of Assets in Top 10 Holdings: A figure which provides insight into the degree to which a portfolio is diversified. Used in combination with the total number of holdings, it can indicate how concentrated a fund is. Audited Expenses: The percentage of fund assets paid for operating expenses and management fees. The expense ratio typically includes the following types of fees: accounting, administrator, advisor, auditor, board of directors, custodial, distribution (12b-1), legal, organizational, professional, registration, shareholder reporting, sub-advisor, and transfer agency. The expense ratio does not reflect the fund’s brokerage costs or any investor sales charges. In contrast to the gross expense ratio, the net expense ratio does reflect fee waivers in effect during the time period.

Disclosures (cont.)

SECTOR EXPOSURE
Morningstar's sector structure starts by dividing the stock universe of U.S. and global equities into 128 industries. These industries are classified into 40 industry groups, which are then used to construct 11 separate sectors. Finally, each of these 11 sectors is assigned to one of three economic spheres, or Super Sectors: Cyclical, Defensive and Sensitive.

Cyclical

Basic Materials: Companies that manufacture chemicals, building materials and paper products, including companies engaged in commodities exploration and processing. **Consumer Cyclical:** Retail stores, auto and auto parts manufacturers, companies engaged in residential construction, lodging facilities, restaurants and entertainment companies. **Financial Services:** Companies that provide financial services which includes banks, savings and loans, asset management companies, credit services, investment brokerage firms, and insurance companies. **Real Estate:** Mortgage companies, property management companies and REITs.

Defensive

Consumer Defensive: Companies engaged in the manufacturing of food, beverages, household and personal products, packaging, or tobacco, including companies that provide services such as education & training services. **Healthcare:** Biotechnology, pharmaceuticals, research services, home healthcare, hospitals, long-term care facilities, and medical equipment and supplies. **Utilities:** Electric, gas, and water utilities.

Sensitive

Communication Services: Companies that provide communication services using fixed-line networks or those that provide wireless access and services, including companies that provide internet services such as access, navigation and internet related software and services. **Energy:** Companies that produce or refine oil and gas, oil field services and equipment companies, and pipeline operators, including companies engaged in the mining of coal. **Industrials:** Companies that manufacture machinery, hand-held tools and industrial products, including aerospace and defense firms as well as companies engaged in transportations and logistic services. **Technology:** Companies engaged in the design, development, and support of computer operating systems and applications, including companies that provide computer technology consulting services. Also includes companies engaged in the manufacturing of computer equipment, data storage products, networking products, semi-conductors, and components.

REGIONAL EXPOSURE
This data set provides a broad breakdown of a fund's geographical exposure. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. It also provides a reference point for understanding fund returns. Some fund managers follow a "top down" discipline, where they direct their investments into regions they consider good opportunities.

TICKER
The Nasdaq or NYSE assigned symbol commonly used to locate the fund on electronic price-quoting systems.

FUND MANAGER
Name of the individual or individuals who are employed by the advisor or subadvisor who are directly responsible for managing the fund's portfolio, as taken directly from the fund's prospectus.

MANAGER TENURE
The number of years the current manager has been portfolio manager of the fund. If the fund is managed by a team, the tenure shown in the report is the average number of years of the combined team.

PERFORMANCE RANKING PERCENTILE IN FUND CATEGORY
This is the fund's total-return percentile rank relative to all funds that have the same Morningstar Category. The highest (or most favorable) percentile rank is 1 and the lowest (or least favorable) percentile rank is 100. The top-performing fund in a category will always receive a rank of 1.

PERFORMANCE RANKING QUARTILE IN FUND CATEGORY
If a fund's total-return percentile rank relative to all funds that are classified in the same Morningstar Category is between 1-25, it ranks in the 1st quartile; a percentile ranking of 26-50 represents the second quartile; a percentile ranking of 51-75 represents the 3rd quartile; a percentile ranking of 76-100 represents the 4th quartile

Disclosures (cont.)

OVERALL MORNINGSTAR RATING
http://www.Morningstar.com

The Morningstar Rating for funds, commonly called the star rating, is a measure of a fund's risk-adjusted return, relative to funds in its category. Funds are rated from one to five stars, with the best performers receiving five stars and the worst performers receiving a single star. Risk-adjusted return is calculated by subtracting a risk penalty from each fund's total return, after accounting for all loads, sales charges, and redemption fees. The risk penalty is determined by the amount of variation in the fund's monthly return, with emphasis on downward variation. The greater the variation, the larger the penalty. Funds are ranked within their categories and stars are assigned as follows:

Top 10%	Five stars
Next 22.5%	Four stars
Middle 35%	Three stars
Next 22.5%	Two stars
Bottom 10%	One star

For multi share class funds, each share class is counted as a fraction of a fund within this scale and rated separately, which may cause slight variations in the distribution percentages. This accounting prevents a single portfolio in a smaller category from dominating any portion of the rating scale. Funds are rated for up to three periods, the trailing 3, 5, and 10-years, and ratings are recalculated each month. For funds that remain in the same Morningstar Category for the entire evaluation period, the following weights are used to calculate an overall rating: Age of fund overall rating:

At least three years, but less than five	100% three-year rating	At least 10 years	50% 10-year rating 30% five-year rating 20% three-year rating
At least five years, but less than 10	60% five-year rating 40% three-year rating		

RECOMMENDATION METHODOLOGY
IRA Group's recommendation methodology includes a variety of factors as detailed in each retirement plan's Investment Policy. In making recommendations, retain, watch and action statuses are applied to the primary performance objectives. The general methodology follows these guidelines:

- Retain – green – fund achieves 3 of 3 primary performance objectives
- Retain – light green – fund achieves 2 of 3 primary performance objectives
- Watch – orange – fund achieves 0 to 1 of 3 primary performance objectives
- Action – red – fund achieves 0 to 1 of 3 primary performance objectives

IRA Group and the Plan's Committee will review additional risk and portfolio factors in finalizing these recommendations.

INDEX DEFINITIONS: These links are provided as a courtesy to you. IRA Group does not operate or control these websites. Clients should review the information on these websites carefully.

90-Day Treasury Bills: https://ycharts.com/indicators/3_month_t_bill

Barclays Index: https://index.barcap.com/

CSFB High Yield Bond Index: https://www.credit-suisse.com/us/en/asset-management/solutions-capabilities/fixed-income/credit-investments/high-yield-bonds.html

FTSE Non-$ World Government Bond Index: https://www.yieldbook.com/m/indices/single.shtml?ticker=WGBI

Goldman Sachs Index: http://www.goldmansachs.com/what-we-do/index.html

MSCI Index: https://www.msci.com/indexes

Russell Index: http://www.ftserussell.com/

Standard & Poor's 500 Index (S&P 500): http://us.spindices.com/indices/equity/sp-500