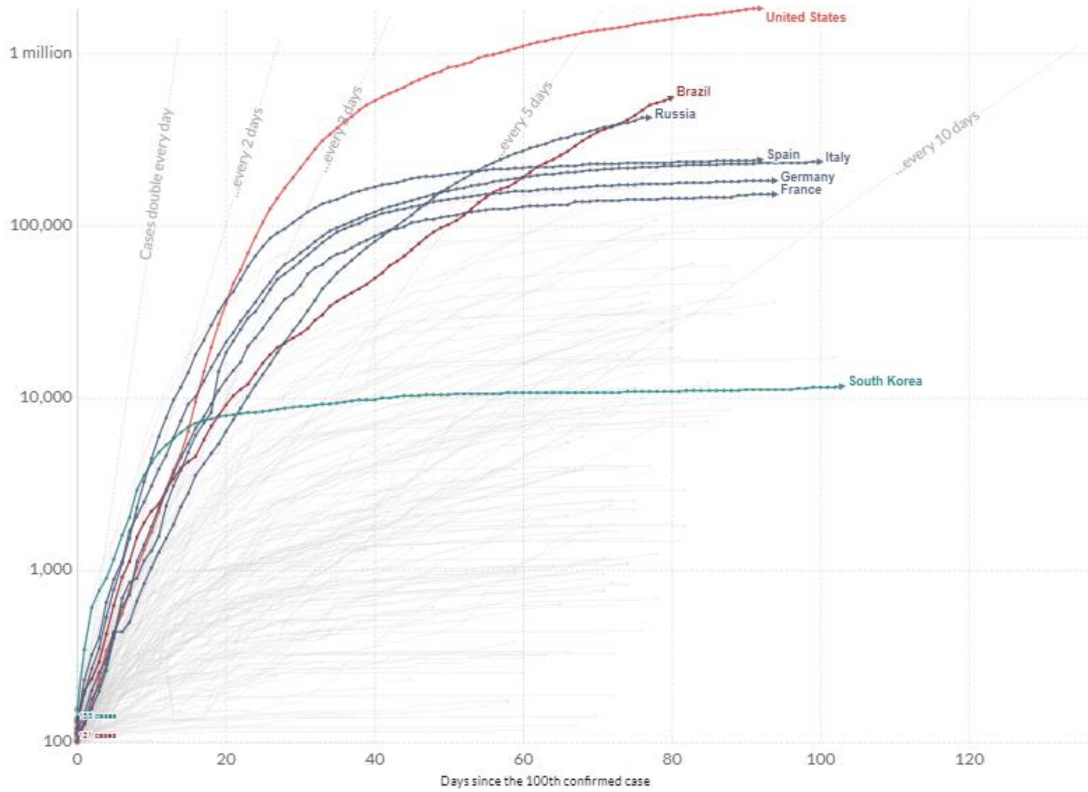
Economic and Market Update

Data as of May 29, 2020

Case Count by Select Country: Flattening the Curve[1]



- There are over 6.4 million cases of coronavirus globally across 188 countries, with the US the epicenter and areas like Brazil and Russia emerging as hot spots.
- Following some improvements in outcomes, countries are starting to gradually reopen parts of their economies.

[1] Source: European CDC via Visual Capitalist. Data is as of June 3, 2020. Most data throughout the rest of the document is through May 29, 2020.

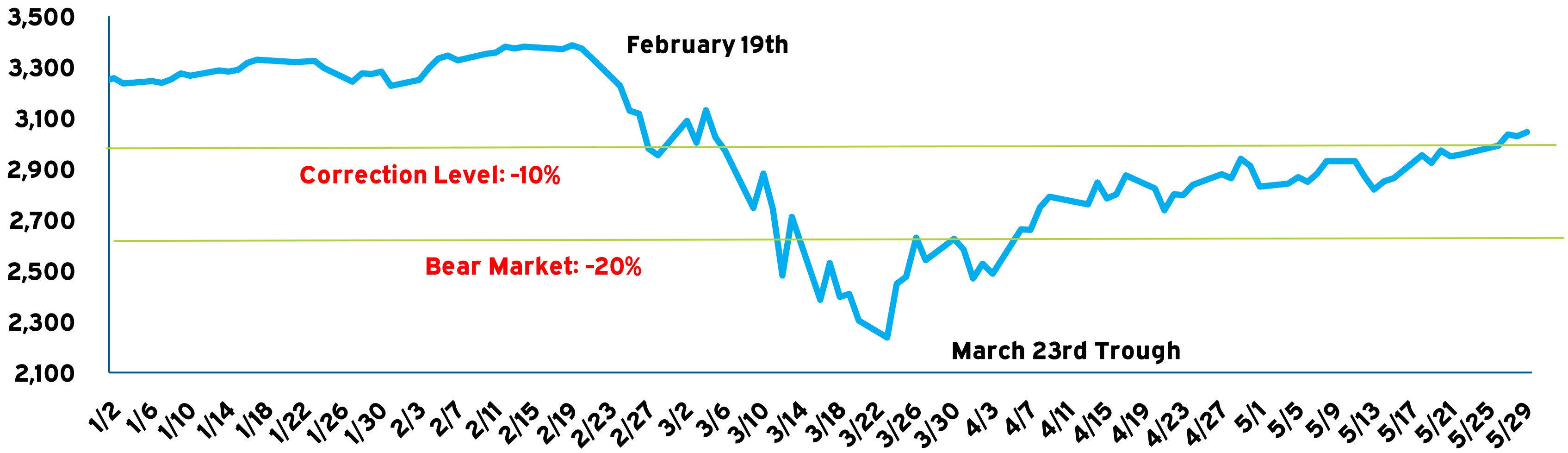
Market Returns[1]

Indices	YTD	3 Year	5 Year	10 Year	20 Year
S&P 500	-5.0%	10.2%	9.9%	13.2%	6.1%
MSCI EAFE	-14.3%	-0.2%	0.8%	5.3%	2.8%
MSCI Emerging Markets	-16..0%	-0.5%	0.9%	2.6%	-
MSCI China	-5.0%	6.0%	2.3%	5.6%	-
Bloomberg Barclays Aggregate	5.5%	5.2%	3.9%	3.9%	5.2%
Bloomberg Barclays TIPS	4.8%	4.5%	3.3%	3.6%	5.5%
Bloomberg Barclays High Yield	-4.7%	3.1%	4.3%	6.7%	7.3%
10-year US Treasury	9.7%	7.0%	4.8%	5.0%	5.4%
30-year US Treasury	17.3%	14.4%	9.7%	9.0%	7.8%

- Global risk assets have recovered meaningfully from the recent lows, largely driven by record fiscal and monetary policy stimulus; the S&P 500 has recovered by over 36% from the mid-March lows.
- Risk assets have reacted positively to good news where it can be had, such as the gradual re-opening of the global economy, some economic data beating expectations, and the potential for a vaccine being developed sooner than initially expected.
- Despite the recovery in risk assets, yields on safe-haven assets like US Treasuries remain at record lows due to expectations for accommodative monetary policy for the foreseeable future; expectations for additional monetary policy stimulus is also being cited as a factor keeping interest rates low.

[1] Source: InvestorForce and Bloomberg. Data is as of May 29, 2020.

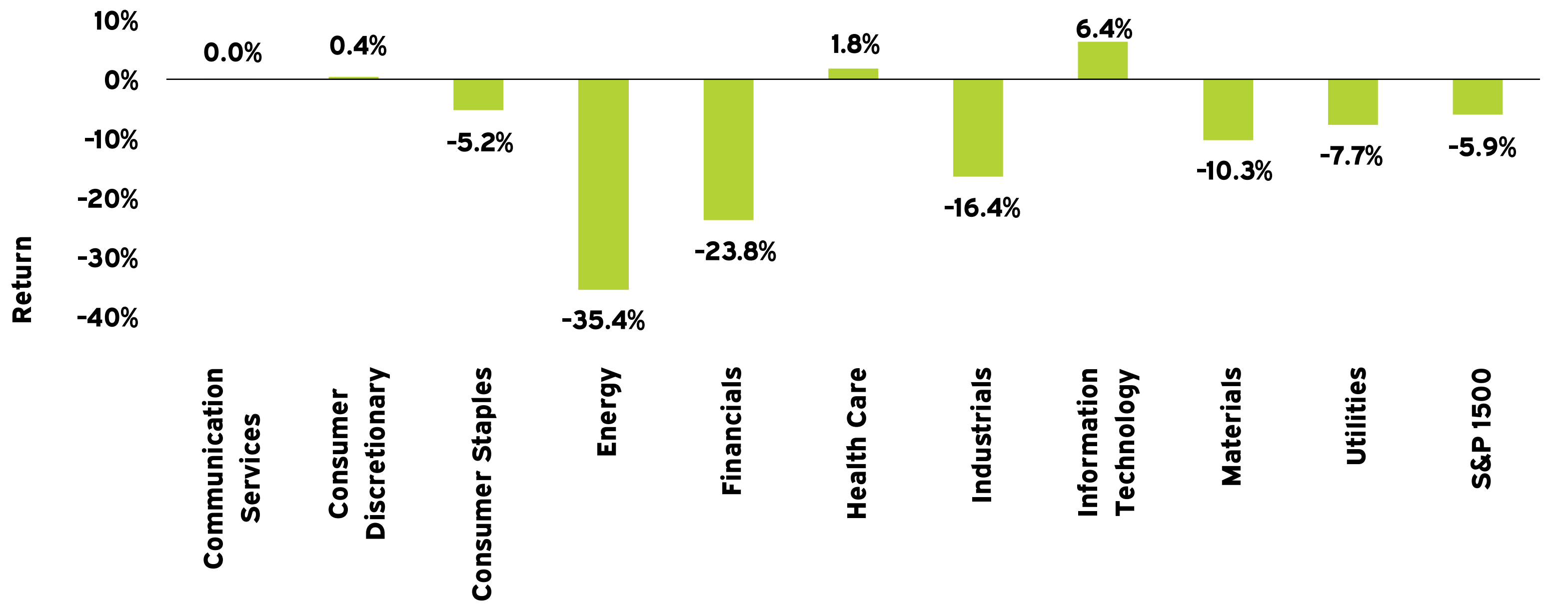
S&P 500 Recovers from Bear Market Levels[1]



- Given the anticipated economic carnage surrounding the pandemic, US stocks declined from their February peak into bear market (-20%) territory at the fastest pace in history.
- From the February 19 peak, the S&P 500 declined 34% in just 24 trading days.
- The index rebounded from its lows, and is only down 5% year-to-date through the end of May, primarily due to the unprecedented monetary and fiscal stimulus announced in the US, as well as improvements in virus data, and some states reopening.
- It is unclear whether the US equity market's recent recovery is temporary, with additional declines to come as the impact of COVID-19 on the economy becomes more apparent.

[1] Source: Bloomberg. Data is as of May 29, 2020.

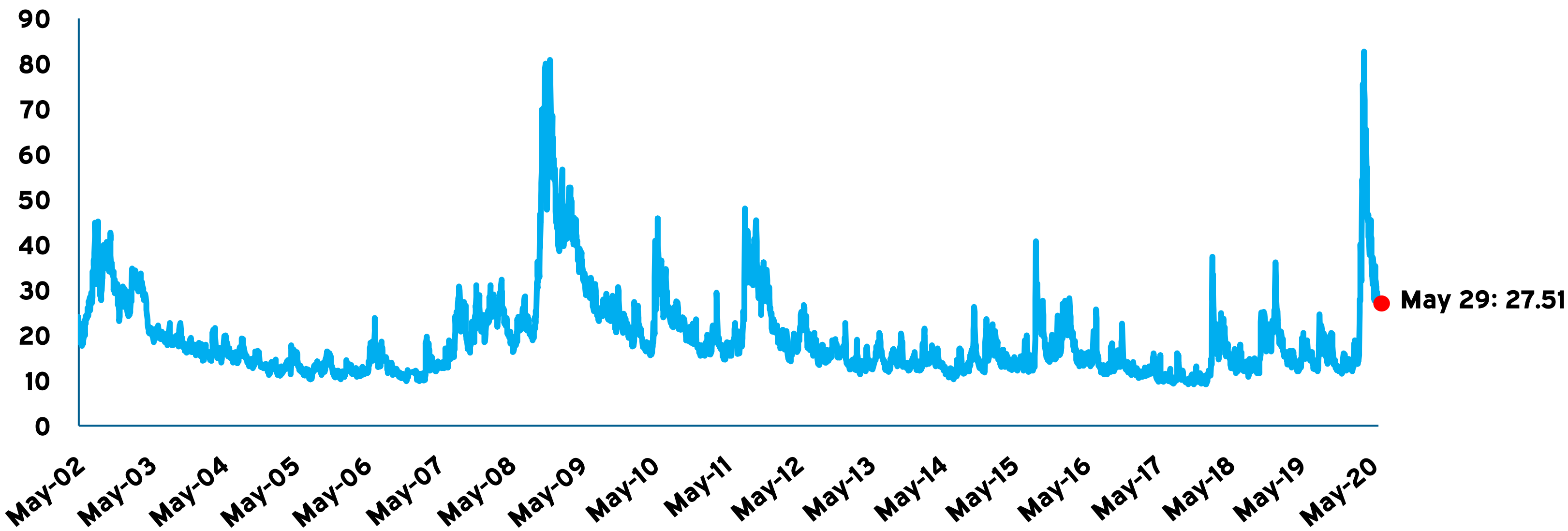
2020 YTD Sector Returns[1]



- The energy sector has seen some improvements given supply cuts and economies starting to reopen, but it remains the sector with the greatest decline, triggered by the fall in oil prices.
- Financials, industrials, and materials experienced the next largest declines, while sectors like health care and consumer discretionary experienced small gains.
- Information technology is the best performing sector as consumers moved to online purchases and entertainment under the stay-at-home restrictions.

[1] Source: Bloomberg. Data is as of May 29, 2020.

VIX Index[1]



- Given the recent fiscal and monetary support and corresponding improvement in investor risk sentiment, expectations of short-term volatility, as measured by the VIX index, continue to decline from record levels but remains elevated.
- At the recent height, the VIX index reached 82.7, surpassing the pinnacle of volatility during the GFC, showing the magnitude of the crisis, and of investor fear.
- There remains the risk of additional spikes in volatility, as investors process the impacts of COVID-19 and the effectiveness of the policy response.

[1] Source: Chicago Board of Exchange. Data is as of May 29, 2020.

Global Financial Crisis Comparison

	2007-2009 Global Financial Crisis	COVID-19 Crisis
Primary Causes	Excess Risk Taking Due to: • Deregulation, un-constrained securitization, shadow banking system, fraud	Pandemic/Natural Disaster: • Large scale global restrictions on businesses and individuals leading to immediate and significant deterioration in economic fundamentals

	2007-2009 Global Financial Crisis	COVID-19 Crisis
Fiscal Measures	• American Recovery Reinvestment Act of 2009: $787 billion • Economic Stimulus Act of 2008: $152 billion	• PPP Act: $659 billion • CARES Act of 2020: $2.3 trillion • Families First Coronavirus Response Act: $150 billion • Coronavirus Preparedness & Response Supplemental Appropriations Act 2020: $8.3 billion • National Emergency: $50 billion

	2007-2009 Global Financial Crisis	COVID-19 Crisis
Monetary Measures		
Lowering Fed Funds Rate	X	X
Quantitative Easing	X	X
Primary Dealer Repos	X	X
Central Bank Swap Lines	X	X
Commercial Paper Funding Facility	X	X
Primary Dealers Credit Facility	X	X
Money Market Lending Facility	X	X
Term Auction Facility	X	
TALF	X	X
TSLF	X	
FIMA Repo Facility		X
Primary & Secondary Corp. Debt		X
PPP Term Facility		X
Municipal Liquidity Facility		X
Main Street Loan Facility		X

Global Financial Crisis Comparison (continued)

- The US **fiscal** COVID-19 Crisis response has been materially larger than the 2007-2009 Global Financial Crisis (GFC), and stimulus is acutely focused on areas of the economy showing the greatest need, including small and mid-sized companies. For example, the Paycheck Protection Program helps small businesses keep employees working by offering forgivable loans to cover salaries.
- On the **monetary** side, markets targeted during both crises represent those most in need, but for the COVID-19 Crisis the policy response was dramatically faster, measured in weeks, not years, as in the GFC.
- Of the monetary stimulus measures, the corporate debt (Primary & Secondary Corporate Debt) programs and Main Street Loan Facility are new and garnered much attention from market participants.

Historic $2T US Fiscal Stimulus

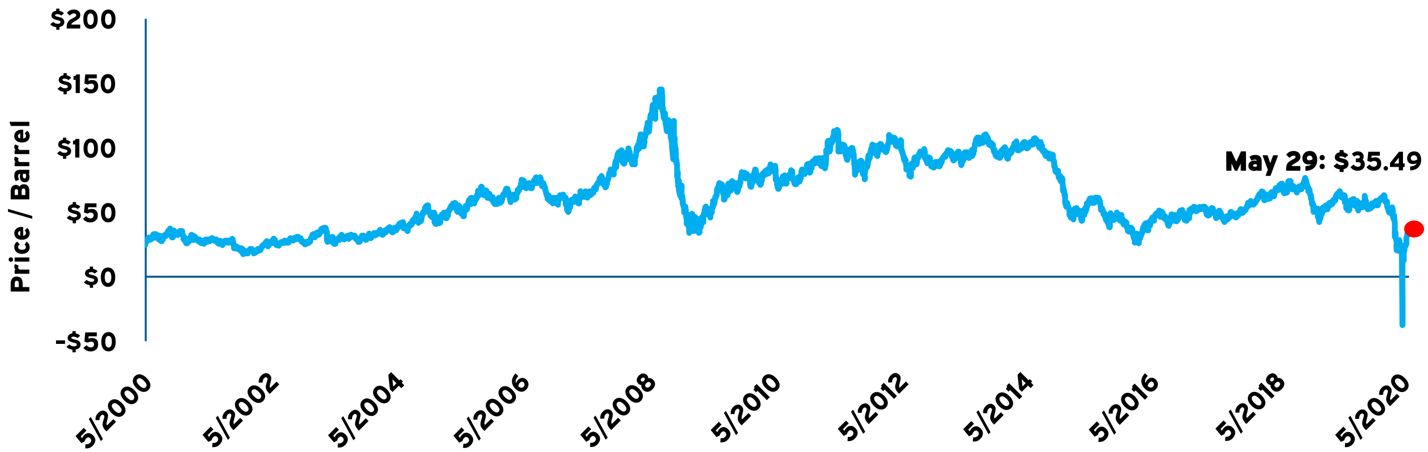
Destination	Amount ($ Billion)
Individuals	$560
Large Corporations	$500
Small Business	$377
State & Local Governments	$340
Public Health	$154
Student Loans	$44
Safety Net	$26

- Late in March, a historic $2 trillion fiscal package was approved in the US, representing close to 10% of GDP and including support across the economy.
- Individuals are actively receiving cash payments of up to $1,200 per adult and $500 per child, and extended and higher weekly unemployment benefits (+$600/week).
- The package also includes a $500 billion lending program for distressed industries like airlines, and $377 billion in loans to small businesses.
- Other parts of the package include allocations to state and local governments, support for public health, student loan relief, and a safety net.
- Shortly after the initial measures, additional fiscal stimulus was approved with the majority targeted to replenish the depleted small business lending program.

Policy Responses

	Fiscal	Monetary
United States	$50 billion to states for virus related support, interest waived on student loans, flexibility on tax payments and filings, expanded COVID-19 testing, paid sick leave for hourly workers, $2 trillion package for individuals, businesses, and state/local governments. Additional $484 billion package to replenish small business loans, provide funding to hospitals, and increase testing.	Cut policy rates to zero, unlimited QE4, offering trillions in repo market funding, restarted CPFF, PDCF, MMMF programs to support lending and financing market, expanded US dollar swap lines with foreign central banks, announced IG corporate debt buying program with subsequent amendment for certain HY securities, Main Street Lending program, Muni liquidity facility, repo facility with foreign central banks, and easing of some financial regulations for lenders.
Euro Area	Germany: Launched 750 billion euro stimulus package. France: 45 billion euro for workers, guaranteed up to 300 billion euro in corporate borrowing. Italy: 25 billion euro emergency decree, suspending mortgage payments for impacted workers. Spain: 200 billion euro and 700 million euro loan and aid package, respectively.	Targeted longer-term refinancing operations aimed at small and medium sized businesses, under more favorable pricing, and announced the 750 billion euro Pandemic Emergency Purchase Program. and then expanded the purchases to include lower-quality corporate debt
Japan	$1.1 trillion in small business loans, direct funding program to stop virus spread among nursing homes and those affected by school closures, and direct payments to individuals	Initially increased QE purchases (ETFs, corporate bonds, and CP) and then expanded to unlimited purchases and doubling of corporate debt and commercial paper, expanded collateral and liquidity requirements, and 0% interest loans to businesses hurt by virus
China	Tax cuts, low-interest business loans, extra payments to gov't benefit recipients.	Expanded repo facility, policy rate cuts, purchase of small business loans, and lowered reserve requirements.
Canada	$7.1 billion in loans to businesses to help with virus damage.	Cut policy rates, expanded bond-buying and repos, lowered bank reserve requirements.
UK (BOE)	Tax cut for retailers, small business cash grants, benefits for those infected with virus, expanded access to gov't benefits for self and un-employed.	Lowered policy rates and capital requirements for UK banks, restarts QE program and subsequently increased the purchase amounts.
Australia	$11.4 billion, subsidies for impacted industries like tourism, one-time payment to gov't benefit recipients.	Policy rate cut, started QE.

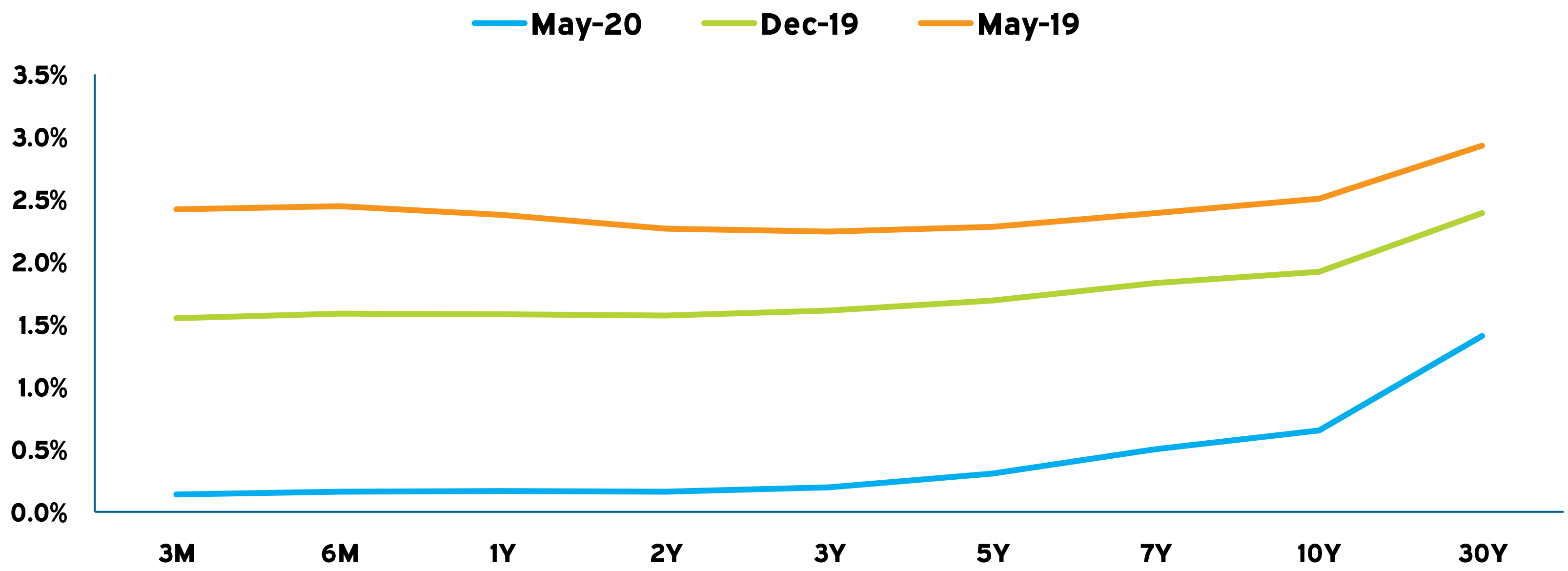
Oil Prices (WTI)[1]



- Global oil markets have rallied from April lows, including from the technically-induced negative levels that saw the May futures contract trade at nearly -$40 per barrel.
- In addition to improvements in sentiment as the global economy begins to reopen and some measures of economic fundamentals reporting better than expected numbers, recent reports suggest OPEC+ is getting closer to an agreement on extending production cuts.
- As a challenge to the potential OPEC+ production cut agreement, US oil producers (particularly shale output) are reportedly turning wells back on as the price of oil rises.

[1] Source: Bloomberg. Represents WTI first available futures contract. Data is as of May 29, 2020.

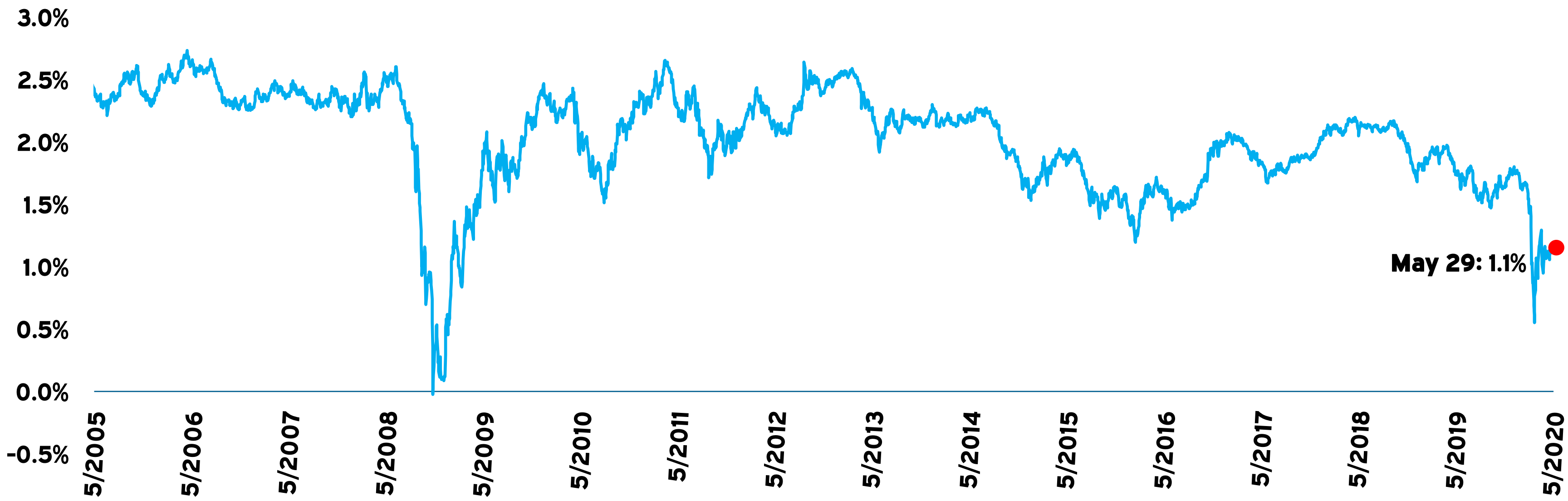
US Yield Curve Declines[1]



- The US Treasury yield curve has declined materially since 2019.
- Cuts in monetary policy rates lowered yields in shorter maturities, while flight-to-quality flows, low inflation, and lower growth expectations, particularly given indications that economic growth could slow by record amounts, have driven the changes in longer-dated maturities.
- The Federal Reserve's unlimited quantitative easing purchase program has provided further downward pressure on interest rates, as well as building expectations for additional stimulus measures, including yield curve targeting that could anchor certain maturities.

[1] Source: Bloomberg. Data is as of May 29, 2020.

10-Year Breakeven Inflation[1]

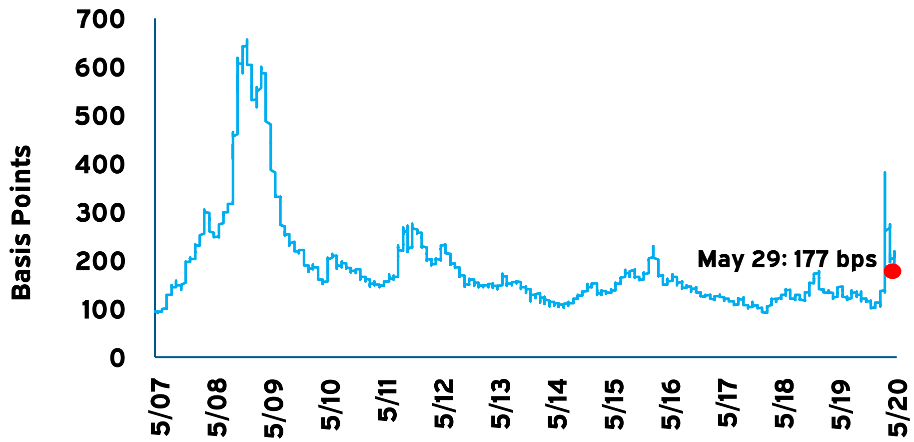


- Inflation breakeven rates declined sharply over the last two months, due to a combination of declines in growth and inflation expectations, as well as liquidity dynamics in TIPS during the height of rate volatility.
- Liquidity eventually improved and breakevens widened, but given the uncertainty regarding the economic growth and inflationary effects of the unprecedented US fiscal and monetary responses, inflation expectations remain well below historical averages.

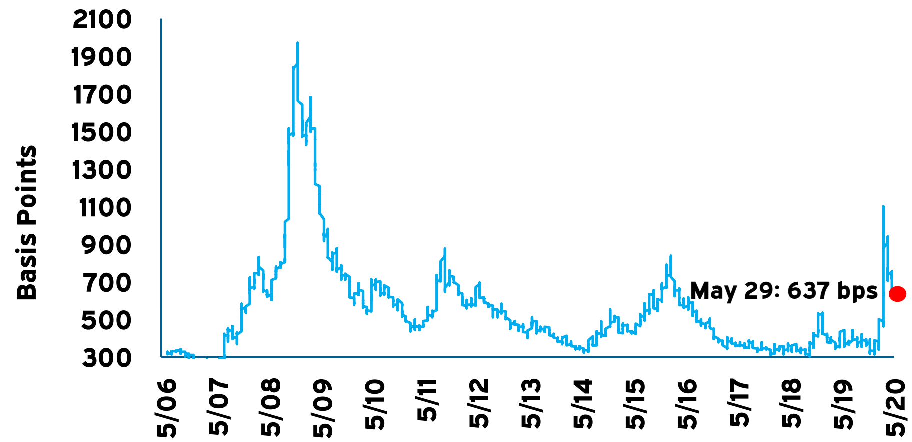
[1] Source: Bloomberg. Data is as of May 29, 2020.

Credit Spreads (High Yield & Investment Grade)[1]

Investment Grade OAS



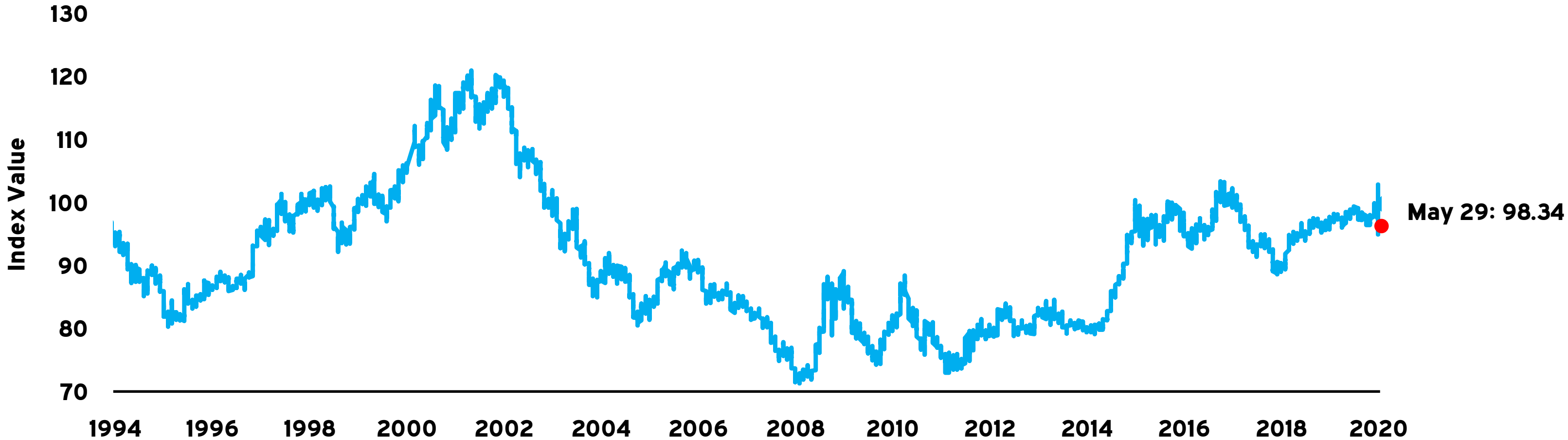
High Yield OAS



- Credit spreads (the spread above a comparable Treasury bond) for investment grade and high yield corporate debt expanded sharply as investors sought safety.
- Investment grade bonds held up better than high yield bonds. The Federal Reserve's corporate debt purchase program for investment grade and certain high yield securities that were recently downgraded from investment grade, was well received by investors, leading to a decline in spreads.
- Recently announced data from this program suggests purchases of high yield securities have been greater than expected, which has further supported the tightening of spreads for respective securities.
- Overall, corporate debt issuance has more than doubled since 2008, which magnifies the impact of deterioration in the corporate debt market. This is particularly true in the energy sector, which represents a large portion of the high yield bond market.

[1] Source: Federal Reserve Bank of St. Louis Economic Research. Data is as of May 29, 2020.

US Dollar versus Broad Currencies[1]



- When financial markets began aggressively reacting to COVID-19 developments, the US dollar came under selling pressure as investors sought safe-haven exposure in currencies like the Japanese yen.
- As the crisis grew into a pandemic, investors' preferences shifted to holding US dollars and highly liquid, short-term securities like US Treasury bills. This global demand for US dollars led to appreciation versus most major currencies.
- A relatively strong US dollar makes US goods more expensive for overseas consumers and causes commodity prices outside the US to rise, affecting foreign countries, and particularly emerging markets.
- To help ease global demand for US dollars, the Federal Reserve, working with a number of global central banks, re-established the US dollar swap program, providing some relief to other currencies.

[1] Source: Bloomberg. Represents the DXY Index. Data is as of May 29, 2020.

Economic Impact

Supply Chain Disruptions:

- Factories closing, increased cost of stagnant inventory, and disrupted supply agreements.
- Reduced travel, tourism, and separation policies including closed borders: Significant impact on service-based economies.

Labor Force Impacts:

- Huge layoffs across service and manufacturing economies.
- Increased strains as workforce productivity declines from increased societal responsibilities (e.g., home schooling of children) and lower functionality working from home.
- Illnesses from the disease will also depress the labor force.

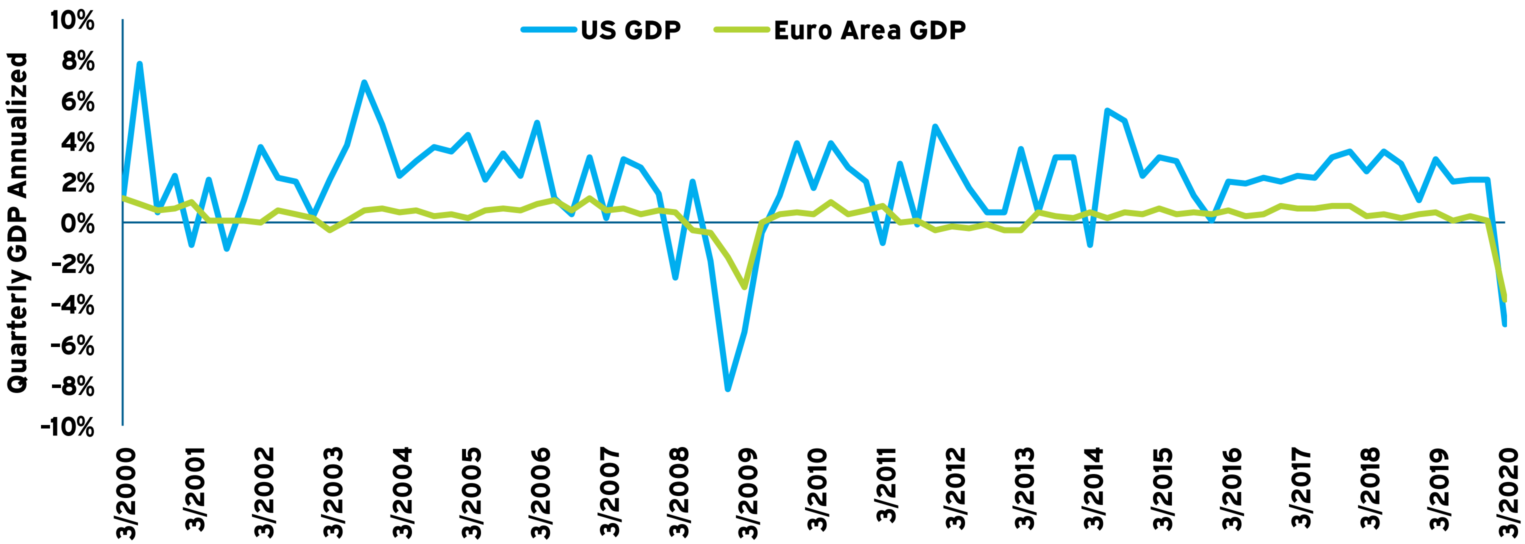
Declines in Business and Consumer Sentiment:

- Sentiment drives investment and consumption, which leads to increased recessionary pressures as sentiment slips.

Wealth Effect:

- As financial markets decline and wealth deteriorates, consumer spending will be impacted.

GDP Data Shows First Signs of Crisis[1]

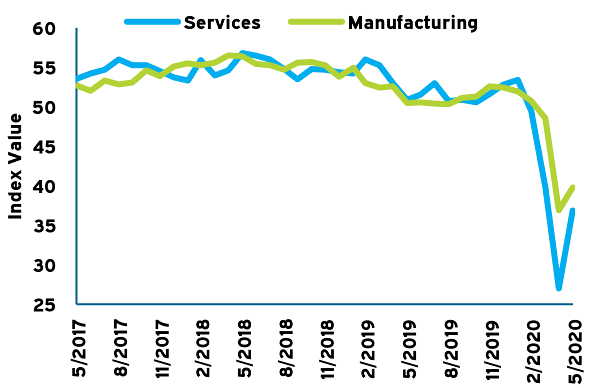


- The global economy faces major recessionary pressures this year, but optimism remains for improvements in 2021, as economies are expected to gradually reopen.
- In the US, the second estimate for first quarter GDP came in at -5.0%, with personal consumption declining the most since 1980. Eurozone GDP also fell (-3.8%) with the major economies in France, Spain and Italy experiencing historic declines.
- Going forward, Bloomberg Economics estimates that second quarter US GDP could be as low as -34% (QoQ).

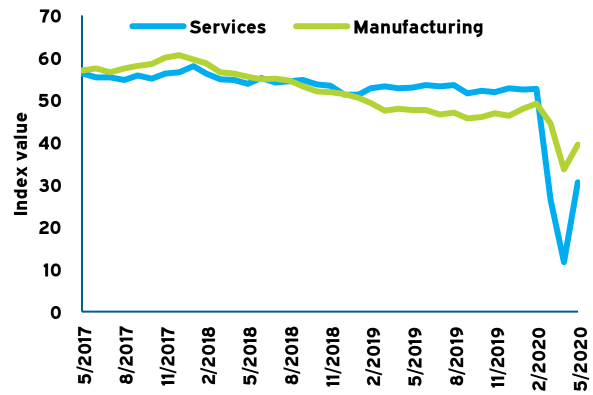
[1] Source: Bloomberg. Q1 2020 data represents first estimate of GDP for Euro Area and second estimate of GDP for United States.

Global PMIs

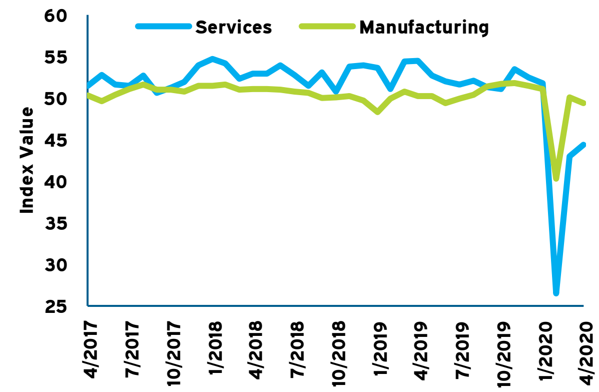
US PMI[1]



Eurozone PMI[2]



China PMI[3]



- Purchasing Managers Indices (PMI), which are based on surveys of private sector companies, collapsed across the world to record lows, as output, new orders, production, and employment have been materially impacted by closed economies.
- Readings below 50 represent contractions across underlying components and act as a leading indicator of economic activity, including the future paths of GDP, employment, and industrial production.
- The services sector has been particularly hard hit given the stay-at-home restrictions in many places.
- Recently, there have been slight improvements in data contributing to the optimism in equity markets, but readings remain in contraction territory.

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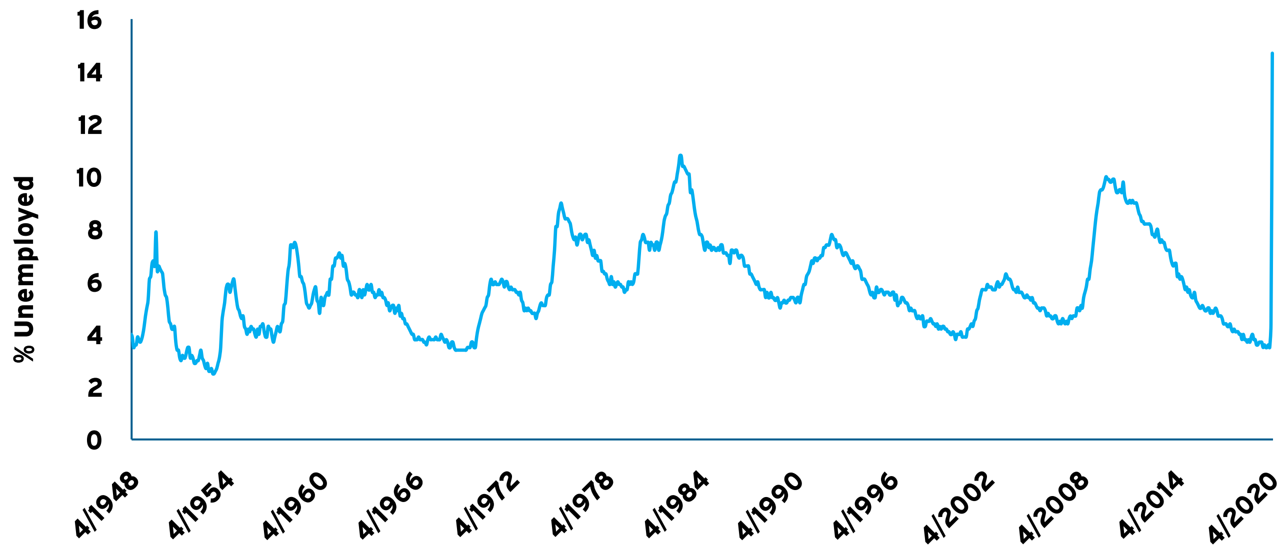
1 Source: Bloomberg. US Markit Services and Manufacturing PMI. Data is as of May 2020.

2 Source: Bloomberg. Eurozone Markit Services and Manufacturing PMI. Data is as of May 2020.

3 Source: Bloomberg. Caixin Manufacturing and Services PMI. Data is as of April 2020.

US Unemployment Rate[1]

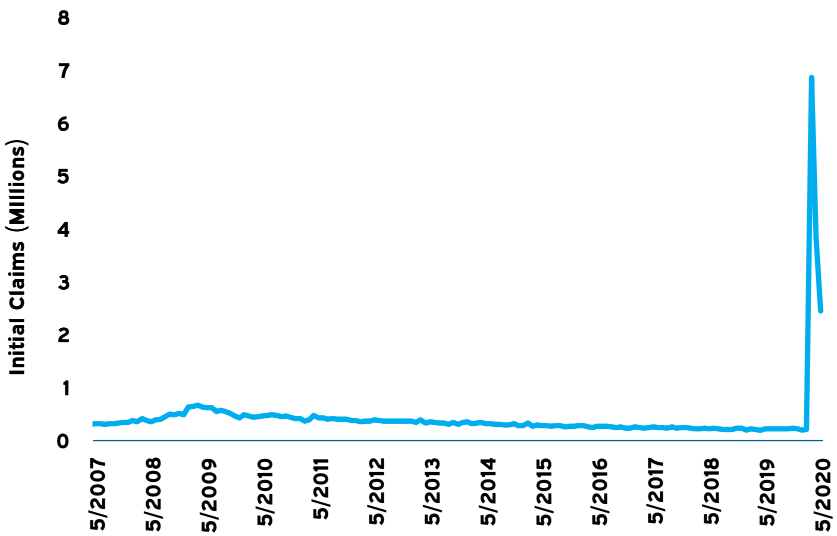


- The April reading of unemployment came in at 14.7%, slightly below estimates of 16%, but representing the highest level since the Great Depression.
- May payroll expectations are for an additional 8 million in job losses, and the unemployment rate to reach 19.5%.

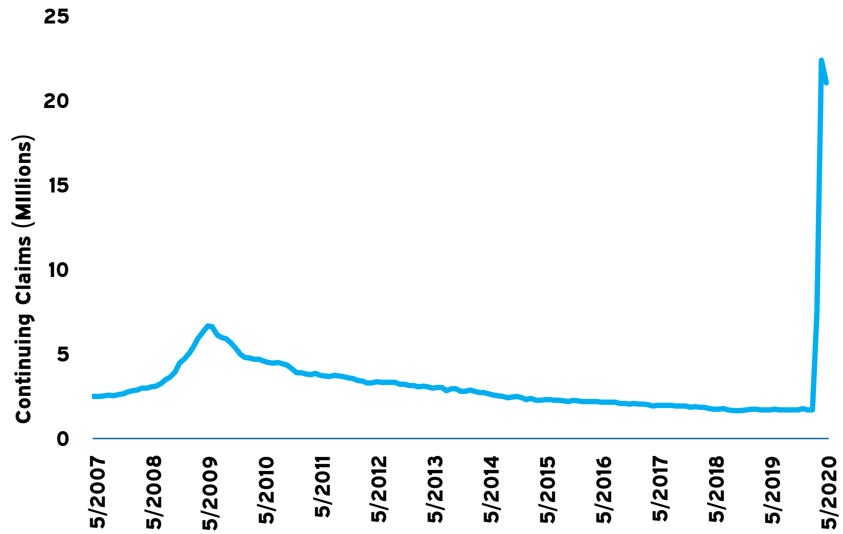
[1] Source: Bloomberg. Data is as of April 30, 2020.

US Jobless Claims

US Initial Jobless Claims[1]



Continuing Claims[2]



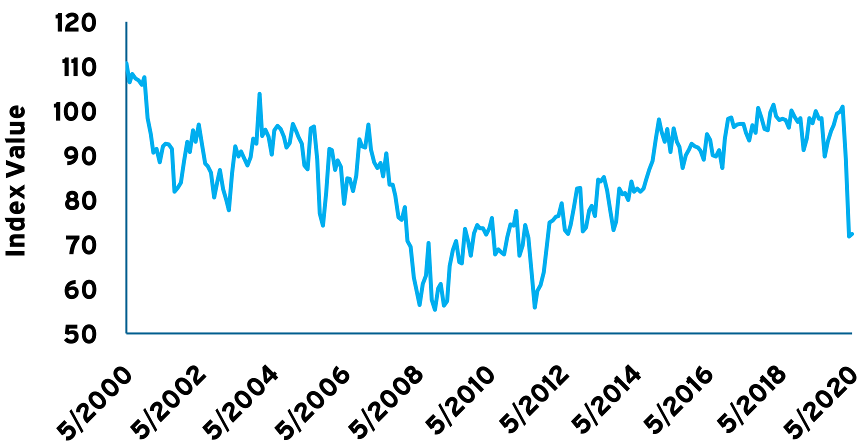
- Over the last seven weeks, close to 41 million people filed for initial unemployment. This level far exceeds the 22 million jobs added since the GFC, highlighting how unprecedented the impact of the virus is.
- Despite the recent decline in initial jobless claims, the 2.1 million level of the last reading remains many multiples above the worst reading during the Global Financial Crisis.
- Continuing jobless claims (i.e., those currently receiving benefits) also spiked to a record level of 24.9 million people in early May.

[1] Source: Bloomberg. First reading of seasonally adjusted initial jobless claims. Data is as of May 29, 2020.

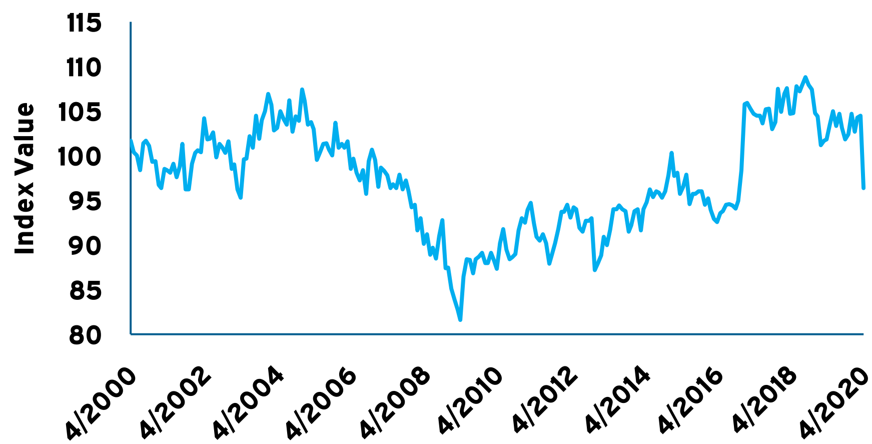
[2] Source: Bloomberg. US Continuing Jobless Claims SA. Data is as of May 29, 2020.

Sentiment Indicators

University of Michigan Consumer Sentiment[1]



Small Business Confidence[2]



- A strong indicator of future economic activity are the attitudes of businesses and consumers today.
- Consumer spending comprises close to 70% of US GDP, making the attitudes of consumers an important driver of future economic growth. Additionally, small businesses comprise a majority of the economy, making sentiment in that segment important too.
- As restrictions caused many businesses to close and employees to be laid off, sentiment indicators have seen corresponding declines with potentially more to come as the impact of the virus evolves.

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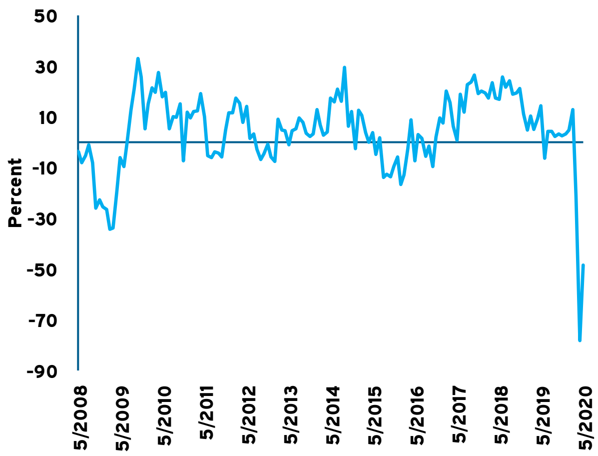
[1] Source: Bloomberg. University of Michigan Consumer Sentiment Index. Data is as of May 2020.

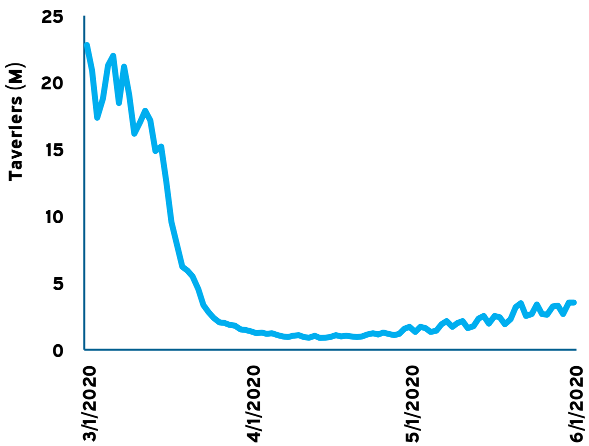
[2] Source: Bloomberg. NFIB Small Business Optimism Index. Data is as of April 30, 2020.

Some US Data has Improved Slightly

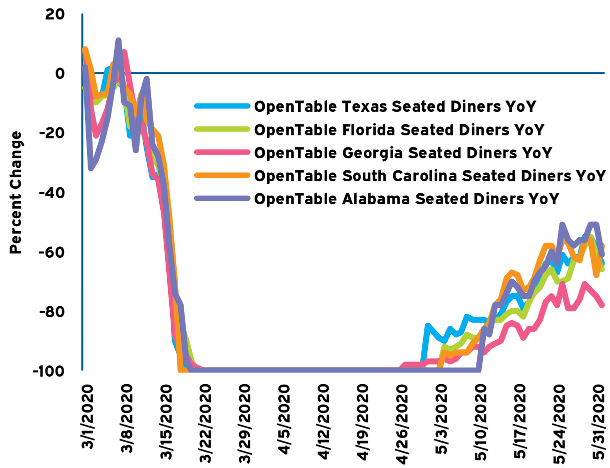
US Empire State Manufacturing Survey[1]



US Daily Total Air Travelers[2]



OpenTable Seated Diners YoY % Change[3]



- There has been some recent improvements in high frequency data, but overall levels of activity remain very low.
- Manufacturing in New York during March and April declined at the fastest pace on record, falling 78.2%, the lowest on record, dating back to 2001, with readings below zero indicating economic contraction. The survey recovered modestly in May to -48.5%.
- Air travel has been one of the hardest hit sectors, and despite some slight improvements recently, is likely to be one of the slowest areas to recover.
- States that have eased restrictions on restaurants have seen some improvements, but capacity restrictions have hurt overall profitability.

[1] Source: Bloomberg. Data is as of May 31, 2020 and represents the US Empire State Manufacturing Survey General Business Conditions SA.

[2] Source: Bloomberg. Data is as of June 1, 2020 and represents the US TSA Checkpoint Numbers Total Traveler Throughput.

[3] Source Bloomberg. Data is as of May 31, 2020 and represents some states that eased restaurant restrictions.

Government Re-Opening Recommendation[1]

Phase One	Phase Two	Phase Three
• Vulnerable individuals continue to stay at home. • Avoid groups of more than 10 people if social distancing is not possible. • Minimize non-essential travel. • Work remotely if possible with restrictions in the office for those businesses that open. • Schools remain closed, but some larger venues can open with strict protocols. • Outpatient elective surgeries can resume.	• Vulnerable individuals continue to stay at home. • Avoid groups of more than 50 people if social distancing is not possible. • Non-essential travel resumes. • Continue to work remotely if possible with restrictions in the office for those businesses that open. • Schools can reopen. • Inpatient elective surgeries can resume	• Vulnerable individuals can return to public life with social distancing. • Workplaces can reopen without restrictions. • Larger venues can operate under reduced social distancing protocols.

- The Trump administration announced guidelines for re-opening the US economy last month.
- Guidelines recommend states document a “downward trajectory” in new cases for two weeks before beginning a three-phase process to scale back distancing measures and reopen local economies.
- States should also document an additional two-week period decline in instances between each of the three phases, and be prepared to reinstate social distancing measures should cases rebound.
- A number of states are currently in the reopening process, with others considering when to start the process.

[1] Source: https://www.whitehouse.gov/openingamerica/

Looking Forward…

- There will be significant economic impact and a global recession.
  - How deep it will be and how long it will last depend on factors (below) that are unknowable at this time.
- The length of the virus and country responses will be key considerations.
  - As of now, it is not clear the end is in sight; however, individual countries are attempting to lay the groundwork to support a recovery in their economy.
- Central banks and governments are pledging support, but will it be enough?
  - Based on initial market reactions to announced policies, the answer is no, until the virus gets better contained.
- Expect heightened market volatility given the virus and previous high valuations.
  - This has been a consistent theme over the last two months; volatility is likely to remain elevated for some time.
- It is important to retain a long-term focus.
  - History supports the argument that maintaining a long-term focus will ultimately prove beneficial for diversified portfolios.

Prior Drawdowns and Recoveries from 1926-2020[1]

Period	Peak-to-Trough Decline of the S&P 500	Approximate Time to Recovery
Sept 1929 to June 1932	-85%	266 months
February 1937 to April 1942	-57%	48 months
May 1946 to February 1948	-25%	27 months
August 1956 to October 1957	-22%	11 months
December 1961 to June 1962	-28%	14 months
February 1966 to October 1966	-22%	7 months
November 1968 to May 1970	-36%	21 months
January 1973 to October 1974	-48%	69 months
September 1976 to March 1978	-19%	17 months
November 1980 to August 1982	-27%	3 months
August 1987 to December 1987	-32%	19 months
July 1990 to October 1990	-20%	4 months
July 1998 to August 1998	-19%	3 months
March 2000 to October 2002	-49%	56 months
October 2007 to March 2009	-57%	49 months
February 2020 to May 2020	-34%	TBD
Average	**-36%**	**41 months**
Average ex. Great Depression	**-33%**	**25 months**

- Markets are continuing to reprice amid the uncertain impact of the virus on markets and the global economy, which means this drawdown is still being defined in the context of history.
- That said, financial markets have experienced material declines with some frequency, and while certain declines took a meaningful time to recover, in all cases they eventually did.

[1] Source: Goldman Sachs. Recent peak to trough declines are through May 29, 2020.

Implications for Clients

- Be prepared to rebalance and take advantage of the age-old wisdom “buy low, sell high”.
  - Before rebalancing, consider changes in liquidity needs given the potential for inflows to decline in some cases.
  - Also, consider the cost of rebalancing as investment liquidity declines.
- Diversification works. The latest decline was an example of a flight to quality leading to gains in very high quality bonds.

Performance YTD
(through May 29, 2020)

S&P 500	ACWI (ex. US)	Aggregate Bond Index	Balanced Portfolio[1]
-5.0%	-14.9%	5.5%	-4.7%

- Meketa will continue to monitor the situation and communicate frequently.
  - The situation is fluid and the economic impact is uncertain at this stage.
- Please feel free to reach out with any questions.
  - We would be glad to assist with performance estimates, memorandums, or phone calls.

[1] Source: InvestorForce. Balanced Portfolio represents 60% MSCI ACWI and 40% Bloomberg Barclays Global Aggregate.

Disclaimers

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