INVESTMENTNEWSLETTER

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MARKET REVIEW 2020: LOOKING BACK ON AN UNPRECEDENTED YEAR

JANUARY 06, 2021 | Dimensional Fund Advisors

The year 2020 proved to be one of the most tumultuous in modern history, marked by a number of developments that were historically unprecedented. But the year also demonstrated the resilience of people, institutions, and financial markets.

The novel coronavirus was already in the news early in the year, and concerns grew as more countries began reporting their first cases of COVID-19. Infections multiplied around the world through February, and by early March, when the outbreak was labeled a pandemic, it was clear that the crisis would affect nearly every area of our lives. The spring would see a spike in cases and a global economic contraction as people stayed closer to home, and another surge of infections would come during the summer. Governments and central banks worked to cushion the blow, providing financial support for individuals and businesses and adjusting lending rates.

> *One major theme of the year was the perceived disconnect between markets and the economy.*

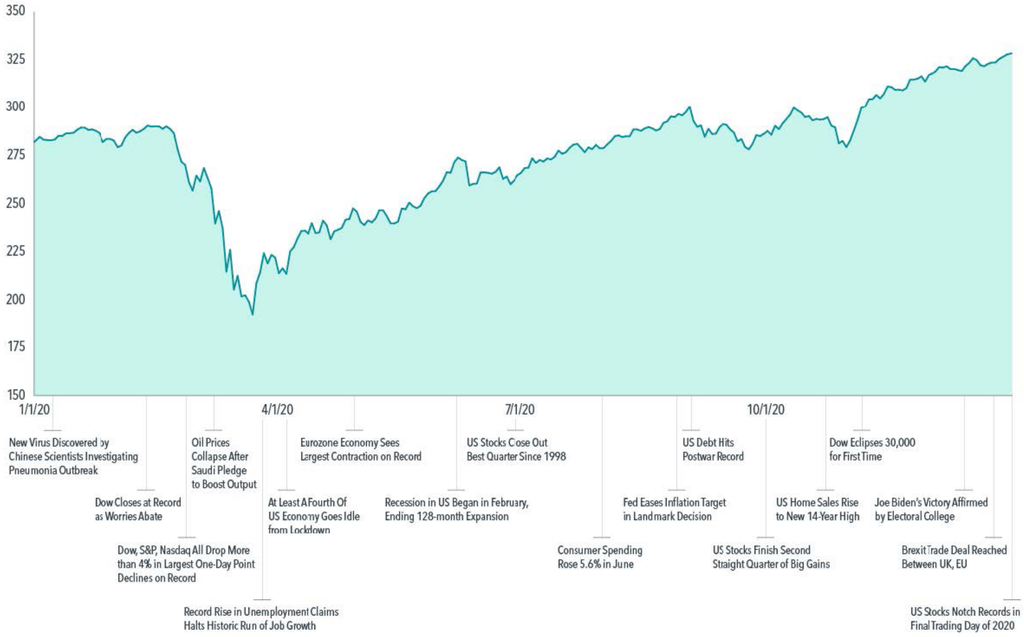
On top of the health crisis, there was widespread civil unrest over the summer in the US tied to policing and racial justice. In August, Americans increasingly focused on the US presidential race in this unusual year. Politicians, supporters, and voting officials wrestled with the challenges of a campaign that at times was conducted virtually and with an election in the fall that would include a heightened level of mail-in and early voting. In the end, the results of the election would be disputed well into December. As autumn turned to winter, 2020 would end with both troubling and hopeful news: yet another spike in COVID-19 cases, along with the first deliveries of vaccines in the US and elsewhere.

For investors, the year was characterized by sharp swings for stocks. March saw the S&P 500 Index's[1] decline reach 33.79% from the previous high as the pandemic worsened. This was followed by a rally in April, and stocks reached their previous highs by August. Ultimately, despite a sequence of epic events and continued concerns over the pandemic, global stock market returns in 2020 were above their historical norm. The US market finished the year in record territory and with an 18.40% annual return for the S&P 500 Index. Non-US developed markets, as measured by the MSCI World ex USA Index,[2] returned 7.59%. Emerging markets, as measured by the MSCI Emerging Markets Index, returned 18.31% for the year.

Exhibit 1
Highs and Lows

MSCI All Country World Index with selected headlines from 2020

Past performance is no guarantee of future results. In US dollars, net dividends. MSCI data © MSCI 2021, all rights reserved. Indices are not available for direct investment. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment.



Fixed income markets mirrored the extremity of equity behavior, with nearly unprecedented dispersion in returns during the first half of 2020. For example, in the first quarter, US corporate bonds underperformed US Treasuries by more than 11%, the most negative quarterly return difference in data going back a half century. But they soon swapped places: the second quarter was the second-most positive one on record for corporates over Treasuries, with a 7.74% advantage.[3] Large return deviations were also observed between US and non-US fixed income as well as between inflation-protected and nominal bonds.

Global yield curves finished the year generally lower than at the start. US Treasury yields, for example, fell across the board, with drops of more than 1% on the short and intermediate portions of the curve.[4] The US Treasury curve ended relatively flat in the short-term segment but upwardly sloped from the intermediate- to long-term segment. For 2020, the Bloomberg Barclays Global Aggregate Bond Index[5] returned 5.58%.

Exhibit 2
Sharp Shifts

US Credit minus US Treasury: Quarterly Returns, March 1973–December 2020

Past performance is no guarantee of future results. In US dollars. US credit represented by the Bloomberg Barclays US Credit Bond Index. US Treasuries represented by the Bloomberg Barclays US Treasury Bond Index. Bloomberg Barclays data provided by Bloomberg. Indices are not available for direct investment. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment.

Uncertainty remains about the pandemic and the broad impact of the new vaccines, continued lockdowns, and social distancing. But the events of 2020 provided investors with many lessons, affirming that following a disciplined and broadly diversified investment approach is a reliable way to pursue long-term investment goals.

MARKET PRICES QUICKLY REFLECT NEW INFORMATION ABOUT THE FUTURE

The fluctuating markets in the spring and summer were also a lesson in how markets incorporate new information and changes in expectations. From its peak on February 19, 2020, the S&P 500 Index fell 33.79% in less than five weeks as the news headlines suggested more extreme outcomes from the pandemic. But the recovery would be swift as well. Market participants were watching for news that would provide insights into the pandemic and the economy, such as daily infection and mortality rates, effective therapeutic treatments, and the potential for vaccine development. As more information became available, the S&P 500 Index jumped 17.57% from its March 23 low in just three trading sessions, one of the fastest snapbacks on record. This period highlighted the vital role of data in setting market expectations and underscored how quickly prices adjust to new information.

One major theme of the year was the perceived disconnect between markets and the economy. How could the equity markets recover and reach new highs when the economic news remained so bleak? The market's behavior suggests investors were looking past the short-term impact of the pandemic to assess the expected rebound of business activity and an eventual return to more-normal conditions. Seen through that lens, the rebound in share prices reflected a market that is always looking ahead, incorporating both current news and expectations of the future into stock prices.

OWNING THE WINNERS AND LOSERS

The 2020 economy and market also underscored the importance of staying broadly diversified across companies and industries. The downturn in stocks impacted some segments of the market more than others in ways that were consistent with the impact of the COVID-19 pandemic on certain types of businesses or industries. For example, airline, hospitality, and retail industries tended to suffer disproportionately with people around the world staying at home, whereas companies in communications, online shopping, and technology emerged as relative winners during the crisis. However, predicting at the beginning of 2020 exactly how this might play out would likely have proved challenging.

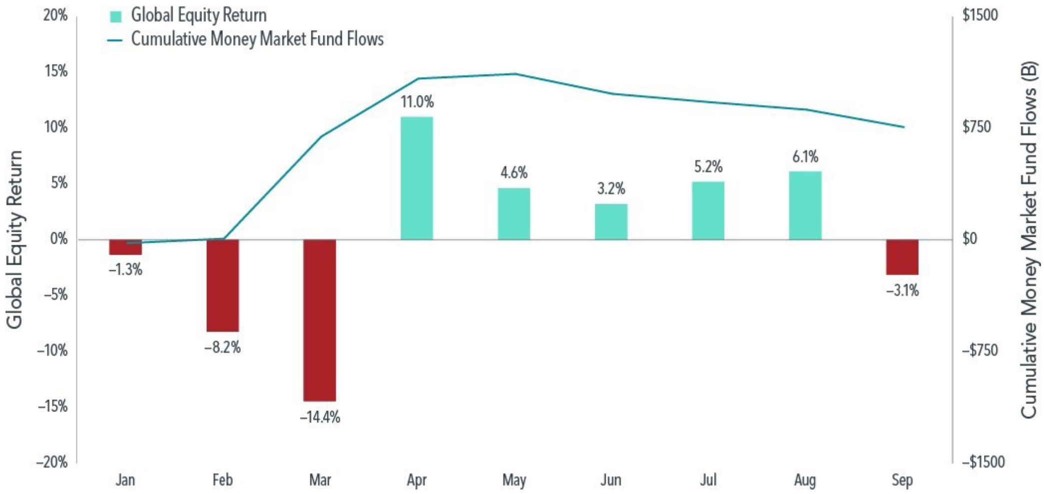
In the end, the economic turmoil inflicted great hardship on some firms while creating economic and social conditions that provided growth opportunities for other companies. In any market, there will be winners and losers—and investors have historically been well served by owning a broad range of companies rather than trying to pick winners and losers.

STICKING WITH YOUR PLAN

Many news reports rightly emphasized the unprecedented nature of the health crisis, the emergency financial actions, and other extraordinary events during 2020. The year saw many "firsts"—and subsequent years will doubtless usher in many more. Yet 2020's outcomes remind us that a consistent investment approach is a reliable path regardless of the market events we encounter. Investors who made moves by reacting to the moment may have missed opportunities. In March, spooked investors fled the stock and bond markets, as money-market funds experienced net flows for the month totaling $684 billion. Then, over the six-month period from April 1 to September 30, global equities and fixed income returned 29.54% and 3.16%, respectively. A move to cash in March may have been a costly decision for anxious investors.

Exhibit 3
Cash Concerns in 2020

MSCI All Country World Index with selected headlines from 2020



Past performance is no guarantee of future results. In US dollars. Global equity returns is the MSCI All Country World IMI Index (net div.). MSCI data © MSCI 2021, all rights reserved. Money market fund flows provided by Morningstar. Indices are not available for direct investment. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment

It was important for investors to avoid reacting to the dispersion in performance between asset classes, too, lest they miss out on turnarounds from early in the year to later. For example, small cap stocks on the whole fared better in the second half of the year than the first. The stark difference in performance between the first and second quarters across bond classes also drives home this point.

A WELCOME TURN OF THE CALENDAR

Moving into 2021, many questions remain about the pandemic, new vaccines, business activity, changes in how people work and socialize, and the direction of global markets. Yet 2020's economic and market tumult demonstrated that markets continue to function and that people can adapt to difficult circumstances. The year's positive equity and fixed income returns remind that, with a solid investment approach and a commitment to staying the course, investors can focus on building long-term wealth, even in challenging times.

1. S&P data © 2021 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. Indices are not available for direct investment.
2. MSCI data © MSCI 2021, all rights reserved. Indices are not available for direct investment.
3. US corporate bonds represented by the Bloomberg Barclays US Credit Bond Index. US Treasuries represented by the Bloomberg Barclays US Treasury Bond Index. Bloomberg Barclays data provided by Bloomberg. Indices are not available for direct investment.
4. ICE BofA government yield. ICE BofA index data © 2021 ICE Data Indices, LLC.
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TESLA'S CHARGE REVEALS WEAK POINTS OF INDEXING

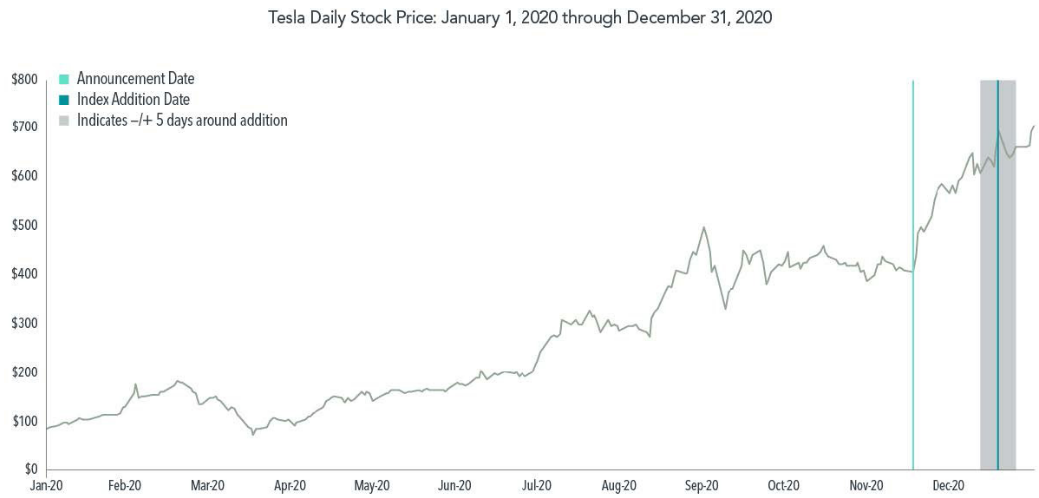
JANUARY 15, 2021 | Morningstar

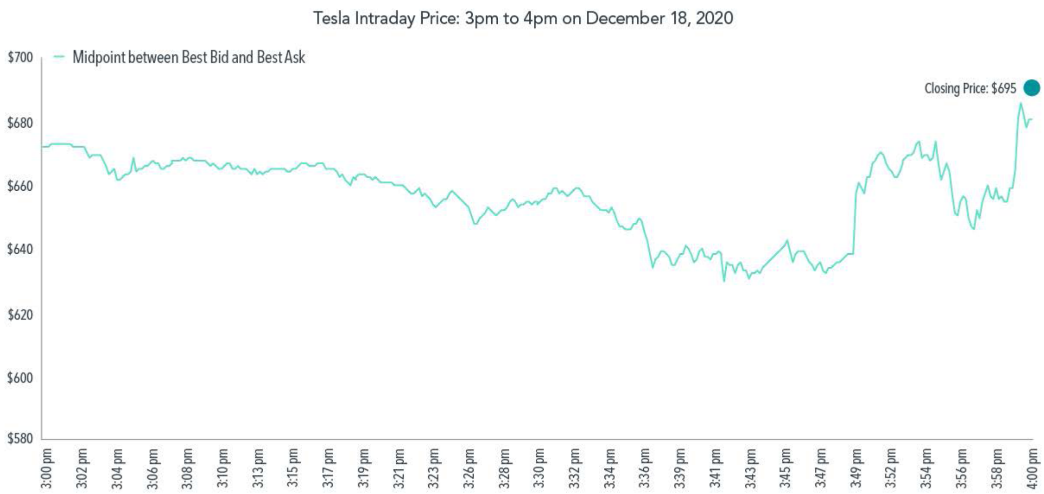
Index additions and deletions are typically a routine affair, but the recent announcement by S&P that Tesla would be added to the widely tracked S&P 500 Index stirred up quite a lot of attention. No surprise, given that Tesla is the largest company to ever join the index and, at the time of its addition on December 18, 2020, became the sixth-largest company in the S&P 500. On news of the announcement on November 16, Tesla's stock price jumped 8.2% from $408.09 to $441.61. As shown in **Exhibit 1**, Tesla then continued to post strong returns, closing December 18 up 70.3% since the announcement. That made the 2.3% return to the S&P 500 Index1 over that period look meager by comparison.

Who receives care, who provides it, the economic cost, and the devastating effects of COVID-19.

Exhibit 1
Joy Ride

Past performance is no guarantee of future results. Notes: Stock price data from Bloomberg L.P. Time indicated is US Eastern time. Intraday price equal to (bid price plus ask price)/2, calculated by Dimensional using data from Refinitiv Tick History (TRTH).





While Tesla's stock price wowed investors ahead of the company's addition to the S&P 500, the pattern quickly reversed: the stock climbed 13.9% over the five days ending with its index addition on December 18 yet slumped 4.8% over the subsequent week.[2]

What does this mean for investors? The answer, unsurprisingly, is that it depends.

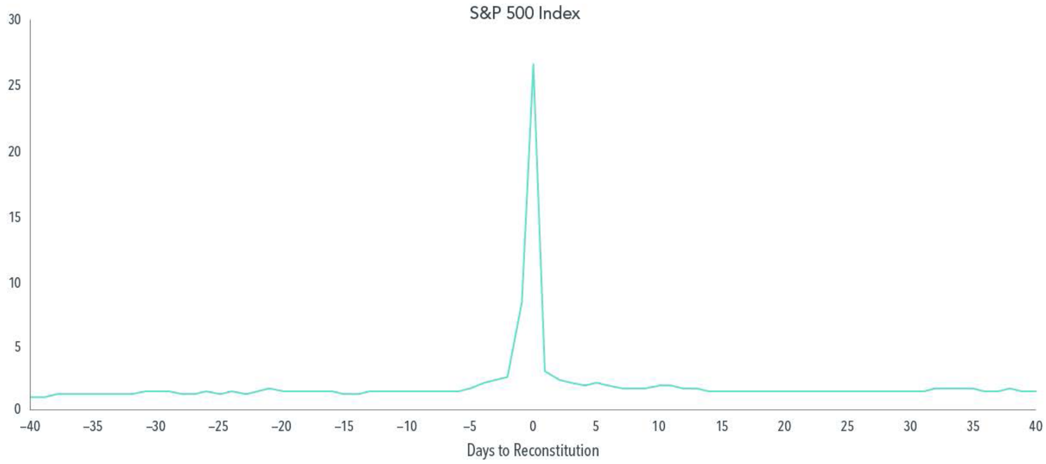
Indices generally undergo regular reconstitution events during which securities are added or deleted. Index funds, constrained by the objective of maintaining low tracking error versus the index, generally have to mirror these changes by purchasing and selling securities based on the revised index weights. With over $4.6 trillion in assets tracking the S&P 500 as of year-end 2019, that implies many index funds sought to buy Tesla stock on the day it was officially added to the index.[3]

For passively managed index funds, this lack of flexibility can come at a cost. One way to assess this potential cost is to examine the extent to which index reconstitution events are associated with unusually high trading volume. Abnormally high trading volume is a potential indication that demanding immediacy to trade in such stocks in the same direction may be costly. We illustrate such abnormal trading volume in **Exhibit 2**, which compares trading volume in stocks added to or deleted from the S&P 500 on reconstitution day with trading volume in the same stock on days before and after the reconstitution day across reconstitution events over the 2015–2019 period. For the 40 days before and after reconstitution day, we present the average volume for rebalanced stocks as a multiple of the stocks' volume on the day 40 days prior to reconstitution. If trading volume on reconstitution day is abnormally high for a rebalanced stock, it would lead to an increase in its multiple of volume traded on reconstitution day relative to non- reconstitution days. Indeed, averaging the volume ratios across all events over the five- year period, we find that trading volume for rebalanced stocks spikes more than 25 times relative to volume over the prior 40 days.[4]

Exhibit 2

Order of the Day

Abnormal Trading Volume in S&P 500 Index, 2015–2019



Notes: Equal-weighted average daily trading volume multiples for S&P 500 Index additions and deletions over the most recent five-year period, from 2015 through 2019. The security level trade volume multiple is based on the ratio of observed daily volume levels over the event horizon relative to the observed daily volume 40 days prior to the reconstitution date.

Demanding such unusually large trade volume can result in price pressure. But this price pressure does not have to manifest itself all on the day of reconstitution. At Dimensional, we believe market prices are forward-looking. Thus, because index rebalances are announced before the reconstitution date and often anticipated before the announcement date, an approach that is constrained to rebalance on the same day as an index may suffer from price pressure well ahead of the reconstitution date. Indeed, our research shows that stocks added to an index tend to outperform their respective indices prior to rebalancing, while stocks deleted from an index tend to underperform.

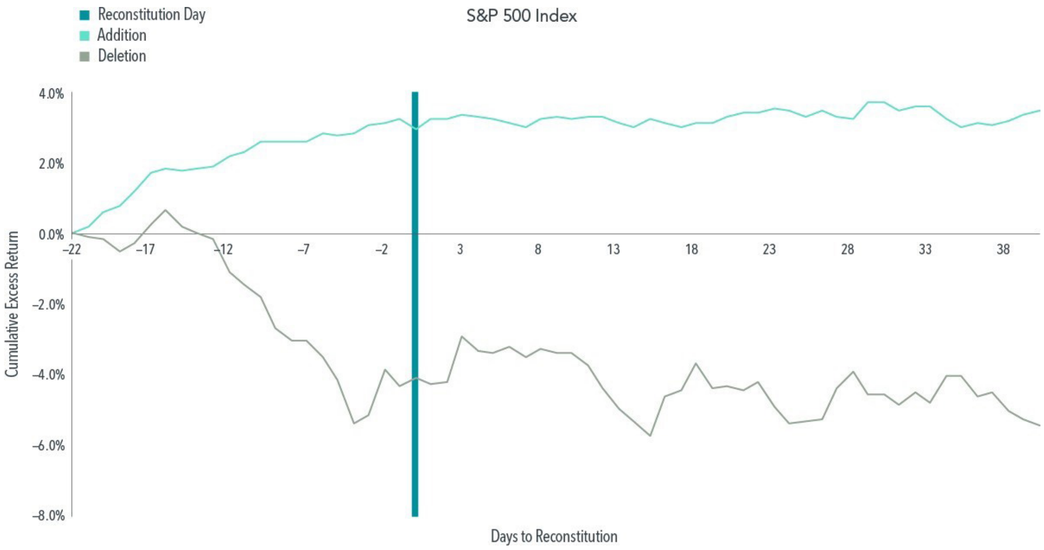
The remarkable upward march of Tesla's stock price ahead of its addition to the S&P 500 is consistent with that pattern.

More broadly, we see in **Exhibit 3** that the prices of additions (deletions) start to move higher (lower) than those of their index peers one month before the reconstitution day for the S&P 500.[5] This behavior suggests pricing adjustments may be occurring well before the reconstitution day for those indices.

Exhibit 3

Running Start

Start Average Cumulative Excess Return of S&P 500 Additions and Deletions, 2015–2019



Notes: Daily excess returns are calculated as the equal-weighted average of individual security returns minus the respective index returns. The cumulative excess return for day t+i is calculated as the sum of the daily equal-weighted average excess return from t–22 for S&P, where t+0 is the reconstitution date.

The reconstitution effect is one example showing the lack of flexibility of an index approach, which can leave returns on the table. While some of these costs can be mitigated by trading on a different date or spreading trading over a few days, we believe an even better approach would be a daily process that maintains a consistent focus on stocks with higher expected returns and spreads turnover across the entire year, with flexibility at the point of trade execution across stocks and quantity. Such an approach allows investors to incorporate information about liquidity and trading costs and avoid the cost of demanding immediacy from the market. A daily investment process also allows for the incorporation of short-term information about expected returns that is relevant over days or months, such as momentum and information from securities lending fees. Such short-term information cannot be incorporated efficiently if rebalancing happens only once or twice per year. In addition, daily portfolio management can further enhance investment outcomes by maintaining a consistent and accurate focus on the desired long-term drivers of expected returns and continuously balancing tradeoffs between premiums, costs, and diversification.

1. S&P data © 2021 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved.
2. Stock return over the week prior to index addition is from Friday, December 14, 2020, to Friday, December 18, 2020. Stock return over the following week is from Friday, December 18, to Thursday, December 24. Data are from Bloomberg LP, compiled by Dimensional.
3. Total assets indexed to S&P indices is from Annual Survey of Assets published by S&P Dow Jones Indices, as of December 31, 2019.
4. Reconstitution events for S&P indices sometimes fall on triple-witching dates, or days on which stock index futures, stock index options, and stock options all expire simultaneously. We examine reconstitution events outside of normal rebalancing dates, and therefore on days that do not overlap with triple-witching dates, and find that stocks added to or deleted from the S&P 500 Index still experience, on average, trading volume 26 times greater on the date of rebalancing relative to the trading volume 40 days earlier.
5. The initial increase in the gray deletion line is primarily driven by ENSCO PLC, which was dropped from the S&P 500 Index on March 29, 2016, due to an international merger. See "Ensco plc and Rowan Companies plc Merge to Form Ensco Rowan plc, Industry- Leading Offshore Driller," Business Wire, April 11, 2019.

Source: Dimensional Fund Advisors LP

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101828 | C21-17200 | 01/2021 | EXP 01/30/2022

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