LGIMA's Multi-asset Market Update

April 2020

Equity market

Easter weekend in Chicago came with our first real taste of Spring, but as we write, temperatures are back in the 30s and are accompanied by flurries. Markets have been at least as volatile as Chicago weather, and current temperatures aren't the only thing making us say, "Brrr." We published our last report just a couple days before the S&P 500 gave up an additional 10% to mark its local low. That was a peak-to-trough decline of ~34%, and just as quickly we've rocketed off that low with a rally of nearly 27%. A lot of digital ink has been spilled remotely on the violence of recent market movements, the coronavirus as the nexus of those movements, and (deservedly) the real economic impacts of the virus. There is so much that is yet unknown about those economic impacts—temporary or permanent, short- or long-term—that we are going to give ourselves and our readers a mild reprieve from rehashing all that data and detailing the open questions.

Instead, we want to highlight perceptions of the debates of both the virus and the fiscal and monetary response to it. Certainly, those topics are already top of mind for all of us, and we just said we weren't going to beat you over the head with the same data. Instead, what is striking to us are some of the implications of the ongoing debates, regardless of whether the views are particularly bullish or bearish.

For example, Alex Berenson is a prominent and somewhat controversial voice in support of reopening the economy as soon as possible. Mr. Berenson is a Yale graduate, author and reporter, most notably as a former New York Times reporter on the pharmaceutical and health care industries. He was early and accurate in identifying potential flaws with the primary models that guided the eventual U.S. response to infections. The variables and assumptions he identified turned out to be directly related to the revisions made last week to those models, which now predict fewer deaths than originally feared and less likelihood of healthcare systems being overwhelmed. He has also relied on data published through state-level health care administration agencies to show that overall hospital and ICU utilization rates are down in many areas. He uses this data as evidence to argue that lockdowns are unnecessary, and that the economic and psychological harm we are inflicting are likely worse than the ultimate effects of living with the virus.

It is certainly fair to be skeptical of an argument that seems to suggest that shelter-in-place orders are unnecessary precisely because they seem to be having the intended effect of reducing infections and

deaths. So, the debate rages on as to where we "optimize" the joint effects of the illness and the resultant social and economic consequences. Additionally, there have been several recent headlines of health care worker furloughs and acute financial challenges in certain health care systems, and Mr. Berenson is arguing that the lack of non-coronavirus care currently being given suggests that we should or need to reopen the economy. So, we should reopen the economy so we can go back to being sicker for other reasons and spending more money on healthcare, and this is somehow…better? We seek healthy minds, healthy bodies and healthy markets. The current framing of these issues—from all sides and by all participants—seems to suggest that we cannot balance all three.

The fiscal and monetary response to the known—and potentially some of the anticipated—economic challenges resulting from the pandemic is the second hot issue that we hope to tackle from a slightly different perspective. Your author was on a portfolio management desk when the first generations of TALF, TARP and related programs were announced, and has a distinct memory of someone a couple of seats down quipping, "Well, great—a Coke is going to cost $8 in a few years" (the live version employed more colorful language). Not only have the current government and Fed actions reignited inflation fears, but they have also opened even thornier questions regarding the value of fiat currency, the full legality of the scope of securities the Fed has suggested they will purchase, and what it even means to take investment risk.

It is difficult to argue against the government backstopping individuals affected by the exogenous shock of a pandemic by providing direct payments and supporting small business loans. A functional market is also necessary for business and economic activity to continue; supporting market functioning should have real value and likely bolsters confidence in consumers and businesses alike. We believe, generically, that these actions taken in earnest and implemented honestly should have broad benefits.

We know from our work with defined contribution retirement plans, though, that 60% of individual savers say that their current level of non-mortgage debt is a "major" or "minor" problem, and this resonates with reported statistics regarding the lack of Americans' emergency savings (see, for example, this New York Times article from October 2019). If such a high proportion of workers with access to a 401(k) plan have a high debt burden and lack emergency savings, they probably aren't self-directing their contributions into shares of HYG. The same survey mentioned above confirms this, noting that about half of all workers with access to a plan say that their debt prohibits them from participating or contributing fully. Yet this still isn't the full picture, because only half of all workers even have access to a 401(k). Those who aren't covered are more likely to be on an hourly wage and/or work for a small business—precisely where the economic impacts of the virus have been felt most acutely so far. Considering these financial demographics, it is impossible for us to avoid questioning the misplaced value of using government funds to support what should be risky securities rather than using the funds to more directly support citizens most exigently harmed by the pandemic.

So, somewhere in the debate of supporting financial markets, supporting individuals and maintaining accountable, responsible fiscal and monetary policies something is missing or broken. Again, all sides seem to be framing the issues as trade-offs between healthy minds, healthy bodies and healthy markets. We will continue to seek all three, and we wish to support retirement plan beneficiaries in the same way.

Equity volatility

It is no surprise that at-the-money implied volatility remains elevated and the term structure is still inverted. Even so, it is important to understand that optionality may be fairly priced, perhaps even cheap. One- to three-month maturities imply about 35%, while even the one-year implied volatility is 30%. Typically, we

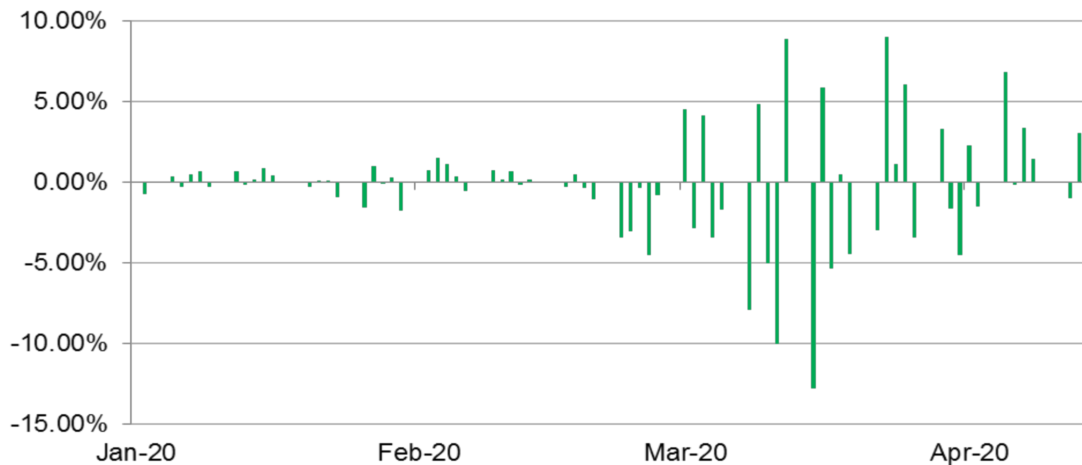
would consider these levels already very stressed. However, those levels are still well below the 60-70% implied volatility of only a few weeks ago, and current implied volatility should be considered in relation to recent daily percentage price changes.

Implied volatility of 30-35% suggests that the option market is pricing in approximately +/- 2% daily moves over the respective time to maturity. Therefore, even with the supposed recovery in risk markets of the past few weeks, anyone attempting to profit from carry positions (short vol) is betting not only on the stability of the current rally, but also that the future direction of the market will be characterized by more subdued movements than what we’ve been experiencing.

Therefore, regarding the present opportunity set, we can go beyond debating whether any particular contract is cheap or expensive and use the full menu of volatility dynamics when considering plan overlay decision making “after the hurricane.”

For example, one-year put spread collars that would typically price with zero net premium would sell a ~107% call against an 80/95% put spread. But current pricing implies selling a 113% call today, giving plans significantly more upside participation. A similar structure that would focus more on tail risk-like protection can enter a 70/85/120% structure. Both of the examples above currently take advantage of the current elevated volatility and skew levels without taking a view on whether implied volatility or skew may be “rich” or “cheap”.

S&P 500 Daily Spot Price Percentage Changes



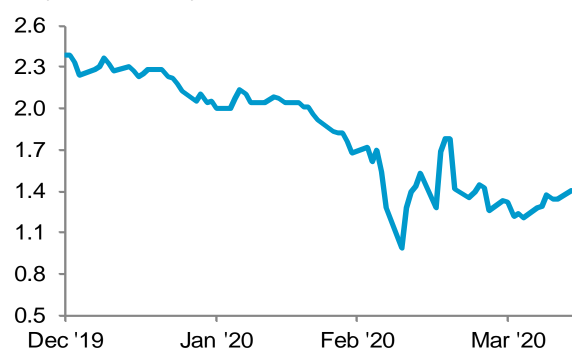
Source: Bloomberg, data as of April 15, 2020.

Rates market

Long-end rates experienced one of the most volatile months on record in March as the 30-year Treasury rate went from 1.68 at the end of February all the way down to 0.70, back up to 1.78, and then closed out March at 1.29. Other than the last day of the month, the 30-year bond traded in double digit range on a daily basis, averaging a 25 basis points difference between the high and low print of the day. The 5s30s Treasury curve went from 0.74 at the end of February down to 0.51 in less than two weeks before rocketing up to 1.09 over the next two weeks before closing out the month at 0.94.

Virtually all moves in the market have taken their cues from coronavirus news or the extraordinary measures governments and central banks are taking to keep the virus from spreading and keep the economy afloat. The Fed moved up their March meeting by 3 days and on a Sunday night cut rates back to the 0-25 basis point range while announcing a $700 billion Treasury and MBS purchasing program. Later in the week Congress began discussing a $1-2 trillion stimulus package and the President declared a National emergency, pushing long end rates up to 1.78, although this was mostly driven by the expectation that the Treasury would have to drastically ramp up their issuance in the ensuing months rather than calm returning to the market.

30-year Treasury rates



Source: Bloomberg, data as of April 15, 2020.

Over the rest of the month the Fed and every other major central bank used virtually every tool in their arsenal to help calm the markets. The Fed has tried to destigmatize and expand the use of the discount window, essentially announcing "QE infinity" and expanding their purchase program with no limit in size, stating it will be "in amounts needed to support smooth market functioning." They have also announced and implemented a veritable alphabet soup of acronym facilities to help improve liquidity and depth in Treasury bonds, corporate bonds and regional bank lending: CPFF, FIMA repo lines, TLAC and TALF revisions, PMCCF and SMCCF.

The all-out effort by the Fed to calm the markets seems to be working thus far. Although the rates markets are trading wider than normal, it's no longer difficult to find bids for off-the-run bonds like it had been in mid-March. And while the Fed has started slowing their asset purchases, the buys thus far have alleviated much of the balance sheet pressure the banks were feeling as asset managers sold Treasuries to move risk into equities and credit. The Fed has also made it clear they will not hesitate to scale the purchasing back up if market conditions warrant it.

The rates market in April seems fairly boring after what it went through in March. While the high to low prints in the 30-year Treasury averaged 18 basis points a day in March, we've only had one day (April 1) where the high to low prints made it to double digits. So far, the range has been averaging 8 basis points a day through April 14. The most volatile day of the month thus far was April 1, when the long end rallied 10 basis points to 1.22, driven by growth concerns as global PMIs came in even lower than the already dismal expectations. After the shock of a 3.3mm jobless claims number in March, the market basically shrugged off the 6.6mm print in the first week of April as well as the -701k NFP print (vs -100k expectation) and jump up to a 4.4% unemployment rate. At this point, it seems a foregone conclusion that the unemployment rate will get above 10% and could rival levels not seen since the Great Depression. And the actual vs expected NFP print in May could be off by millions. The question doesn't seem to be how bad will it get (the answer is a resounding "pretty bad") but rather how fast can unemployment recover and how quickly can the economy get back on track once restrictions start to be lifted and things

U.S. Rate environment

Index	4/15/2020	1-month ago	3-months ago	1-year ago
Fed Funds Rate	0.25%	1.25%	1.75%	2.50%
2-year	0.20	0.49	1.55	2.39
5-year	0.34	0.72	1.60	2.38
10-year	0.63	0.96	1.78	2.57
30-year	1.27	1.53	2.24	2.98

Source: Bloomberg, data as of April 15, 2020.

slowly get back to "normal." Equally important is when will the restrictions start to get lifted, but as cases and deaths continue to grow – albeit at a slower pace – it's impossible to give a concrete timeline.

The second week of April saw the U.S. yield curve bear steepening, fueled in part by "viral curve flattening" – reports stating that the social distancing efforts and non-essential closures were helping slow the spread of the virus. Additionally, the Fed launched their Commercial Paper Funding Facility and SBA lending program while the ECB eased their collateral standards by reducing haircuts and accepting Greek debt. The FOMC minutes emphasized that the tools the Fed is using will remain in place until the "economy had weathered recent events and on track to achieve the committee's maximum employment and price stability goals." The Fed also announced their large scale buying of loans and fallen angel debt, investments in HYG and JNK ETFs, a $600 billion Main Street Lending program, an $850 billion expansion of credit loan buying via TALF, PMCCF and SMCCF, as well as $500 billion in loans to states and municipalities. Over the weekend an OPEC agreement to cut global oil production gave some much needed relief to the energy sector and helped push the long end rate up to 1.40. There has been talk at both the federal and state level of slowly opening the economy back up as early as May. Whether or not this comes to fruition will be key for how rates move from here.

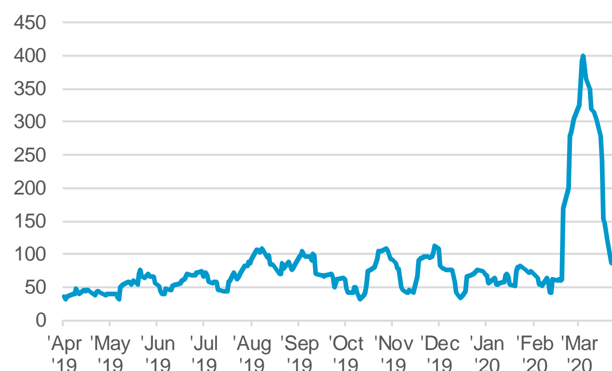
Rates volatility

If one were to look at a graph of U.S. rate volatility and nothing else, it might lead to the conclusion that the current crisis is completely behind us. After volatility had a meteoric rise in March as new lows in the long-end were shattered on a consistent basis and realized moves were on par with the financial crises, they came crashing back down nearly as quickly in April. For example, 3m10y (one of the most widely traded short dated OTC structures in rate volatility space) went from 67abpv in mid-February, peaked at 139abpv on March 19, and was trading at 76abpv as of April 14, only slightly higher than the previous 1-year average of 71abpv. Clearly the volatility market does not have any insider information about a quick and easy cure/vaccine that has solved all of our problems. Rather, it seems to be indicative of the quick, decisive, and continuing actions of the Fed that seem to have calmed the markets, at least for now. The high and low intraday print in the 30-year Treasury midway through April has been a 22.4 basis points range (1.190-1.414). In March, there were 13 trading days that had wider ranges than that.

3m10y implied volatility

Source: Citibank, data as of April 15, 2020.

30yr Treasury realized volatility (two-week trailing)



Source: Citibank, data as of April 15, 2020.

The fall in volatility is partially due to delivered volatility dropping from its record setting pace. The market seems to think we've tested and determined a lower bound for long-end rates - particularly since the Fed has made it fairly clear they will try a myriad of tools at their disposal to ease market conditions before resorting to negative rates. And with the Fed minutes showing they plan on continuing with their market

interventions until the economy is back up and running, it's easy to see rates staying range bound for the foreseeable future.

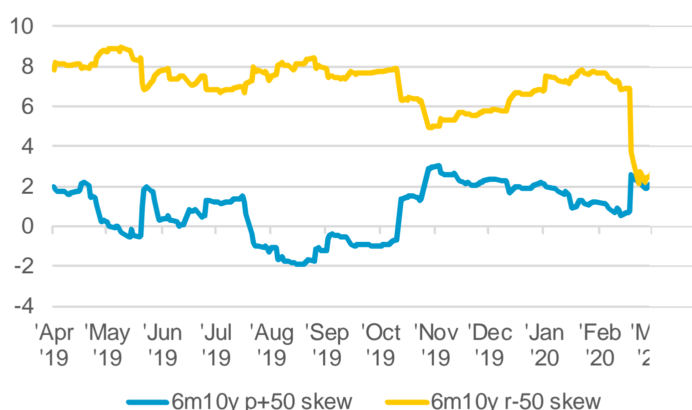
Current implied volatility levels and change over one month

P/TAIL	1Y	CHANGE	2Y	CHANGE	5Y	CHANGE	10Y	CHANGE	30Y	CHANGE
1M	45.9	-24.9	45.4	-33.2	60.2	-36.6	82.0	-60.6	100.6	-67.0
3M	41.6	-11.6	41.1	-20.4	56.6	-30.5	77.7	-40.3	88.0	-46.3
6M	36.7	-13.2	38.5	-19.2	55.7	-25.0	73.9	-27.2	81.7	-27.4
1Y	36.8	-11.3	43.1	-10.7	57.1	-14.3	70.3	-16.4	76.2	-15.6
2Y	49.7	-2.4	53.3	1.9	60.0	-11.4	68.2	-11.1	70.6	-10.1
3Y	57.2	-1.7	58.7	-3.1	62.6	-7.0	67.5	-7.7	67.1	-7.0
4Y	61.0	-1.0	62.0	-1.9	63.4	-4.8	66.8	-5.8	64.5	-5.5
5Y	64.3	-0.8	64.2	-1.3	63.7	-3.4	65.6	-4.4	62.4	-4.5
7Y	65.6	-1.1	64.5	-2.0	63.9	-2.1	64.1	-3.2	59.8	-3.6
10Y	65.7	-0.8	64.9	-1.0	62.7	-1.0	61.7	-2.1	57.5	-2.4

Source: Citibank, data as of April 15, 2020.

The other theme that has emerged in rate volatility over the past month is the cheapening of receiver skew and the richening of high strike payers. For the first time in over a year, payers are once again trading rich to receivers on some structures. Part of the thinking is that once the economy does start to recover, the move higher in rates could be fast and violent.

Payer (p) and receiver (r) skew

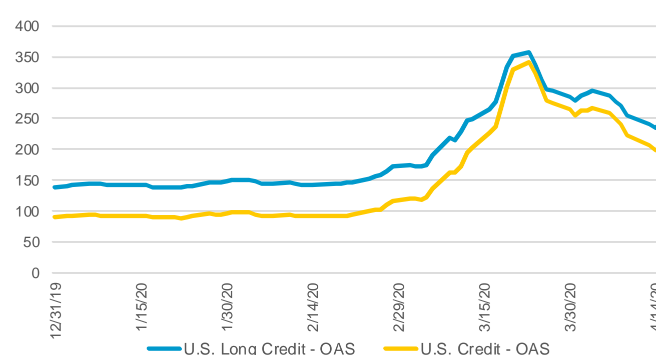


Source: Citibank, data as of April 15, 2020.

Credit market

If there is one feature to the coronavirus crisis that is truly unprecedented, it is the speed with which markets sold off. Investment grade credit indices entered the year within hairs of the post-crisis tights but spreads widened to levels only exceeded in 2008/2009 in the short span of 3 weeks. The economic impact of virus is starting to become more forecastable even if uncertainty remains high. There are two main scenarios: a V-shaped recovery with a return to trend growth by year-end and a W/U-shaped recovery where quarantines drag on and/or there is a second wave of infections later this year. In either case, the depth of current contraction is going to be of a magnitude that is multiples of past recessions, and as such, LGIMA remains relatively negative on the economic backdrop. The good news is the policymakers have been swift to respond. Governments are undertaking fiscal expansion equivalent to what is typically seen in wartime and central banks seem keen to purchase much of that new debt through expanded QE programs. The decision by the Fed to reintroduce and expand many of their crisis-era programs to provide support to dollar-funding conditions, short-term markets and new asset classes such as corporate

U.S. credit spreads

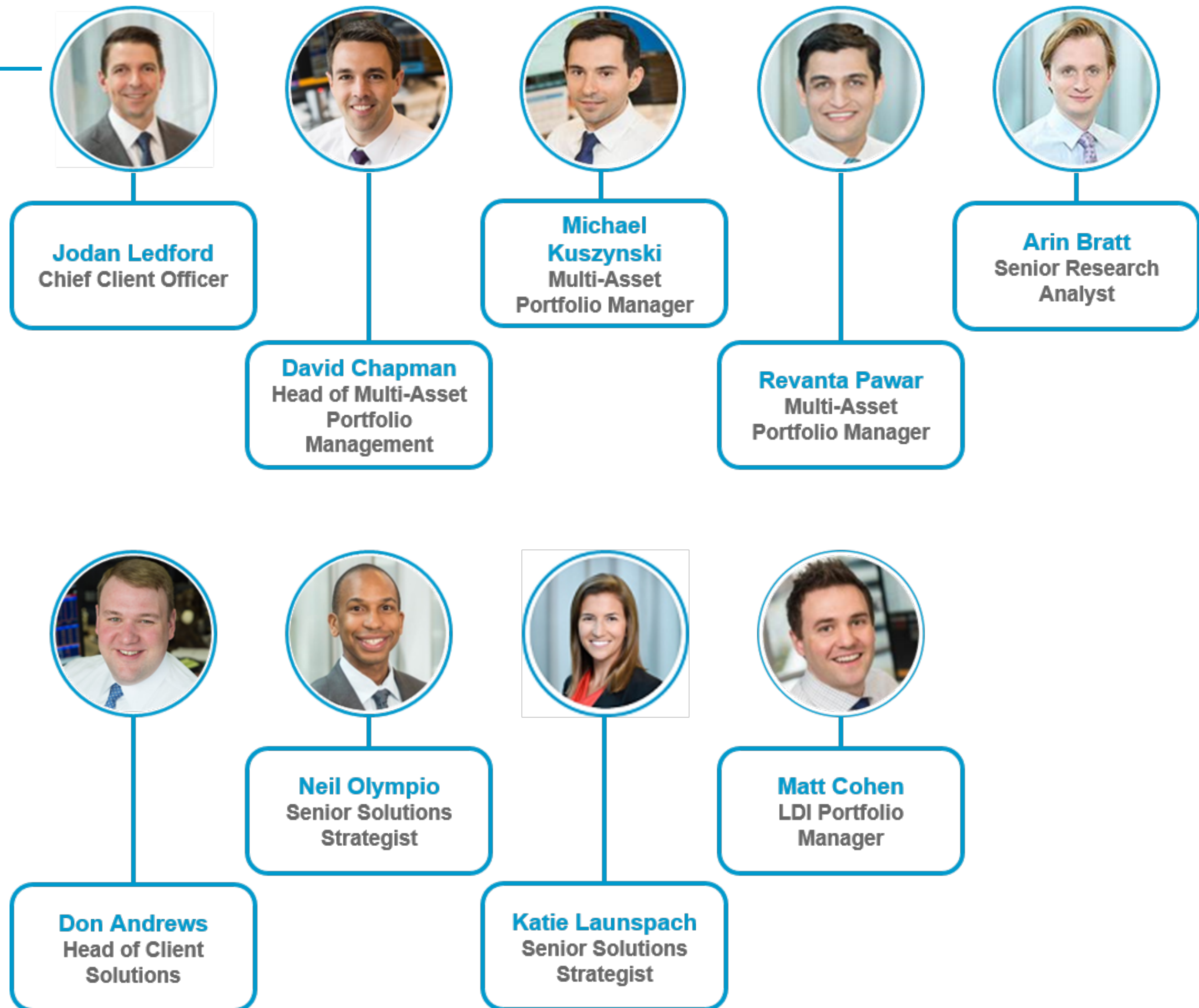


Source: Bloomberg, data as of April 15, 2020.

bonds is a major positive. Indeed, the Fed's newfound willingness to purchase corporate bonds is a major reason nontraditional IG credit investors have been clamoring to get allocations in the primary new issue market with significant new issue concessions. With unprecedented monetary and fiscal stimulus, credit markets have retraced the selloff's spread widening by 55%. As of April 14th, the Bloomberg Barclays Long Duration Credit index closed at 235 basis points, 123 basis points tighter from the wides reached on March 23rd.

The primary market has been relentless in IG credit. Issuers looking for liquidity are tapping the new issue market and have surpassed weekly ($116 billion), monthly ($255 billion) and quarterly ($470 billion) records. As it stands, $618 billion of supply has come to market year-to-date, approximately 72% ahead of last year's pace. In 2019, a total of $1.05 trillion bonds printed in new issuance, and the market is already ~60% of reaching that total only four and a half months into the year. The surge in supply has been met with high demand, including one very large buyer, the Federal Reserve. The most recent announcement from the Fed unveiled a $2.3 trillion combination of new and expanded funding facilities, allocating $750 billion of that to primary and secondary corporate bond purchases. Although the Fed is acting as a buyer of last resort, not all issuers will not emerge unscarred from the current crisis. Earnings are likely to decline 20-35% in 2020 and companies are loading up on debt to preserve liquidity. As such, leverage is likely to rise considerably this year from already elevated levels. Downgrades and defaults will no doubt follow.

Contributors



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