

## WEEKLY MARKET OUTLOOK

Moody's Analytics Research

Weekly Market Outlook Contributors:

### Lead Author

Ryan Sweet  
Senior Director-Economic Research  
610-235-5213  
Ryan.Sweet@Moody's.com

### Asia-Pacific

Katrina Ell  
Economist

Shahana Mukherjee

Economist

### Europe

Ross Cioffi  
Economist

### U.S.

Mark Zandi  
Chief Economist

Steve Shields

Economist

Ryan Kelly

Data Specialist

### Editor

Reid Kanaley

[Click here for Moody's Credit Outlook](#), our sister publication containing Moody's rating agency analysis of recent news events, summaries of recent rating changes, and summaries of recent research.

Contact: [help@economy.com](mailto:help@economy.com)

## Talking About Tapering Talk

### [Credit Markets Review and Outlook](#) by Ryan Sweet

» FULL STORY PAGE 2

### [The Week Ahead](#)

We preview economic reports and forecasts from the U.S., Europe and Asia/Pacific regions.

» FULL STORY PAGE 4

### [The Long View](#)

Full updated stories and key credit market metrics: We cut our forecast for GDP growth in 2022 from 5.3% to 4.8%, though risks are weighted to the upside because of the lack of inventory build this year.

**Credit Spreads** [Investment Grade](#): Year-end 2021's average investment grade bond spread may be around its recent 100 basis points. [High Yield](#): Even with a booming economy, a composite high-yield spread could be slightly higher than its recent 340 bp by year-end 2021.

**Defaults** [US HY default rate](#): According to Moody's Investors Service, the U.S.' trailing 12-month high-yield default rate jumped from March 2020's 4.9% to March 2021's 7.5% but may average only 4.1% for 2021's final quarter.

**Issuance** [For 2019's](#) offerings of US\$-denominated corporate bonds, IG bond issuance rose 2.6% to \$1.309 trillion, while high-yield bond issuance surged by 58% to \$440 billion. [In 2020](#), US\$-denominated corporate bond issuance soared 54% for IG to a record \$2.012 trillion, while high-yield advanced 30% to a record-high \$570 billion. [For 2021](#), US\$-denominated corporate bond offerings may decline 16% (to \$1.684 trillion) for IG and increase 7% (to \$607 billion) for high-yield, where both forecasts top their respective annual averages for the five years ended 2020 of \$1.494 trillion for IG and \$410 billion for high-yield.

» FULL STORY PAGE 10

### [Ratings Round-Up](#)

U.S. and European Corporate Credit Changes Show Strength

» FULL STORY PAGE 14

### [Market Data](#)

Credit spreads, CDS movers, issuance.

» FULL STORY PAGE 17

### [Moody's Capital Markets Research](#) *recent publications*

Links to commentaries on: Leverage, stimulus, inflation, GDP, Treasury yields, rising prices, core profits, yield spreads, virus, Congress, misery, issuance boom, default rate, volatility, credit quality, record savings rates, demographic change, high tech, complacency, Fed intervention, speculation, risk, credit stress, optimism, corporate credit, VIX.

» FULL STORY PAGE 22

## Credit Markets Review and Outlook

By Ryan Sweet, Senior Director-Economic Research

### Talking About Tapering Talk

Financial markets are interpreting the [minutes](#) from the April Federal Open Market Committee meeting as being hawkish, as Treasury yields jumped following the release of the minutes. This is not surprising, as the minutes show the Fed's confidence about inflation has waned some and the debate about tapering its \$120 billion in monthly asset purchases could begin soon. Something to keep in mind is that the April meeting occurred before the release of the disappointing May employment report and upside surprise in the April consumer price index.

In their discussion of the Fed's asset purchases, various participants noted that it would likely be some time until the economy had made substantial progress toward the central bank's objectives. However, there were a number of participants suggesting that "it might be appropriate" at some point in the upcoming meetings to discuss a plan for tapering. The March FOMC minutes didn't have this reference.

There have been a couple of vocal regional Fed presidents who want the tapering debate to begin soon, and the minutes suggest they are not alone. Part of this deliberation is defining what constitutes "substantial progress." This debate will heat up over the summer, and a change to the post-meeting statement could occur in September.

#### Some subtle signs of inflation jitters

The Fed is still banking that the acceleration in inflation will be transitory. The minutes highlighted supply-chain issues and pent-up demand as boosting inflation. Our back-of-the-envelope calculation is that transitory factors added 0.46 percentage point to the CPI in April. The minutes mentioned that as the transitory effects of these factors fade, participants generally expect realized inflation to ease.

However, there were a couple of participants who believe inflationary pressures could build to unwelcome levels before they become sufficiently evident to warrant a policy response. Unlike in March, the minutes didn't mention that participants view the risk to the inflation outlook as roughly balanced. Odds are when we see the next Summary of Economic Projections, there could be more who view upside risks to the inflation outlook.

The minutes did nudge market expectations for the path of the fed funds rate slightly higher. Markets are still pricing in the first rate hike well ahead of what is implied by the Fed's forward guidance and so-called dot plot.

#### Taper not the only game in town

Fed chatter about beginning to debate tapering their monthly asset purchases isn't the only thing on the bond market's minds. Inflation, overheating and the possibility that we are in the midst of peak U.S. GDP growth are also affecting the 10-year U.S. Treasury yield.

Inflation expectations among investors, businesses, consumers and economists are likely to be the arbiter of whether the economy overheats. The Federal Reserve worked hard and succeeded in reining in those expectations in the early 1980s, the last time inflation was a problem. Policymakers have made it clear that if inflation expectations become unanchored or increase much above the Fed's desire for inflation just above 2%, they will have little choice but to respond with higher interest rates.

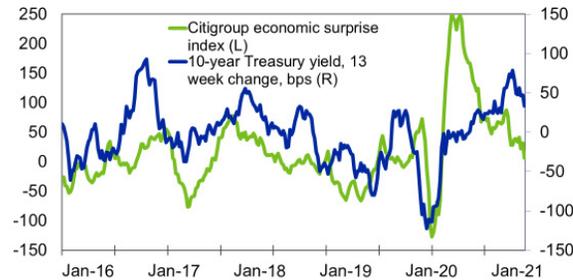
So far, so good. The inflation outlook is precisely consistent with what the Fed wants, according to the Philadelphia Federal Reserve's survey of professional economists. Of course, while economists aren't known for their forecast accuracy, as long as they forecast on-target inflation, others are likely doing the same, and the more likely inflation will be on target. And this appears to be holding, based on our inflation expectations pulse, a broad view of inflation expectations that distills nearly 20 inflation expectation gauges into a single indicator. The IEP uses a dynamic factor model to estimate the underlying factor driving co-movements across a range of time series. It shows long-term inflation expectations at 2%.

For the 10-year U.S. Treasury yield to resume rising, inflation expectations are likely going to need to rise. However, putting some downward pressure on long-term rates is the potential for the economy's growth to be peaking this quarter and incoming data coming in weaker than expected. The Citigroup Economic Surprise

## Credit Markets Review and Outlook

index dropped recently as some of the key economic data came in weaker than the consensus expectation. The economic surprise index is flirting with turning negative for the first time since mid-2020. Further data disappointments could put downward pressure on the 10-year U.S. Treasury yield.

### U.S. Economic Data Falling Short



Sources: Bloomberg LP, Treasury Department, Citigroup, Moody's Analytics

Our forecast has year-over-year GDP growth peaking this quarter, so there will be less pressure on the 10-year Treasury yield over the next several months. Even so, GDP growth will remain above trend through the rest of this year, limiting the amount of downward pressure on long-term rates. Our forecast is still for the 10-year Treasury yield to gradually rise through the remainder of this year because of the inflationary backdrop and the Fed announcing plans to taper their monthly asset purchases.

#### Little implications for issuance

We don't find any causal relationship between the economic surprise index and either U.S. equity prices or corporate bond spreads and issuance. Cumulative corporate and financial U.S. denominated issuance had a strong May so far and though its lagging behind that seen last year, issuance is still above that seen in either 2018 or 2019. Year-to-date U.S. dollar denominated corporate investment grade issuance is \$705 billion, compared with \$298.3 billion for high-yield. U.S. high-yield corporate bond spreads have widened over the past few days but is not raising a red flag.

## The Week Ahead – U.S., Europe, Asia-Pacific

### THE U.S.

By Mark Zandi, Chief Economist of Moody's Analytics

### Worries Are Overdone

The recent U.S. [economic data](#) have been a surprise. Job gains last month were a disappointment at 266,000, well below consensus expectations of closer to 1 million. And inflation was hot. Core consumer price inflation increased 0.9% compared with the consensus forecast of 0.3%. These misses ignited hand-wringing that shortages of labor, commodities, and a range of products are crimping growth and presaging uncomfortably high inflation. While there are shortages given the quick reopening of the economy as the pandemic winds down, worries that the economic recovery will be seriously impeded or that the economy may eventually overheat with uncomfortably high inflation and interest rates are overdone. The recovery this summer and fall may be uneven given the considerable adjustments needed for the economy to fully reopen, but our outlook for a boom-like economy over the coming year has not changed materially. We continue to expect real GDP growth of close to 7% in the year ending in the first quarter of 2022, job gains of almost 7 million, and an unemployment rate sliding toward 4%. Inflation will jump this spring and summer but moderate by this time next year to settle close to the Federal Reserve's target of just over 2%.

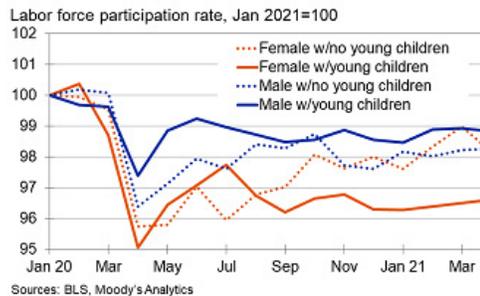
To be sure, the disappointing April job gain is due in part to labor supply constraints. Most telling is the surge in job openings to a record over 8 million in March, the latest available data. Hiring is robust, but nowhere enough to meet employer demand. Workers are also quitting their jobs at close to a record rate, which is something they wouldn't do if they felt unsure that they could quickly find another even better one. Surveys tell a similar story. According to the National Federation of Independent Business survey of small businesses, the percent of firms with more than one opening surged in April to 44%, far and away a record high. In a typical economy, close to one-fourth of firms have an open position. And according to the Conference Board's survey of households, 13% of respondents in April said jobs were hard to get. The only time it was lower was at the end of the long 1990s expansion when labor supply was an obvious problem.

#### Help Wanted



But while employers are having difficulty finding workers, their problem should prove temporary. Nearly 2 million more parents than prior to the pandemic are home taking care of children who are schooling online. Moms account for a higher share of these parents than dads, but only a bit higher. Yet, schools are returning quickly to in-person learning; students should be fully back to classrooms when the next school year begins.

### Moms and Dads Still at Home



The \$300-a-week supplemental unemployment insurance benefit, provided by the American Rescue Plan, is also incenting some workers to stay off the job. There are lots of anecdotes of workers shirking job opportunities, but [evidence](#) that this is a big problem is thin. Either way, these extra UI benefits expire in September, and workers likely won't wait to take a job, if they figure the best jobs could be gone by then. Moreover, 16 states have announced that they will soon opt out of the expanded federal unemployment benefits. And some states are making changes. Arizona, for example, will end the additional \$300 in weekly benefits and use the federal funds to provide a \$2,000 back-to-work bonus. As an aside, UI benefits that allow an unemployed worker to take the time to find the right job—not just any job they may have been forced to take without the benefits—may be ultimately a plus for the worker and their ultimate employer.

Other temporary adjustment pains created by the fading pandemic also weighed on the April jobs numbers. Employment fell sharply during the month at food and beverage stores and at couriers such as UPS and FedEx. These industries took off when the pandemic was raging and households were sheltering in place. Now, they are coming quickly back to earth as households start eating out again. The temp-help industry also lost a lot of jobs, largely because businesses again feel comfortable hiring full-time workers. And the vehicle industry shed lots of jobs in April. That is completely incongruous with the record 18.5 million vehicles sold during the month. But it is consistent with the global shortage of semiconductors crimping vehicle production. Vehicle inventories are evaporating and are as lean as they have ever been. Once the chip industry sorts out its supply chain problems, which it is sure to do given how high chip prices are and how much money is to be made, vehicle manufacturing and jobs will take off—not this month, probably not even next quarter, but by this time next year, consistent with our forecast.

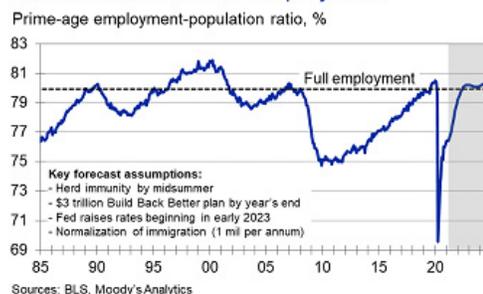
The recent spurt in consumer price inflation has also been ignited by the reopening economy and should thus also prove transitory, as Federal Reserve officials would say. If so, inflation should moderate later this fall once the economy normalizes. People have begun traveling again, and hotels, rental car companies, and the airlines have begun to recoup the price cuts they were forced into when the pandemic hit. Consumer prices for lodging away from home jumped 7.6% in April, car and truck rental prices rose 16.2%, and fares increased 10.2%. People are also going to ball games again, and the CPI for admissions to sporting and other events rose 3.4% in April. Vehicle manufacturers also jacked up prices last month given the booming demand, semiconductor-disrupted production, and record lean inventories. Used-vehicle prices are rising even more strongly, up 10% last month, as the pandemic-induced plunge in new-vehicle sales last year meant fewer off-lease vehicles this year. The shortage of new vehicles is also pushing more people to buy used. It's not surprising that businesses that cut prices at the height of the pandemic would increase them as the economy reopens, but what has been a surprise is how quickly this is happening. It suggests that these price adjustments will be over sooner than later.

Even so, there are concerns that inflation will be a more persistent and pernicious problem. The fear is that the economy will blow way past full employment sometime next year, forcing businesses to raise

## The Week Ahead

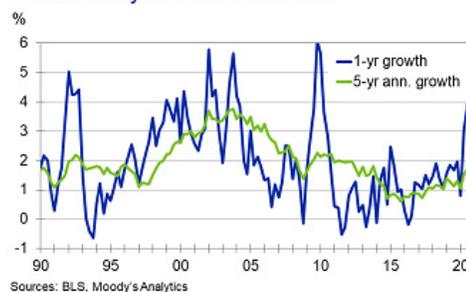
wages and prices more quickly. And the only way to rein in this uncomfortably high inflation will be for the Fed to jack up interest rates, which in past business cycles has been tough for policymakers to calibrate appropriately, ending in recession. That is, the economy overheats. But this is an unlikely scenario while the economy is a long way from full employment. The employment-to-population ratio for prime-age workers—arguably the best measure of full employment, because it accounts for unemployment and labor force participation—is more than 3 percentage points below the 80% threshold consistent in times past with accelerating wage growth and inflation. The economy briefly rose above this threshold prior to the pandemic. With all the pent-up demand, excess savings, and massive fiscal support in train, the economy is expected to return to that level by early 2023—but just return there. The job market will heat up, but not to the point that wage and price pressures will boil over.

## Quick Return to Full Employment



Overheating concerns may also be assuaged soon if the strong productivity gains of the past year persist. Nonfarm business productivity was up over 4% in the year ending in the first quarter. It is typical for productivity to gain early in a recovery as output rises more quickly than jobs, but these gains appear to be holding on for longer. Therefore, they may reflect an acceleration of more fundamental shifts in the way we live and work, including increased online activity, less business travel, and much more of the work-from-anywhere phenomenon. Even before the pandemic, productivity gains appeared to be gaining traction after years of subpar gains in the wake of the financial crisis. Wage growth has remained firm during the pandemic. This is encouraging. But growth in unit labor costs has been tame considering the acceleration in productivity growth. Unit labor cost is the difference between wages and productivity and thus business costs and inflation. Inflation will not become an endemic problem if unit labor costs remain contained.

## Productivity Growth Revives



Inflation expectations among investors, businesses, consumers and economists are likely to be the arbiter of whether the economy overheats. The Federal Reserve worked hard and succeeded in reining in those expectations in the early 1980s, the last time inflation was a problem. Policymakers have made it clear that if inflation expectations become unanchored or increase much above the Fed's desire for inflation just above 2%, they will have little choice but to respond with higher interest rates. So far, so good. The inflation outlook is precisely consistent with what the Fed wants, according to the Philadelphia Federal Reserve's survey of professional economists. Of course, while economists aren't

## The Week Ahead

known for their forecast accuracy, as long as they forecast on-target inflation, others are likely doing the same, and the more likely inflation will be on target.

Until the supply side of the economy wakes up and catches up with the fast-reviving demand side coming out of the pandemic, the economic statistics will undoubtedly hold more surprises—output and supply chains scrambled; labor, commodities and products in short supply; and price spikes. But there is money to be made. And, if history is a guide, when businesses can make a healthy profit, they will solve the problems. Quickly.

### Next Week

With inflation on so many minds, next week's reading on the April personal consumption expenditure deflator will garner much attention. The PCE is the Fed's preferred inflation measure. It rose 0.5% in March compared with 0.2% the prior month. Housing seems to have cooled somewhat from its recent hot streak, so signals from next week's reports on new-home sales, pending home sales, the S&P CoreLogic Case-Shiller® Home Price Indexes, and the FHFA's house-price index bear close watching. Other expected indicators include manufacturing surveys from the Kansas City, Philadelphia and Richmond Feds and the Chicago Fed's national activity index. Durable good orders for April are also due.

## EUROPE

By Ross Cioffi of Moody's Analytics

### Expect Mixed Results on Q1 GDP

Detailed estimates of key euro zone members' first quarter GDP will lead next week's highlights. We expect that German GDP fell 1.7% q/q in the first three months of 2021. By contrast, France's GDP likely increased 0.4% following a 1.4% decline. In each case, private consumption was the driving force. In France, consumption rebounded in the first quarter as social distancing measures were partially loosened. Unfortunately, the flare up of the pandemic in March resulted in a strengthening of restrictions heading into the second quarter. In Germany, measures tightened at the start of the first quarter after a relatively loose final quarter of 2020.

Meanwhile, the number of job seekers in France likely fell to 3.5 million this April from 3.6 million a month earlier. However, due to the tightening of lockdown measures, we suspect this might have more to do with workers temporarily quitting their job searches. On a similar note, household consumption of goods likely dropped 1% m/m in April, due as well to the lockdown. Increased purchases of food likely mitigated the damage.

By contrast, we expect that retail sales improved in Spain, by 0.9% m/m in April. This will come after a 3.5% m/m increase in March, so we think some of the momentum from the earlier loosening of social distancing measures was spent. In Russia, retail sales will also have increased, though the figures will be noisy due to base effects. Much of the economy has reopened in Russia, but persistent weakness and rising consumer prices have softened the consumer recovery.

Finally, business and consumer sentiment in the euro zone likely improved during May. We are forecasting an increase in the euro zone's Economist Sentiment Indicator of 2.3 points to a reading of 112. Many European economies have been easing restrictions during May, and the vaccination campaign finally reached a critical mass of people.

	Key indicators	Units	Moody's Analytics	Last
Mon @ 6:00 p.m.	Russia: Retail Sales for April	% change yr ago	25.0	-3.4
Mon @ 6:00 p.m.	Russia: Unemployment for April	%	5.4	5.4
Tues @ 8:00 a.m.	Germany: GDP for Q1	% change	-1.7	0.5
Thur @ 12:00 p.m.	France: Job Seekers for April	mil, SA	3.5	3.6
Fri @ 8:45 a.m.	France: GDP for Q1	% change	0.4	-1.4
Fri @ 8:45 a.m.	France: Household Consumption Survey for April	% change	-1.0	-1.1
Fri @ 9:00 a.m.	Spain: Retail Sales for April	% change	0.9	3.5
Fri @ 11:00 a.m.	Euro Zone: Business and Consumer Sentiment for May	index	112.0	110.3

## Asia-Pacific

By Shahana Mukherjee of Moody's Analytics

### Fourth COVID-19 wave in Japan keeps consumption, employment down

Japan's April employment will be the highlight on the economic calendar. We expect the unemployment rate to have risen to 2.8% in April from 2.6% in March.

Although Japanese producers have benefitted from recovering consumption abroad, the country was in the midst of an intensifying fourth wave throughout April, which resulted in new restrictions being imposed in important prefectures such as Tokyo and Osaka, among others. These measures are expected to have further undermined household spending in April and hurt the employment recovery, particularly in customer-facing services industries such as restaurants and accommodation and food services.

Central banks in Asia will also announce their monetary policy decisions this week. We expect Bank Indonesia to keep its seven-day reverse repurchase rate unchanged at 3.5% in its May announcement. Daily new cases are trending downwards, but remain in excess of 4,000, which will suppress a significant rebound in consumer spending in the near term. The need for additional monetary stimulus has not diminished, but concerns of stoking volatility in the vulnerable Indonesian rupiah will prevent monetary authorities from announcing another rate cut in the current setting.

Similarly, we expect the Reserve Bank of New Zealand to keep its monetary settings unchanged in May, as the official cash rate is maintained at 0.25%. The New Zealand economy continues to recover in the post-restrictions phase, benefitting from the substantial policy support mobilized to cushion the fallout on industries and impacted households. However, the dramatic rise in housing prices over this period has increased the financial system's vulnerability to unsustainable levels of household debt. While the central bank has signalled its willingness to further tighten mortgage lending restrictions to moderate this increase, we do not expect such a move in the very near term.

	Key indicators	Units	Moody's Analytics	Confidence	Risk	Last
Tues @ 7:00 a.m.	South Korea Consumer Confidence for May	Index	101.0	2	↑	102.2
Tues @ 3:00 p.m.	Singapore Industrial Production for April	% change	0.8	2	↑	-1.7
Tues @ 5:30 p.m.	Indonesia Monetary Policy for May	%	3.5	4	←	3.5
Thur @ 11:00 a.m.	South Korea Monetary Policy for May	%	0.5	4	←	0.5
Thur @ 12:00 p.m.	New Zealand Monetary Policy for May	%	0.25	4	←	0.25
Fri @ 9:30 a.m.	Japan Unemployment Rate for April	%	2.8	3	↓	2.6
Fri @ 2:00 p.m.	Malaysia Foreign Trade for April	MYR bil	27.0	3	↑	24.2

## The Long View

### We cut our forecast for GDP growth in 2022 from 5.3% to 4.8%, though risks are weighted to the upside because of the lack of inventory build this year.

By Ryan Sweet, Senior Director-Economic Research  
May 20, 2021

#### CREDIT SPREADS

As measured by Moody's long-term average corporate bond yield, the recent investment grade corporate bond yield spread increased 4 basis points over the past week to 100 bp. This is below its high over the past 12 months of 153 bp and a hair above its low of 95 bp. Still, the investment grade corporate bond yield is lower than its 116 bp median of the 30-years-ended 2019. This spread may be no wider than 115 bp by year-end 2021. But this is dependent on the market not panicking over the Fed announcing plans to taper its monthly asset purchases.

The recent composite high-yield option adjusted bond spread of 340 bp approximates what is suggested by the accompanying long-term Baa industrial company bond yield spread of 136 bp and is narrower than that implied by a VIX of 21 points.

#### DEFAULTS

March 2021's U.S. high-yield default rate of 7.5% was up from March 2020's 4.9%. Both high-yield default risk metrics predict a U.S. high-yield default rate nine to 12 months out that is at least three percentage points under March 2021's 7.5%, according to Moody's Investors Service.

Recent high-yield corporate bond spreads favor a drop by the U.S. high-yield loan default rate from March 2021's 6.0% to a less than 4.5% midpoint by December 2021.

#### U.S. CORPORATE BOND ISSUANCE

First-quarter 2020's worldwide offerings of corporate bonds revealed annual advances of 14% for IG and 19% for high-yield, wherein US\$-denominated offerings increased 45% for IG and grew 12% for high yield.

Second-quarter 2020's worldwide offerings of corporate bonds revealed annual surges of 69% for IG and 32% for high-yield, wherein US\$-denominated offerings increased 142% for IG and grew 45% for high yield.

Third-quarter 2020's worldwide offerings of corporate bonds revealed an annual decline of 6% for IG and an annual advance of 44% for high-yield, wherein US\$-denominated offerings increased 12% for IG and soared upward 56% for high yield.

Fourth-quarter 2020's worldwide offerings of corporate bonds revealed an annual decline of 3% for IG and an annual advance of 8% for high-yield, wherein US\$-denominated offerings increased 16% for IG and 11% for high yield.

First-quarter 2021's worldwide offerings of corporate bonds revealed an annual decline of 4% for IG and an annual advance of 57% for high-yield, wherein US\$-denominated offerings sank 9% for IG and advanced 64% for high yield.

#### U.S. ECONOMIC OUTLOOK

We now expect real GDP to rise 6.8% this year, compared with the 6.4% in the April baseline. We have been consistently revising our forecast higher for GDP this year because of changes to our fiscal policy assumptions, but the adjustment in May reflects the advance estimate of first-quarter GDP. Real GDP rose 6.4% at an annualized rate in the first quarter.

## The Long View

The fiscal stimulus impact is evident all over first-quarter GDP. Real consumer spending jumped 10.7% at an annualized rate compared with the 2.3% gain in the prior three months. This is among the largest increases since the 1960s. The strength in consumer spending isn't surprising because of the 61.3% annualized gain in disposable income in the first quarter. Disposable income got a big boost from government transfer payments including Economic Impact Payments that boosted incomes by \$1.929 trillion at an annualized rate. Expanded unemployment programs also added \$275 billion at an annualized rate.

Inventories subtracted 2.6 percentage points from first-quarter GDP. Some of this is likely attributable to supply chain disruptions and the global semiconductor shortage. As this fades, businesses will need to replenish inventories, which should be a positive for manufacturing and GDP.

We cut our forecast for GDP growth in 2022 from 5.3% to 4.8%. Risks to the forecast are weighted to the upside because of the lack of inventory build this year. The global semiconductor shortage bit into inventories during the first quarter and will likely continue to do so through the remainder of this year. Inventories lend a downside risk to our forecast for GDP this year but are an upside for 2022 and 2023. There is the potential that supply issues become a big problem, particularly for autos. Autos industrial production is trailing sales. Therefore, inventories could continue to decline. We didn't make any changes to our forecast for the change in private inventories over the next few years, but this may need to be revisited, since lean inventories need to be replenished. That could add more to GDP growth next year than we currently anticipate.

The consensus has begun to catch up with our forecast for this year, but we remain higher. The Bloomberg consensus is for real GDP to rise 6.3% this year. The range of forecasts for GDP growth this year is 2.2% to 8%. Our May baseline also has GDP growth stronger than the consensus for next year. The median estimate is for GDP to rise 4% in 2022 and the range is from 2% to 6.1%.

There weren't any changes to our assumptions about monetary policy. The Fed is unlikely to announce its plans about tapering its monthly asset purchases until late this year. Actual tapering will likely occur in the first half of 2022. The Fed is still expected to raise the target range for the fed funds rate in the first quarter of 2023. The pace of tightening is identical to that in the April baseline, but risks are weighted toward a more gradual pace of tightening.

There were no significant changes to the forecast for the 10-year U.S. Treasury yield. The forecast is for the 10-year Treasury yield to end this year around 2% and just shy of 2.5% next year.

## The Long View

### Europe

By Ross Cioffi of Moody's Analytics  
May 20, 2021

#### UNITED KINGDOM

The Confederation of British Industry's Industrial Trends Orders index jumped to a reading of 17 in May from -8 in April. This is the highest it has been since December 2017, signaling a robust increase in new orders for British factories. Domestic orders led the improvement while the index for export orders, although ticking up marginally, remained negative. Expectations for output were better as well, rising to a score of 18 from 3 in April.

The results from the survey are another signal that the global supply shortage is affecting U.K. manufacturing. Foremost, there was an 11-point decline in the balance of opinion regarding the sufficiency of current stocks of goods. The reading fell to -6 in May, its lowest since July 2017.

At the same time, the reading regarding expectations of price hikes rose by 11 points. More firms now expect rapid increases to the prices they will charge on their products. We suspect this is due to a mix of firms expecting higher demand this summer, but also to surging producer prices; the U.K.'s producer price index jumped by 3.9% y/y in April. And this was not just because of base effects from price slumps in the spring of 2020. In the three months to April, the PPI increased by 1.9% q/q. This is because the global shortage of inputs has driven up costs for freighting and for key commodities and components.

Finally, intermediate goods producers drove output growth in the survey, though production was up in 12 of the 17 surveyed subsectors. Output increased most in the chemicals, electronic engineering, and metal products sectors, however, which points to higher demand for these inputs.

Supply disruptions may hold back manufacturers during the second quarter. Production schedules may have to be delayed, and firms will also have to decide whether to absorb or pass on the higher costs they are facing. We are expecting the worst of the supply disruptions to ease in the second half of the year, which is why we are penciling in only temporary effects.

#### Dutch labor force beats a retreat

The Netherlands' unemployment rate fell to 3.4% in April from 3.5% in March. Although the number of unemployed workers decreased by 10,000 to 316,000, the number of employed individuals increased by only 4,000, meaning a majority of the change during the month was people dropping out of the labor force. This trend was at work throughout the first quarter. The number of unemployed fell on average by 7,000 per month in the previous three months, while the average increase in employment was only 1,000 per month; 4,000 people per month were leaving the labor force.

We suspect this trend is only temporary. The pandemic, and resulting lockdowns, has curbed the number of job opportunities. Once the economy reopens, we should see a large share of these individuals make their way back into the labor force. At that point the unemployment rate may rise again, but we are confident that the Dutch economy will maintain its recovery and reabsorb many of these people.

#### Euro zone construction recovers in March

Construction output gained 2.7% m/m in March following a 2% decline in February. In yearly terms, output was up by 18.3%, but the reading is noisy because of base effects; construction sites were shut down in many European countries during the first wave of the pandemic. In monthly terms, March's output rebounded because the weather improved and public works sites got started again, with civil engineering projects driving the month's rebound. Production in these projects rose by 9.4% m/m, while production from private building projects was up 1.3%. Among the major four euro zone economies, output soared by 10.8% m/m in Germany. It was up by 3.6% m/m in Italy, dropped by 0.9% in Spain, and slumped by 7.3% in France.

Thanks to the stronger results in March, construction output in the euro zone ended the first quarter 0.3% higher than it was in the fourth. Construction should continue to recover in the second quarter, though it too will face headwinds from global shortages of inputs. Recovery plans that have a focus on digitalizing and greening the economy will boost the construction sector later in the year.

## The Long View

## Asia Pacific

By Shahana Mukherjee of Moody's Analytics  
May 20, 2021

### JAPAN

Japan's economy contracted in the first quarter of 2021, as the second state of emergency cut short its recovery from the COVID-19-induced downturn. Seasonally adjusted real GDP contracted 1.3% in quarterly terms over this period, bringing an end to two consecutive quarters of expansion, and well exceeding our expectations of a 0.8% decline.

A quarterly correction was expected in domestic spending as restrictions under the second state of emergency weighed in, but the magnitude surprised on the downside. A considerable 1.4% quarterly decline in private consumption shaved 0.7 percentage point off net growth, and while nonresidential investment also fell by a similar magnitude, the strain on growth was weaker, at 0.2 percentage point, given the relatively strong catch-up in the prior quarter. Not surprisingly, a stronger exports' position from recovering global demand, which was up 2.3% over the quarter, was the only upside during this period, but it's contribution to the net change was perfectly offset by a corresponding decline in government outlays in the March quarter.

The downside risks to Japan's recovery are intensifying and the outlook for the rest of the year is mired in uncertainty. On the domestic front, the country is battling an intensifying fourth wave, which has necessitated the expansion of its third state of emergency to 19 out of its 47 prefectures. The restrictions, which now impact nearly 70% of the population, have so far lacked the desired effectiveness, keeping the possibility of another nationwide lockdown alive.

The situation is complicated by a slow-paced domestic vaccine rollout—just 3.5% of its population having received at least one dose—which threatens to cause further disruptions. The immediate risk stems from the prolonged hit to household confidence and its impact on consumer spending. The fallout from the resurgence will be amplified by the extent to which new restrictions undermine production and weaken employment prospects.

Although fast-recovering conditions in the U.S. and other Western economies will strengthen Japan's trade position in the coming months, effective containment of localized outbreaks will be imperative to ensure that the country advances towards a composite recovery. This is increasingly necessary as Japan has limited space for monetary accommodation and little room for a significant increase in fiscal spend during this time.

Recessionary pressures are set to intensify through the June quarter and Japan may well see a double-dip recession. But much depends on the timing of the withdrawal of current restrictions, the domestic vaccine rollout, and equally, on the pace of trade revival. By way of fiscal policy support, the government could compile an extra budget to cushion the fallout on certain industries, but this is unlikely to be as substantial as seen last year.

### AUSTRALIA

Australia's unemployment rate unexpectedly fell to 5.5% in April from 5.6% in March. The withdrawal of Australia's JobKeeper wage subsidy was expected to dent the labour market recovery, and it did to a certain extent as the participation rate fell by 0.3 percentage point to 66%, and seasonally adjusted employment fell by 0.2% over the month. The withdrawal led to the loss of 64,400 part-time jobs that relied on the wage subsidy, but these losses were offset by a gain of 33,800 full-time jobs.

The magnitude of the correction may seem relatively minor at this stage. However, the full extent of the impact is unlikely to have been captured in the April labour force survey, as the reference period was limited to the first 15 days of the month. Strong consumer sentiment and the release of substantial pent-up demand are still expected to ensure that any labour market slackness as a result of the withdrawal will only be temporary, but employment statistics in the coming months could well reflect some more softness before total employment gains stabilize.

## Ratings Round-Up

### U.S. and European Corporate Credit Changes Show Strength

By Steven Shields

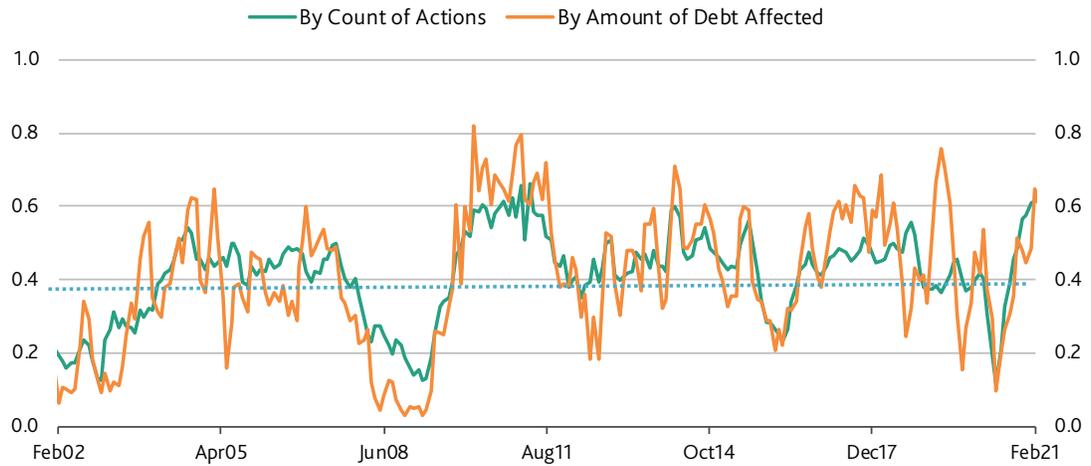
May 20, 2021

U.S. corporate credit quality continued to strengthen in the recent week. For the period ending May 20, credit upgrades accounted for more than 80% of rating changes and an even greater share of the total debt affected. Rating changes were issued to all speculative-grade firms and spread across nine industries. CHS/Community Health Systems Inc. was issued the largest upgrade in terms of debt affected in the week at approximately \$19 billion. Moody's Investors Service upgraded the business services' firm senior secured credit ratings to Caa2 from Caa3 and its corporate family rating to B3 from Caa2. The change reflects the firm's improved operating performance, partly owed to the completion of a multiyear divestiture program that allowed the company to shed underperforming hospitals. The upgrades also mirror significant interest expense savings from recent refinancing actions that will help expand cash flow and liquidity. Moody's also upgraded Antero Resources Corp. and Antero Midstream Partners LP's proposed senior unsecured rating to B1 from B2 in the period. The net proceeds from the debt offering will be used to redeem the 2023 notes that were recently called by Antero which will help to improve its debt maturity profile. Meanwhile Moody's Investors Service downgraded U.S. Concrete Inc.'s senior unsecured notes to B3 from B2 following U.S. Concrete's announcement of a \$300 million senior secured term loan facility.

Like the United States, European rating activity was positive with upgrades outnumbering downgrades 5 to 1. The period's most notable upgrade was issued to Outokumpu Oyj. Moody's Investors Service raised the group's CFR to B2-PD from B3-PD and senior secured credit ratings to B1 from B2. According to Goetz Grossman, a Moody's vice president and lead analyst for Outokumpu, "The upgrade to B2 follows Outokumpu's completion of private placement of 40.5 million new shares worth €209 million, with the proceeds to be used for debt repayments, which demonstrates its strong de-leveraging commitment." Alternatively, EnBW International Finance B.V. saw its backed senior unsecured ratings downgraded to Baa1 from A3 while its outlook was revised to stable from negative. The rating downgrade accounted for the bulk of debt affected in the region and reflects Moody's expectation that the firm's credit metrics will weaken over the next 2-3 years due to increased capital expenditure, which will contribute to negative free cash flows and increase the company's net debt.

Ratings Round-Up

FIGURE 1  
**Rating Changes - US Corporate & Financial Institutions: Favorable as % of Total Actions**



\* Trailing 3-month average

Source: Moody's

FIGURE 2

**Rating Key**

<b>BCF</b>	Bank Credit Facility Rating	<b>MM</b>	Money-Market
<b>CFR</b>	Corporate Family Rating	<b>MTN</b>	MTN Program Rating
<b>CP</b>	Commercial Paper Rating	<b>Notes</b>	Notes
<b>FSR</b>	Bank Financial Strength Rating	<b>PDR</b>	Probability of Default Rating
<b>IFS</b>	Insurance Financial Strength Rating	<b>PS</b>	Preferred Stock Rating
<b>IR</b>	Issuer Rating	<b>SGLR</b>	Speculative-Grade Liquidity Rating
<b>JrSub</b>	Junior Subordinated Rating	<b>SLTD</b>	Short- and Long-Term Deposit Rating
<b>LGD</b>	Loss Given Default Rating	<b>SrSec</b>	Senior Secured Rating
<b>LTCF</b>	Long-Term Corporate Family Rating	<b>SrUnsec</b>	Senior Unsecured Rating
<b>LTD</b>	Long-Term Deposit Rating	<b>SrSub</b>	Senior Subordinated
<b>LTIR</b>	Long-Term Issuer Rating	<b>STD</b>	Short-Term Deposit Rating

## Ratings Round-Up

FIGURE 3  
Rating Changes: Corporate & Financial Institutions - US

Date	Company	Sector	Rating	Amount (\$ Million)	Up/Down	Old LTD Rating	New LTD Rating	IG/SG
5/12/21	TRI POINTE HOMES, INC.	Industrial	SrUnsec/LTCFR/PDR	1,100	U	Ba3	Ba2	SG
5/12/21	CAMPING WORLD HOLDINGS INC.-CWGS ENTERPRISES, LLC	Industrial	SrSec/BCF/LTCFR/PDR		U	B1	Ba3	SG
5/12/21	SP PF BUYER LLC	Industrial	SrSec/BCF		U	Caa1	B3	SG
5/12/21	BIDFAIR HOLDINGS INC.-SOTHEBY'S	Industrial	SrSec/SrUnsec/SrSec/BCF/LTCFR/PDR	823	D	B1	B2	SG
5/13/21	CCHN HOLDINGS, LLC-COMMUNITY CARE HEALTH NETWORK, LLC	Industrial	PDR		U	B3	B2	SG
5/14/21	ANTERO RESOURCES CORPORATION	Industrial	SrUnsec/LTCFR/PDR	2,550	U	B2	B1	SG
5/14/21	VICTORY CAPITAL HOLDINGS, INC.	Financial	SrSec/BCF/LTCFR/PDR		U	Ba3	Ba2	SG
5/14/21	ANTERO MIDSTREAM PARTNERS LP	Industrial	SrUnsec/LTCFR/PDR	2,500	U	B2	B1	SG
5/17/21	COMMUNITY HEALTH SYSTEMS, INC.-CHS/COMMUNITY HEALTH SYSTEMS, INC.	Industrial	SrSec/SrUnsec/LTCFR/PDR	18,964	U	Caa3	Caa2	SG
5/17/21	U.S. CONCRETE, INC.	Industrial	SrUnsec	1,000	D	B2	B3	SG
5/18/21	AEROSTAR AIRPORT HOLDINGS, LLC.	Industrial	SrSec	400	U	Ba2	Ba1	SG

Source: Moody's

FIGURE 4  
Rating Changes: Corporate & Financial Institutions - Europe

Date	Company	Sector	Rating	Amount (\$ Million)	Up/Down	Old LTD Rating	New LTD Rating	IG/SG	Country
5/12/2021	OUTOKUMPU OYJ	Industrial	SrSec/LTCFR/PDR	303.34	U	B2	B1	SG	FINLAND
5/14/2021	AIA GROUP LIMITED	Financial	SrUnsec/LTIR/Sub/MTN		U	A2	A1	IG	HONG KONG
5/14/2021	ELDORADO BRASIL CELULOSE S.A.	Industrial	LTCFR		U	B2	B1	SG	BRAZIL
5/17/2021	INTERTAPE POLYMER GROUP INC.	Industrial	LTCFR/PDR		U	Ba3	Ba2	SG	CANADA
5/18/2021	ENBW ENERGIE BADEN-WUERTEMBERG AG-ENBW INTERNATIONAL FINANCE B.V.	Utility	SrUnsec/LTIR/Sub/MTN	8,603.65	D	A3	Baa1	IG	GERMANY
5/18/2021	CHEKIZOVO GROUP, PJSC	Industrial	LTCFR/PDR		U	B1	Ba3	SG	RUSSIA

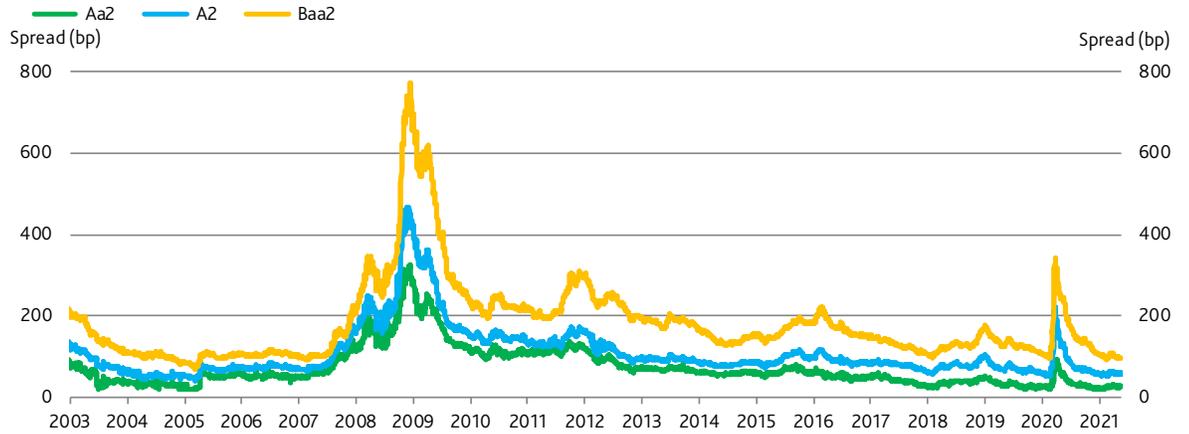
Source: Moody's

Market Data

Market Data

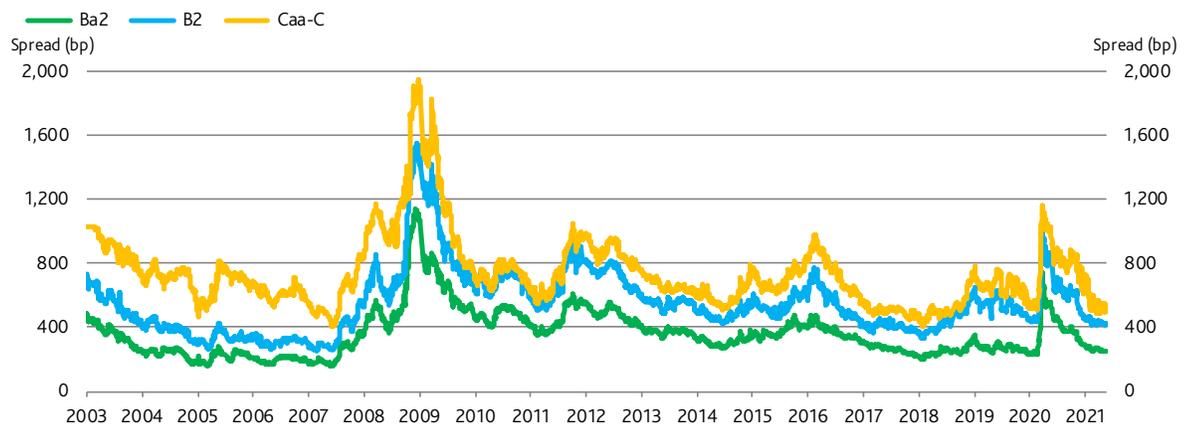
Spreads

Figure 1: 5-Year Median Spreads-Global Data (High Grade)



Source: Moody's

Figure 2: 5-Year Median Spreads-Global Data (High Yield)



Source: Moody's

## Market Data

## CDS Movers

Figure 3. CDS Movers - US (May 12, 2021 – May 19, 2021)

CDS Implied Rating Rises		CDS Implied Ratings		
Issuer		May. 19	May. 12	Senior Ratings
Macy's Retail Holdings, LLC		B2	Caa2	B1
Toyota Motor Credit Corporation		Aa3	A1	A1
Apple Inc.		Aa3	A1	Aa1
Ford Motor Credit Company LLC		Ba2	Ba3	Ba2
Caterpillar Financial Services Corporation		A1	A2	A2
United Airlines, Inc.		B3	Caa1	Ba3
Carnival Corporation		B3	Caa1	B2
Cargill, Incorporated		A3	Baa1	A2
Archer-Daniels-Midland Company		A2	A3	A2
International Paper Company		A3	Baa1	Baa2

CDS Implied Rating Declines		CDS Implied Ratings		
Issuer		May. 19	May. 12	Senior Ratings
Verizon Communications Inc.		Baa1	A3	Baa1
Walt Disney Company (The) (Old)		A1	Aa3	A2
Johnson & Johnson		Aa3	Aa2	Aaa
Capital One Bank (USA), N.A.		A1	Aa3	Baa1
Williams Companies, Inc. (The)		Baa3	Baa2	Baa3
Waste Management, Inc.		Baa2	Baa1	Baa1
ViacomCBS Inc.		Baa3	Baa2	Baa2
DTE Energy Company		Baa2	Baa1	Baa2
Sherwin-Williams Company (The)		Baa2	Baa1	Baa2
Eastman Chemical Company		Baa2	Baa1	Baa3

CDS Spread Increases		CDS Spreads		
Issuer	Senior Ratings	May. 19	May. 12	Spread Diff
Nabors Industries, Inc.	Caa2	1,077	998	79
K. Hovnanian Enterprises, Inc.	Caa3	663	615	48
United States Steel Corporation	Caa1	380	354	26
Occidental Petroleum Corporation	Ba2	307	285	22
Dish DBS Corporation	B2	362	342	20
Cooper Tire & Rubber Company	B1	175	155	20
Tenet Healthcare Corporation	Caa1	289	270	19
The Terminix Company, LLC	B1	234	217	17
Domtar Corporation	Baa3	224	208	16
iStar Inc.	Ba3	305	290	15

CDS Spread Decreases		CDS Spreads		
Issuer	Senior Ratings	May. 19	May. 12	Spread Diff
Macy's Retail Holdings, LLC	B1	324	423	-99
American Airlines Group Inc.	Caa1	701	755	-54
R.R. Donnelley & Sons Company	B3	514	552	-38
Nordstrom, Inc.	Baa3	216	251	-35
United Airlines Holdings, Inc.	Ba3	386	419	-33
Hilton Worldwide Finance, LLC	Ba2	204	233	-29
Xcel Energy Inc.	Baa1	68	96	-28
Dillard's, Inc.	Baa3	140	164	-24
United Airlines, Inc.	Ba3	387	408	-21
MGM Resorts International	Ba3	205	226	-21

Source: Moody's, CMA

## Market Data

Figure 4. CDS Movers - Europe (May 12, 2021 – May 19, 2021)

CDS Implied Rating Rises		CDS Implied Ratings		
Issuer		May. 19	May. 12	Senior Ratings
Scottish Power UK plc		A3	Baa3	Baa1
Scottish Power Limited		Baa1	Baa3	Baa1
ABN AMRO Bank N.V.		Aa2	Aa3	A1
Atlantia S.p.A.		Ba1	Ba2	Ba3
Investor AB		A2	A3	Aa3
Proximus SA de droit public		A1	A2	A1
Ineos Group Holdings S.A.		Ba3	B1	B2
Avon Products, Inc.		Ba3	B1	Ba3
Italy, Government of		Baa3	Baa3	Baa3
France, Government of		Aa2	Aa2	Aa2

CDS Implied Rating Declines		CDS Implied Ratings		
Issuer		May. 19	May. 12	Senior Ratings
Ireland, Government of		Aa1	Aaa	A2
Nordea Bank Abp		Aa3	Aa2	Aa3
Orange		A2	A1	Baa1
NatWest Markets Plc		Baa1	A3	A3
Vodafone Group Plc		Baa1	A3	Baa2
ENEL S.p.A.		Baa2	Baa1	Baa1
Anglo American plc		Ba1	Baa3	Baa2
Credit Suisse AG		Baa2	Baa1	Aa3
Bankinter, S.A.		Baa2	Baa1	Baa1
Compagnie de Saint-Gobain SA		A3	A2	Baa2

CDS Spread Increases		CDS Spreads			
Issuer	Senior Ratings	May. 19	May. 12	Spread Diff	
Boparan Finance plc	Caa1	842	799	43	
Vedanta Resources Limited	Caa1	731	707	24	
Novo Banco, S.A.	Caa2	186	165	22	
thyssenkrupp AG	B1	277	261	16	
Koninklijke KPN N.V.	Baa3	115	104	11	
Premier Foods Finance plc	B3	243	233	10	
Novafives S.A.S.	Caa2	839	831	9	
Iceland Bondco plc	Caa2	445	437	7	
Casino Guichard-Perrachon SA	Caa1	530	525	6	
RCI Banque	Baa2	208	204	5	

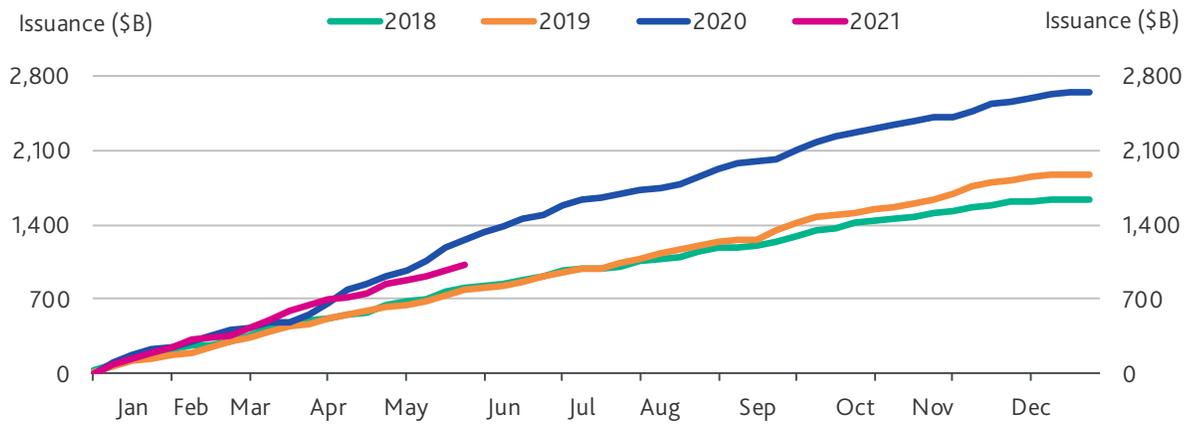
CDS Spread Decreases		CDS Spreads			
Issuer	Senior Ratings	May. 19	May. 12	Spread Diff	
TUI AG	Caa1	786	881	-95	
Scottish Power Limited	Baa1	54	95	-41	
Scottish Power UK plc	Baa1	49	86	-37	
Stena AB	Caa1	538	564	-26	
Jaguar Land Rover Automotive Plc	B1	367	380	-13	
Avon Products, Inc.	Ba3	241	247	-6	
Leonardo S.p.A.	Ba1	171	177	-5	
Piraeus Financial Holdings S.A.	Caa3	538	543	-5	
Ineos Group Holdings S.A.	B2	247	252	-5	
Sappi Papier Holding GmbH	Ba2	352	356	-4	

Source: Moody's, CMA

Market Data

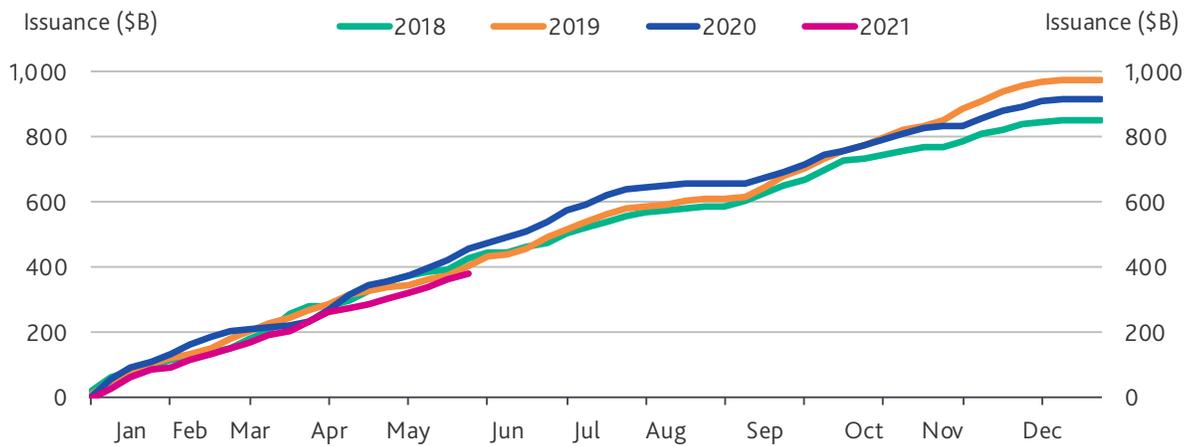
Issuance

Figure 5. Market Cumulative Issuance - Corporate & Financial Institutions: USD Denominated



Source: Moody's / Dealogic

Figure 6. Market Cumulative Issuance - Corporate & Financial Institutions: Euro Denominated



Source: Moody's / Dealogic

## Market Data

Figure 7. Issuance: Corporate &amp; Financial Institutions

	USD Denominated		
	Investment-Grade	High-Yield	Total*
	Amount \$B	Amount \$B	Amount \$B
Weekly	46.480	19.343	66.873
Year-to-Date	704.997	298.272	1,026.931

	Euro Denominated		
	Investment-Grade	High-Yield	Total*
	Amount \$B	Amount \$B	Amount \$B
Weekly	17.430	3.554	21.507
Year-to-Date	302.690	68.632	381.955

\* Difference represents issuance with pending ratings.

Source: Moody's/ Dealogic

---

## Moody's Capital Markets Research recent publications

Bond Market and the Booming Economy (Capital Markets Research)

Fundamentals Support Low Volatility, Tight Spreads (Capital Markets Research)

Record-High Systemic Leverage Limits Upside for Benchmark Interest Rates (Capital Markets Research)

Will Excessive Stimulus Lead to Excessive Leverage? (Capital Markets Research)

Replay of the Inflationary 1970s Is Unlikely (Capital Markets Research)

Real GDP Growth's Biggest Improvement since 1950 May Power 2021's Profits Growth (Capital Markets Research)

Positive Outlook for Corporate Earnings Favors Narrower Credit Spreads (Capital Markets Research)

Stocks and High-Yield Performed Well Amid Prior Upturns by Treasury Bond Yields (Capital Markets Research)

Quality Bonds Retreat as Leveraged Loans Shine (Capital Markets Research)

Too Much of a Good Thing? (Capital Markets Research)

Fast Declining EDF Favors Thinner High-Yield Bond Spread (Capital Markets Research)

Prices Rise Here, There and Everywhere (Capital Markets Research)

Investment-Grade Bond Offerings to Slow from 2020's Torrid Pace (Capital Markets Research)

Not All Debt Is Equal (Capital Markets Research)

Market Value of U.S. Common Stock Soars to Record-High 185% of GDP (Capital Markets Research)

Stimulatory Monetary and Fiscal Policies Enhance Corporate Credit Outlook (Capital Markets Research)

Financial Markets Have Largely Priced-In 2021's Positive Outlook (Capital Markets Research)

Core Profits and U.S. Equities Set New Record Highs (Capital Markets Research)

Operating Leverage May Help to Narrow Yield Spreads in 2021 (Capital Markets Research)

Resurgent COVID-19 Threatens Corporate Credit's Improved Trend (Capital Markets Research)

Split Congress Sparks Rallies by Equities, Corporates and Treasuries (Capital Markets Research)

Credit Disputes Equities Gloom (Capital Markets Research)

Corporate Cash Outruns Corporate Debt (Capital Markets Research)

Profits Give Direction to Downgrades and Defaults (Capital Markets Research)

Markets Sense an Upturn Despite Pockets of Profound Misery (Capital Markets Research)

Record-High Bond Issuance Aids Nascent Upturn (Capital Markets Research)

Corporate Bond Issuance Boom May Steady Credit Quality, On Balance (Capital Markets Research)

Markets, Bankers and Analysts Differ on 2021's Default Rate (Capital Markets Research)

Corporate Credit Mostly Unfazed by Equity Volatility (Capital Markets Research)

Record August for Bond Issuance May Aid Credit Quality (Capital Markets Research)

Fed Policy Shift Bodes Well for Corporate Credit (Capital Markets Research)

Markets Avoid Great Recession's Calamities (Capital Markets Research)

Liquidity Surge Hints of More Upside Surprises (Capital Markets Research)

---

To order reprints of this report (100 copies minimum), please call 212.553.1658.

---

**Report Number: 1286282**

**Editor**  
**Reid Kanaley**  
help@economy.com

**Contact Us**

Americas:	1.212.553.4399
Europe:	+44 (0) 20.7772.5588
Asia:	813.5408.4131

© 2021 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

**CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS OR MOODY'S PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.**

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OR OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing the Moody's publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any rating, agreed to pay to Moody's Investors Service, Inc. for ratings opinions and services rendered by it fees ranging from \$1,000 to approximately \$5,000,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at [www.moody.com](http://www.moody.com) under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly owned by Moody's Overseas Holdings Inc., a wholly owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any rating, agreed to pay to MJKK or MSFJ (as applicable) for ratings opinions and services rendered by its fees ranging from JPY125,000 to approximately JPY550,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

For Publications Issued by Moody's Capital Markets Research, Inc. only:

The statements contained in this research report are based solely upon the opinions of Moody's Capital Markets Research, Inc. and the data and information available to the authors at the time of publication of this report. There is no assurance that any predicted results will actually occur. Past performance is no guarantee of future results.

The analysis in this report has not been made available to any issuer prior to publication.

When making an investment decision, investors should use additional sources of information and consult with their investment advisor. Investing in securities involves certain risks including possible fluctuations in investment return and loss of principal. Investing in bonds presents additional risks, including changes in interest rates and credit risk.

Moody's Capital Markets Research, Inc., is a subsidiary of MCO. Please note that Moody's Analytics, Inc., an affiliate of Moody's Capital Markets Research, Inc. and a subsidiary of MCO, provides a wide range of research and analytical products and services to corporations and participants in the financial markets. Customers of Moody's Analytics, Inc. may include companies mentioned in this report. Please be advised that a conflict may exist and that any investment decisions you make are your own responsibility. The Moody's Analytics logo is used on certain Moody's Capital Markets Research, Inc. products for marketing purposes only. Moody's Analytics, Inc. is a separate company from Moody's Capital Markets Research, Inc.