WEEKLY MARKET OUTLOOK

MAY 19, 2022

Lead Authors

Ryan Sweet
Senior Director-Economic Research

Martin Wurm
Senior Economist

Asia-Pacific

Shahana Mukherjee
Economist

Stefan Angrick
Senior Economist

Eric Chiang
Economist

Europe

Ross Cioffi
Economist

Kamil Kovar
Economist

U.S.

Adam Kamins
Director

Michael Ferlez
Economist

Matt Orefice
Data Specialist

Inside Economics Podcast:

Inflation Surprises Hurt

U.S. supply-chain stress has intensified because of China's zero-COVID tolerance policy, and this could limit, but not eliminate, the disinflation in U.S. goods prices over the next couple of months. The Federal Reserve has zero tolerance for upside inflation surprises, and recent rhetoric from the central bank suggests it is willing to do anything to break inflation.

Financial markets also don't like inflation surprises. The timeliest metric to assess the accuracy of inflation expectations are one-year-ahead inflation swap forecast errors. Since inflation picked up in March 2021, inflation swaps consistently have underpredicted inflation with an average forecast error 2.5 times its historical value. However, this underprediction signals faith in the Fed's initial stance that inflation would be transitory.

Table of Contents

Top of Mind 3

Week Ahead in Global Economy .. 5

Geopolitical Risks 6

The Long View

U.S. 7

Europe 11

Asia-Pacific 12

Ratings Roundup 13

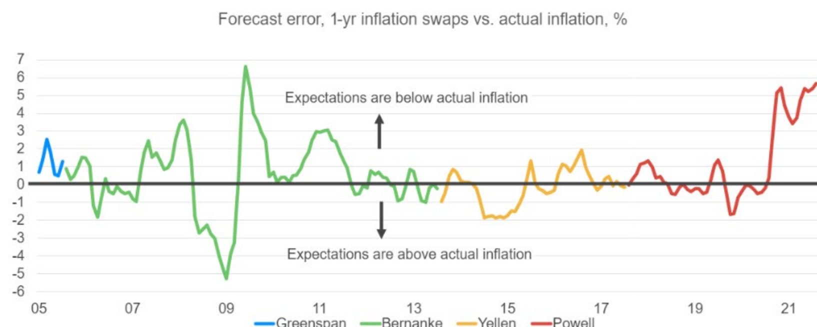
Market Data 16

CDS Movers 17

Issuance 20

Markets Miss the Mark on Inflation

Forecast error, 1-yr inflation swaps vs. actual inflation, %

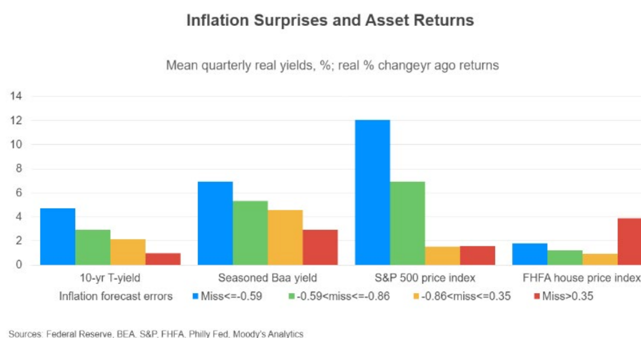


Sources: Bloomberg, BLS, Moody's Analytics

Moody's Analytics and Moody's Investors Service maintain separate and independent economic forecasts. This publication uses the forecasts of Moody's Analytics. Moody's Analytics markets and distributes all Moody's Capital Markets Research materials. Moody's Analytics does not provide investment advisory services or products. For further detail, please see the last page.

After all, unlike in 1979, the Fed now has goodwill with a 40-year price-stability record. Nevertheless, as prices rose persistently in 2021, inflation swaps gradually rose above 4% when the Fed itself pivoted to tightening in November. When the Federal Open Market Committee meeting in March predicted 2022 inflation of 4.5%, one-year inflation swaps traded at 5.5%. Higher maturities still indicate that markets expect inflation to decelerate over the next two years.

By conventional wisdom, stable monetary policy, or the absence of inflation surprises, creates market stability, which does not necessarily mean that markets will do great. Even if supply-side pressures relax and the Fed's anticipated policy reduces inflation to around 5% year over year by year's end, such policy has real economic costs. Higher interest rates have already pushed up mortgage and corporate bond rates, dampening housing and investment demand. Equity prices are unlikely to rebound due to slower earnings growth.



The downside risks are larger if the Fed fails to contain inflation. We organized median quarterly real yields and year-ago returns for Treasuries, corporate bonds, stocks and housing from 1970 to 2021 by quartiles of inflation forecast errors. Historically, the typical asset class performed significantly worse during periods of positive inflation surprises. For instance, ex-post real interest rates throughout much of the 1970s were negative, eroding savings, while the S&P 500 ended the decade where it started, painting stocks as a poor investment in a stagflation environment. The notable exception is real estate. However, because of low affordability, real estate will at least not be an accessible hedge for everyone. Containing inflation in the coming months, costly as it may be, will thus be paramount for financial markets.

Unhappy U.S. consumers spend anyway

Second-quarter U.S. GDP growth is looking better after April retail sales and industrial production. Retail sales were up 0.9% in April, a little lighter than our forecast of 1.2%, but the details were solid. Nonauto retail sales rose 0.6%, in line with our expectation. Nonstore retail sales rose 2.1% in April after rising only 0.4% in March. The recovery in retail sales at restaurants continued, with sales rising 2% between March and April. This is consistent with the improvement in the weekly data from OpenTable. Spending at gasoline stations fell as there was some relief at the pump. Gasoline prices atypically fell in April.

Sales of the important control group—the total excluding autos, gasoline, building materials and food services—increased 1% in April and there was a positive upward revision to March. Control retail sales were up 9.1% annualized over the prior three months in April. Some of the growth is attributed to higher prices as retail sales are not adjusted for fluctuations in prices. However, even adjusting for price effects, real control retail sales posted decent growth over the past three months. This raised our high-frequency GDP model's tracking of real consumer spending in the second quarter to 4.6% at an annualized rate.

The solid gain in spending in April may seem inconsistent with the drop in some measures of consumer sentiment. For one, the correlation between changes in monthly consumer sentiment and real consumer spending is low. The correlation coefficient for the University of Michigan survey is 0.27. This is less than the 0.33 correlation coefficient between changes in real consumer spending and fluctuations in the Conference Board's consumer sentiment index.

To double check, we created a fairly simple model of real consumer spending growth. In the model, consumer spending growth, or real personal expenditures, is a function of growth in real household cash flow, debt service burdens, and a lag of changes in consumer confidence. We used the University of Michigan survey and then swapped it out for the Conference Board survey. Though the sign on the coefficient for consumer sentiment was correct, the size of the coefficient was small, suggesting that sentiment explains little of the change in real consumer spending.

.

TOP OF MIND

Mixed Signals on U.S. Regional Inflation

BY ADAM KAMINS

While the broad regional narrative surrounding inflation has barely budged in recent months, subtle shifts in the data shed light on where the story may be headed. Last week's release of the April Consumer Price Index and a comparison between regional CPIs and broader metrics provide a handful of clues.

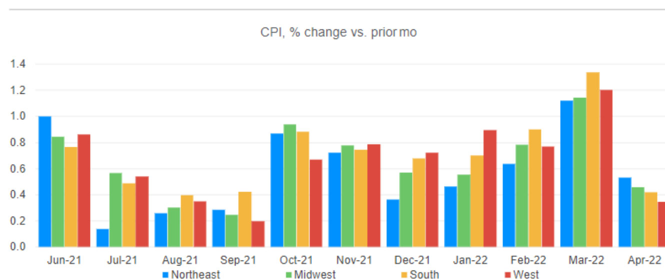
But while those figures are insightful, recent data are noisy enough to muddle any takeaways. This makes it challenging to determine just how meaningful the evidence of convergence and differential broader impacts across regions is—although it is still worth trying.

Signs of convergence

Since inflation began its ascent last year, the Northeast has consistently experienced the least severe price pressures of any region. In fact, the year-over-year change in the region's CPI has been more than a percentage point below that of the next-lowest region for six months running.

But after its gap with the U.S. narrowed slightly in March, April brought more meaningful evidence of convergence. On a month-to-month basis, seasonally adjusted inflation in the Northeast was the nation's highest last month, the first time this has happened since June, when restrictions were lifted across much of the region with most residents fully vaccinated.

Pace of Regional Price Gains in April Suggests Some Convergence



Sources: BLS, Moody's Analytics

Recent price gains may owe in part to further steps toward normalcy taken by the region's big cities. Not only have most restrictions disappeared, but many offices targeted last month for a return to in-person work, providing a jolt to urban cores, albeit one that was muted by continued hybrid arrangements in many industries. This is best seen in New York City, which has outpaced the U.S. in monthly CPI growth for each of the past two months. Meanwhile, in Chicago and Los Angeles, the other two metro areas for which prices are reported monthly, low inflation has given way to above-average aggregate price growth from February to April.

The relative intensification of price pressures in big cities is also evident when examining Census division data. They show that not only did the Mid-Atlantic, which includes New York City and Philadelphia, set the pace in April, but the densely populated Pacific Coast also easily bested the national average.

Mixed metro picture

While aggregate figures suggest that increased demand may be causing the gap between high- and low-inflation regions to narrow, a deeper dive into individual metro areas is not nearly as conclusive. Using a two-month growth rate and four-month moving averages to account for volatility and missing data, there is little evidence that the inflation rate entering April was predictive of the monthly change.

This can be seen when considering the rank order of inflation growth since winter. Low-inflation markets such as Boston and Honolulu have experienced well above-average pickups in price gains, fueled by the return of tourists and students, putting upward pressure on demand. But New York City is roughly average when discounting its very recent pickup, and San Francisco, where inflation has been lowest for most of the past year, is experiencing some of the nation's slowest price increases.

High-inflation metro areas are also mixed. Cost pressures in Denver, Tampa FL and South Florida all show no sign of relenting. But Atlanta and Phoenix, arguably the two economies with the most pronounced inflation in the U.S., may have peaked based on recent figures.

All told, the metro area data from last month are in the eye of the beholder. While the broad regional story is clear, zooming in reveals a much blurrier picture, one in which some convergence is mixed with numerous economies going their own way based the broader demand picture.

Inflation and confidence

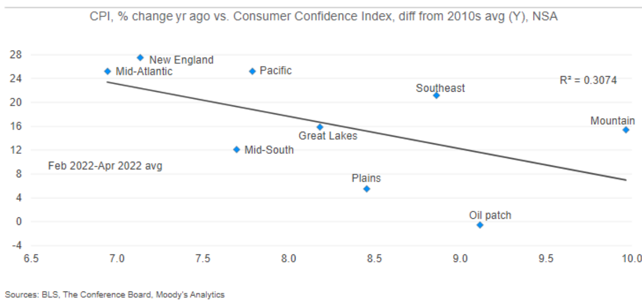
The degree to which high inflation is undermining regional economic prospects is also mixed. Broader national measures of sentiment reflect widespread consternation among firms and individuals about rapidly rising prices. But the salience of those concerns is mixed by region.

Using consumer confidence figures tracked by the Conference Board for the nation's nine metro divisions helps drive that point home. At first blush, they paint a mixed picture, revealing above-average confidence on the West Coast, below-average sentiment in New England, and concerns along the corridor that extends from the Great Lakes to the Gulf Coast.

Those results suggest some link between lower inflation and sentiment, but one that is difficult to tease out. The relationship becomes much more noticeable when accounting for historical differences in regional confidence.

Using a three-month average of confidence and comparing it to the average figure for the last decade, a clearer story emerges. The Mid-Atlantic, New England and Pacific Coast look best relative to their typical levels from the prior expansion. The two northeastern divisions boast the nation's lowest inflation rates, while the Pacific Coast is well below average as well. Meanwhile, the oil patch—driven by Texas and neighboring states—saw prices soar most rapidly and is the only division in which confidence has declined relative to last decade.

High Inflation Is Linked to Diminished Sentiment



Sources: BLS, The Conference Board, Moody's Analytics

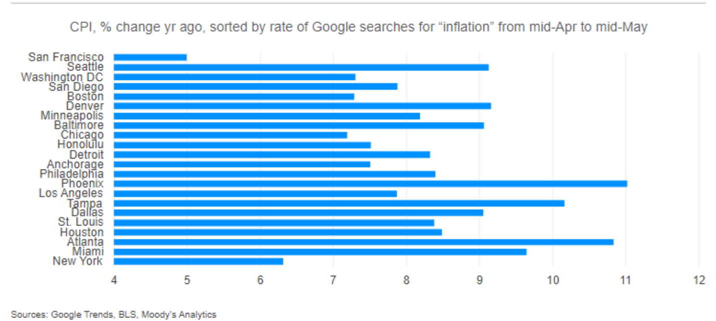
These results suggest that high inflation is having a corrosive effect on many regional economies. But the absence of pronounced price pressures may be keeping uncertainty under wraps in parts of the nation. Combine this with the increasing importance of political preferences in determining how respondents feel about the economy and it is clear that consumers in large coastal areas are in a better relative position than they have been in some time.

No panic in many high-inflation areas

Other proxies for sentiment are not quite as clear. Online searches for "inflation" have soared recently, according to Google Trends, coinciding with the rapid increase in prices. But the relationship between regional inflation rates and apparent concern is all but nonexistent.

Among the metro areas with CPI data available, the one with the most frequent searches for inflation over the past month was San Francisco, where price increases are milder than in any other market. In the Washington DC metro area, searches were also well above average despite only modest price gains. Yet this is not simply a case of more educated urban dwellers taking more of an interest in economic trends. In New York City, Google searches for inflation are below-average, aligning with milder price increases.

Regional Concerns About Inflation Are Divorced From Severity



Sources: Google Trends, BLS, Moody's Analytics

High-inflation metro areas such as Miami, Atlanta and Houston are only generating marginally more interest in inflation than New York, and residents appear to care far less than they do in San Francisco. Of course, searches for the term inflation are a flawed proxy for consumer reaction to rapidly rising prices; individuals will pull back whether or not they are interested in understanding the root cause. But these results suggest a combination of effects at play, with consumers and businesses in some regions reacting directly to rising price tags and others affected by broader concerns.

The Week Ahead in the Global Economy

U.S.

Among the key data due in the busy week ahead are April personal income and spending. These comes along with the PCE deflators for April. Odds are that the core PCE deflator will rise less than the core consumer price index because of weakness in healthcare prices. Durable goods orders for April will also be released along with the second estimate of first-quarter GDP. The revision to first-quarter GDP should be fairly modest. Pending home sales likely fell in April because of rising mortgage rates. On the policy front, the minutes from the May meeting of the Federal Open Market Committee will be released. They could solidify expectations that the Fed will raise rates by another 50 basis points in June.

Europe

Final estimates of Germany's first-quarter GDP growth will be out next week, but we aren't expecting any surprises. The preliminary estimate pegged growth at just 0.2% q/q in the first three months of the year, partially recovering from the 0.3% contraction in the final quarter of 2021. We expect to see sluggish consumer spending and net trade figures with upside predominating in fixed investments thanks to the construction sector.

We expect marginal improvements to the number of French job seekers. In April there were likely 2.91 million job seekers, down from 2.94 million in March. PMIs during the month point to continued job gains in both the manufacturing and services sector, though most upside is likely focused in the services sector with firms working in and around the tourism industry hiring in preparation for a busy spring and summer season.

Spain's retail sales likely slumped 0.1% m/m in March deepening the 3.8% decline in February. In large part, sales likely weakened because of the rapid hike in consumer prices during the month. The Russian invasion of Ukraine shocked consumer electricity and fuel prices in Spain, cutting straight into disposable incomes.

Asia-Pacific

Monetary policy decisions will dominate headlines in the Asia-Pacific region next week as central banks in South Korea, New Zealand and Indonesia review interest rates settings. We expect the Bank of Korea to raise the policy rate by 25 basis points to 1.75% at its meeting, building on a rate hike in April. The Reserve Bank of New Zealand is expected to raise the official cash rate by a significant 50 basis points to 2% next week, having already announced a 50-basis point hike in April.

For these economies, the decision to proceed with earlier rate increases, and in New Zealand's case more intense ones, is designed to tame rising price pressures. These pressures are coming from elevated commodity prices and supply-chain disruptions caused by COVID-19 lockdowns in China and decisions by some governments to safeguard domestic food security by restricting exports. The U.S. Federal Reserve's more hawkish stance (or the need to preserve the region's interest rate premium) and intent to stabilise local bond markets will also be a factor in monetary policy decisions. Inflation in these markets has risen beyond central bank comfort levels, necessitating more prominent steps to rein in inflation expectations and mitigate the possibility for a prolonged period of subdued growth.

We expect Bank Indonesia to leave its policy rate unchanged at 3.5%, allowing room for the domestic recovery to solidify. Singapore's consumer inflation is likely to have intensified in April on the back of higher prices for accommodation, food and energy. These fuelled March inflation of 5.4% y/y.

Geopolitical Calendar

Date	Country	Event	Economic Importance	Financial Market Risk
21-May	Australia	Federal election	Low	Low
22-26-May	Switzerland	World Economic Forum annual meeting	Medium	Low
29-May	Colombia	Presidential election	Medium	Low
29-30-Jun	NATO	NATO Summit, hosted by Madrid	Medium	Medium
Jun/Jul	PNG	National general election	Low	Low
2-Oct	Brazil	Presidential and congressional elections	High	Medium
Oct	Indonesia	G20	Medium	Low
Oct/Nov	China	National Party Congress	High	Medium
7-Nov	U.N.	U.N. Climate Change Conference 2022 (COP 27)	Medium	Low

THE LONG VIEW: U.S.

Fed's Balance Sheet Runoff Is Coming

BY RYAN SWEET

CREDIT SPREADS

Moody's long-term average corporate bond spread is 165 basis points, 8 bps wider than at this time last week. It is also wider than the 142 bps average for April. The long-term average industrial corporate bond spread widened by 9 bps to 151. It averaged 129 bps in April.

The recent ICE BofA U.S. high-yield option adjusted bond spread widened by 29 basis points over the past week to 484 bps. This is the widest since late 2020. The Bloomberg Barclays high-yield option adjusted spread widened from 437 bps to 472 this week. The high-yield option adjusted bond spreads approximate what is suggested by the accompanying long-term Baa industrial company bond yield spread and that implied by a VIX of 29.6.

DEFAULTS

The global speculative-grade default rate for the trailing 12 months declined to 1.9% at the end of April from 2.1% a month earlier. We expect the default rate to climb steadily over the next 12 months under our baseline forecast. However, the projected increase will be modest, and the default rate will remain below the long-term average.

Year to date, the global corporate default count remains higher than last year's (29 vs. 23). The banking sector accounts for the most defaults so far this year as a result of eight Ukrainian bank defaults in February, following Russia's invasion of Ukraine (Caa2 review for downgrade). Construction and building followed with seven defaults. Across regions, North America had 12 defaults (11 in the US and one in Canada). The rest were from Europe (nine), Asia Pacific (seven) and Latin America (one).

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.

Issuance weakened in the second quarter of 2021 as worldwide offerings of corporate bonds revealed a year-over-year decline of 35% for investment grade. High-yield issuance faired noticeably better in the second quarter.

Issuance softened in the third quarter of 2021 as worldwide offerings of corporate bonds revealed a year-over-year decline of 5% for investment grade. U.S. denominated corporate bond issuance also fell, dropping 16% on a year-ago basis. High-yield issuance faired noticeably better in the third quarter.

Fourth-quarter 2021's worldwide offerings of corporate bonds fell 9.4% for investment grade. High-yield US$ denominated high-yield corporate bond issuance fell from $133 billion in the third quarter to $92 billion in the final three months of 2021. December was a disappointment for high-yield corporate bond issuance, since it was 33% below its prior five-year average for the month.

In the first quarter of 2022, worldwide offerings of investment grade corporate bonds totaled $901 billion, up 12% on a year-ago basis.

In the week ended May 13, US$-denominated high-yield issuance totaled $1.2 billion. This brings the year-to-date total to $79.8 billion. Investment-grade bond issuance rose $24.2 billion in the week ended May 13, bringing its year-to-date total to $668.9 billion.

U.S. ECONOMIC OUTLOOK

There were some noticeable adjustments to our U.S. baseline forecast in May because of changes to our fiscal policy assumptions, the tightening in financial market conditions, and the increasing economic costs of Russia's invasion of Ukraine.

Financial market conditions have tightened noticeably between the updates of the April and May baseline forecast. The cumulative decline in the S&P 500 since the beginning of the year is around 19%. Separately, year-to-date returns on the S&P 500 are down around 15%. This is coupled with the more than 150-basis point increase in the 10-year Treasury yield since the beginning of the year.

We're seeing evidence that this is affecting corporate bond spreads. Our past work has shown that a stock market correction and jump in 10-year Treasury yields bode ill for high-yield corporate bond spreads and issuance. Inflation fears have caused rates across the yield curve to jump, particularly at the long end of the yield curve. Meanwhile, volatility in the equity and bond market has caused high-yield corporate bond spreads to widen. It has been a rough year for high-yield corporate bond spreads as returns are -9% year to date. High-yield corporate bond issuance has not started this slowly in a long time.

It's time to make a change

In the May baseline, we removed our assumption that Democrats would pass a slimmed-down reconciliation package that invested $560 billion in clean-energy and climate resilience and was paid for by more than $700 billion in higher taxes on well-to-do households and prescription drug savings. Though our assumption around reconciliation was consistent with what Senator Joe Manchin had said he would support, Democrats do not even seem to be on track to agree on a loose reconciliation framework by Memorial Day. After May, it will be nearly impossible for Democrats to agree to and act on a reconciliation bill, as the midterm elections will be fast approaching.

The removal of the reconciliation package barely has an impact in 2022. All else being equal, its absence reduces annual real GDP growth by 5 to 7 basis points in the next three years, such that the jobless rate is 0.1 percentage point higher by mid-decade.

COVID-19 assumptions

Changes to our epidemiological assumptions were larger than last month. Total confirmed COVID-19 cases in the U.S. will be 88.5 million compared with the 81.35 million in the April baseline. The number of assumed cases is still well above that assumed before the Omicron variant. The seven-day moving average of daily confirmed cases has been steadily rising since the April baseline and is now 74,000, more than double that seen when we updated the April baseline forecast.

We're sticking with the concept of "effective immunity," which is a rolling number of infections plus vaccinations to account for the fact that immunity is not permanent. The forecast still assumes that COVID-19 will be endemic and seasonal. However, each passing wave is assumed to have a diminishing economic effect.

Energy price assumptions

Our assumption is that the oil supply disruption from Russia's invasion of Ukraine will be between 2 million and 3 million barrels per day. However, the EU is proposing a dramatic restructuring of global energy markets, and the global economic fallout could be significant. The EU has declared that Russia is no longer a reliable energy supplier, and it proposes that its member states cease purchasing Russian oil and processed fuels by the end of 2022. This would displace approximately 4% of the global oil supply and half of Russia's oil exports. Europe will look to the Middle East, Africa and the Americas for suppliers, and Russia will look east, where it will not be able to fill the hole created by Europe's retreat. The EU ban could precipitate the most substantial reshuffling of global oil supply in history.

The baseline forecast assumes that this doesn't occur. However, in the worst-case scenario, oil prices could rise as high as $150 per barrel. Each $10 increase in oil prices shaves about 0.1% from U.S. GDP growth, and even more for European economies with greater oil import bills.

Nudging GDP lower

The May baseline factors in increasing costs of higher global energy prices and tighter financial market conditions on the U.S. economy. We now expect real GDP to rise 2.8% this year, compared with 3.2% in the April baseline. We have cut our forecast for U.S. GDP growth this year by a total of 70 basis points over the past couple of months. We kept the forecast for GDP growth in 2023 at 2.7%. The economy is still expected to grow above its potential, which is likely between 2% and 2.5%.

Some of the revision to GDP this year is attributed to the disappointment in first-quarter GDP, which is misleading even as it fell 1.4% at an annualized rate.

Net exports were an enormous weight on first-quarter GDP, subtracting 3.2 percentage points. Trade has been a consistent weight on GDP growth as demand for consumer goods has been robust. The U.S. consumer is buying a ton of goods and the majority of these are imported. Another drag was inventories, which reduced first-quarter GDP by 0.8 percentage point. Inventories rose $158.7 billion at an annualized rate, a sizable increase but failed to keep pace with the $193.2 billion inventory build in the fourth quarter. For GDP, it's the change in the change in inventories that matters. Neither inventories nor trade tell us where the economy is headed.

Declines in GDP during economic expansions have happened before. The three contractions in GDP occurring between the global financial crisis and the COVID-19 pandemic occurred because of some combination of a widened trade deficit and the quarterly oscillations of the inventory build. Consumption, the largest component of GDP, did not contract in those instances or in the first quarter of 2022. Consumption, particularly on services, accelerated in the quarter.

What matters is the strength of the domestic economy, and real final sales to private domestic purchasers were up 3.7% at an annualized rate in the first quarter, an acceleration from the 2.6% gain in the prior three months and the strongest gain since the second quarter of last year. Real consumer spending rose 2.7% at an annualized rate in the first quarter, compared with the 2.5% gain in the prior three months. Business investment was solid in the first quarter as real equipment spending jumped 15.3% at an annualized rate following a 2.8% gain in the fourth quarter of last year. Real residential investment rose 2.1% at an annualized rate, the second quarter that growth was around 2%.

There were some notable changes to the forecast for GDP growth by quarter this year. We now have second-quarter GDP rising 3.6% at an annualized rate, compared with 3.4% in the April baseline. The biggest change is to the third quarter, as GDP then is now expected to rise 2.9% at an annualized rate, compared with 1.6% in the April baseline. We nudged the forecast higher for GDP growth in the fourth quarter of this year.

Our baseline forecast for real GDP growth this year is lower than the Bloomberg consensus of 3.1%. The forecast for next year is 0.5 percentage point stronger than the Bloomberg consensus of 2.1%.

Business investment and housing

We have real business equipment spending rising 7% this year, compared with 6% in the April baseline. The forecast is for real business equipment spending to increase 3.9% in 2023, weaker than the prior baseline's 4.6%.

A good chunk of the revision is attributable to mining exploration, shafts and wells. The Bureau of Economic Analysis uses the American Petroleum Institute's weighted average of footage drilled along with rotary rig counts from Baker Hughes in its current-quarter estimate of private fixed investment in mining exploration, shafts and wells. This segment now accounts for more than 10% of nominal private fixed investment in nonresidential structures. Therefore, a rise in energy prices is increasing the number of active rotary rigs. Rig counts have risen but are still lower than pre-pandemic and less than implied by global oil prices.

Revisions to housing starts were small. Housing starts are expected to be 1.83 million, compared with 1.82 million in the April baseline. There were no revisions to housing starts next year. There are likely only so many homes that can be built each year because of labor-supply constraints and a lack of buildable lots. Some of the labor-supply issues will ease as the pandemic winds down, but the reduction in immigration is particularly problematic for homebuilders' ability to find workers. We cut the forecasts for new- and existing-home sales this year. They are expected to total 6.86 million, a touch lighter than the 6.9 million in the prior forecast. Revisions to sales in 2023 were larger. New- and existing-home sales are expected to be 6.73 million, weaker than the 7.1 million in the April baseline.

There were minor tweaks to the forecast for the FHFA All-Transactions House Price Index this year and next. The May baseline has it rising 12.2% this year, compared with 12% in the prior baseline. The forecast for next year continues to expect little house price appreciation. Rising mortgage rates are cutting into the housing market, but the initial impact is more noticeable on refinancing activity than either demand for new/existing homes or residential investment. The hit on the latter is coming.

Labor market

We have job growth averaging 372,000 per month this year compared with the April baseline forecast of 376,000. Job growth has averaged around 550,000 per month over the past six months. If sustained, it would take nine months to close the employment gap, or the difference between the actual level of employment and where it would have been if the recession hadn't occurred and prerecession job growth was maintained.

There were no material changes to the forecast for the unemployment rate. It is still expected to average 3.3% in the final three months of this year and 3.7% in the final three months of next year. We assume a full-employment economy is one with a 3.5% unemployment rate, around a 62.5% labor force participation rate, and a prime-age employment-to-population ratio a little north of 80%. All of these conditions will be met this summer.

Fast and furious

The front-loading of interest rate hikes by the Federal Open Market Committee has begun, and May's increase won't be the last aggressive hike by the central bank, since it is behind the curve on inflation. As widely expected, the FOMC raised the target range for the fed funds rate by 50 basis points to 0.75% to 1%—the first 50-basis point rate hike since May 2000.

There were some changes to the latest FOMC post-meeting statement. What stood out is the phrase that Fed

policymakers are highly attentive to inflation risks. That is hawkish. There is a long list of inflation risks, including lockdowns in China, Russia's invasion of Ukraine, and the invasion's impact on energy and food prices. Also, the U.S. labor market is tight.

The FOMC also announced the runoff of its balance beginning on June 1. The initial runoff pace is $47.5 billion per month, but after three months it will increase to $95 billion. That won't be a gradual increase; rather it will be a sudden increase in September. To start, the runoff is $30 billion monthly for Treasuries and $17.5 billion for mortgage-backed securities. The Fed has a ton of Treasury securities maturing over the next several months, giving it the opportunity to be more aggressive on the balance sheet reduction.

If the Fed sticks with its current plan, its balance sheet will decline by about $520 billion this year. This may sound like a lot, but the balance sheet will still be massive, around 37% of nominal GDP. It was less than 20% of nominal GDP before the pandemic. Also, there wasn't a mention of MBS sales.

The outcome of the FOMC meeting was in line with our expectations. Therefore, we didn't make any changes to our assumptions around monetary policy. However, given the recent increases in the 10-year Treasury yield we have revised our forecast higher for long-term rates through the rest of this year; they will now average 3.16% in the final three months, 19 basis points higher than in the prior baseline forecast. We still have the 10-year Treasury yield averaging 3.25% in the fourth quarter of next year, identical to the April baseline. The May baseline forecast incorporates the recent drop in equity prices, which is the reason for the revision to the forecast. Equity prices are expected to bottom in the first quarter of next year and will resume rising in the second quarter.

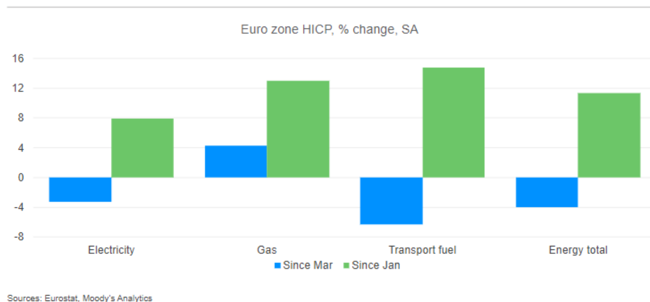
THE LONG VIEW: EUROPE

Euro Zone Good News Is Illusionary

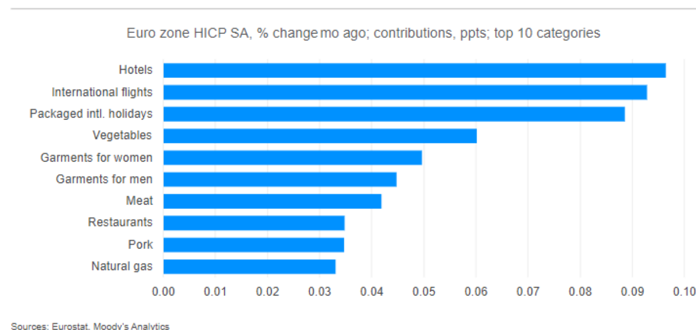
BY KAMIL KOVAR

The final release for the euro zone CPI showed April headline inflation at 7.4%, unchanged from March, and 0.05 percentage point lower than in the preliminary release. Because the headline number did not increase, it might provide some relief for policymakers, but the details released on Wednesday suggest the relief is mostly an illusion.

The headline benefited from a significant decrease in energy prices, driven by a drop in fuel and electricity prices. While this partly explains the drop in commodity prices, it mostly shows a correction of an overshoot we saw in March, when fuel prices jumped higher than expected. Based on our modelling, fuel prices should have increased by around 6% in response to the jump in commodity prices, but in reality, they jumped by 15.6%. This most likely reflects the increased margins along the production chain, driven by supply uncertainties of refined products. With this one-off factor behind us, and with global oil prices higher in May than in April, energy prices are set to rise again May.



The bad news wasn't limited to the details of the energy component; services recorded a large jump from March. This was driven by transport services—airline tickets increased 10%-15% from March—and accommodation services. While costs clearly play a role here, we believe that strong demand is at least as important. We expect a service-sector recovery during the spring and summer months, as Europeans enjoy their first summer free of COVID-19 restrictions. While this is good news for euro zone output, it also spells more trouble for the European Central Bank, as this will push services inflation. Moreover, goods inflation will also continue to increase, mostly reflecting increased costs of firms. For example, consumer car prices posted yet another significant increase in April.



Altogether, the details in the release make us more confident in our forecast: Inflation will peak above 8% in May or June and will stay above 6% for the rest of the year. While earlier, we believed that the ECB would be able to withstand this bout of inflation, this is clearly no longer the case. The first hike is coming in the July meeting, which we think will be followed by a 25-basis point hike in each of the following meetings, bringing the deposit rate to 0.5% in December. However, larger hikes in one or more meetings can no longer be ruled out. As a result, we have increased our odds of a policy error and return of debt crisis.

Japan's Weak Start

BY SHAHANA MUKHERJEE, STEFAN ANGRICK and ERIC CHIANG

According to the preliminary estimate, Japan's GDP fell 0.2% q/q in the first quarter of 2022 after growing 0.9% (revised) in the fourth quarter of 2021. A decline was expected because the spread of the more infectious Omicron variant of COVID-19 set back household spending in January and February. However, output did not fall as much as expected.

Data for this first estimate of GDP showed much of the decline was due to lower public and private residential investment, which fell 3.6% q/q and 1.1% q/q, respectively, after slipping in the last quarter of 2021. Net exports also came in weaker and took 0.4 percentage point off growth as a 3.4% q/q increase in imports of goods and services outpaced a 1.1% increase in exports. In comparison, public and private residential investment subtracted another 0.2 percentage point. Weaker private consumption spending added only marginally to this.

On the positive side, government consumption and business investment rose on the quarter, each contributing 0.1 percentage point to GDP growth. We caution against reading too much into initial estimates of business investment because large revisions are common; however, the fairly subdued pickup reported with the preliminary GDP estimate underscores that private capex is struggling to get its groove back. Still, the uptick in business investment and government consumption partially offset weakness elsewhere—particularly in public investment. That public investment is at a ten-year low raises questions around government projects announced these past years. Higher inventories added another 0.2 percentage point to quarter-on-quarter growth in the first quarter.

The outlook remains challenging. Lingering virus concerns are weighing on consumer and business spending and will keep domestic demand weak. Authorities are nudging back tight pandemic-era restrictions, but Japan has yet to fully embrace a "living with COVID" approach. Externally, Russia's invasion of Ukraine and COVID-19 lockdowns in China raise the likelihood of renewed disruptions. This will keep growth soft for exports and production in coming months. Meanwhile, surging commodity prices have pushed up Japan's import bill, exacerbating its trade deficit and driving prices higher. The journey towards recovery will remain bumpy.

Thailand's Q1 surprise

In contrast to Japan, Thailand's March-quarter performance surprised on the upside. GDP grew by a strong 2.2% y/y, building on the 1.8% expansion in the prior quarter. This beat our expectations for 1.4% y/y growth. A particularly favourable feature was that private consumption strengthened (up 3.9% y/y after a 0.4% increase previously). At the same time, government spending grew 4.1% y/y. Export growth settled at a respectable 12% y/y, offsetting pandemic-related weakness in net exports in early 2021. The healthy first-quarter reading means that national income has largely caught up to pre-pandemic levels even though output is about 2% below.

The spending pickup was largely facilitated by the easing of COVID-19 restrictions and the return of international tourists. Almost 500,000 foreign visitors arrived from January to March, according to the Ministry of Tourism and Sports. That fuelled demand for accommodation and food, both of which rebounded after a year-on-year decline in the fourth quarter of 2021. Tourism accounts for close to 20% of national output and nearly 15% of total employment in Thailand. That makes the reopening of borders an important factor that will stimulate demand for services, support the pickup in spending, and aid employment over the next few quarters.

Despite the favourable first-quarter reading, Thailand faces the risk of slower growth due to higher inflation—the same as much of Asia. Spiralling energy and food prices pushed inflation to a 13-year high of 5.7% in March. Although some cost pressures have since moderated, the threat from prolonged supply-chain disruptions or volatile commodity prices could see inflation exceed expectations in coming months. Domestic demand is gaining some pace and could also exacerbate price increases in the very near term. Higher and unsustainable levels of inflation will eventually drag on the domestic recovery to the extent that spending decisions are delayed and weakened because of reduced purchasing power. This is a downside risk that could keep Thailand from maximising growth as international travellers return.

This risk has increased the odds of the Bank of Thailand raising interest rates sooner than expected, taking a similar line to other Asian central banks that have pivoted to taming accelerating domestic inflation ahead of fostering growth. We look for the central bank to increase the policy rate in the third quarter, with the pace of tightening contingent on the stubbornness of inflation pressures. That said, we expect the economy to grow by a notable 3.5% in 2022, with open borders and tourist inflows anchoring the turnaround.

A Credit Negative Week in U.S. Changes

BY MICHAEL FERLEZ

U.S.

U.S. rating change activity was credit negative for the week ending May 17, with downgrades accounting for two-thirds of the rating change activity and all the reported affected debt. The week’s activity was limited to speculative-grade companies with retail specialty firms Bed Bath & Beyond Inc. and At Home Group Inc. accounting for the two largest downgrades by amount of debt affected. Moody’s Investors Service downgraded several of Bed Bath & Beyond Inc.’s ratings including a downgrade of the firm’s senior unsecured notes rating to B3. In their rating action, Moody's Senior Vice President Christina Boni noted, "The downgrade reflects the continued pressure on Bed Bath's operations and credit metrics given the increased risks associated with the execution of Bed Bath's strategic turnaround. Supply chain and operational challenges are expected to continue to constrain inventory levels leading to further market share erosion as inflation in food and energy costs weigh on discretionary income."

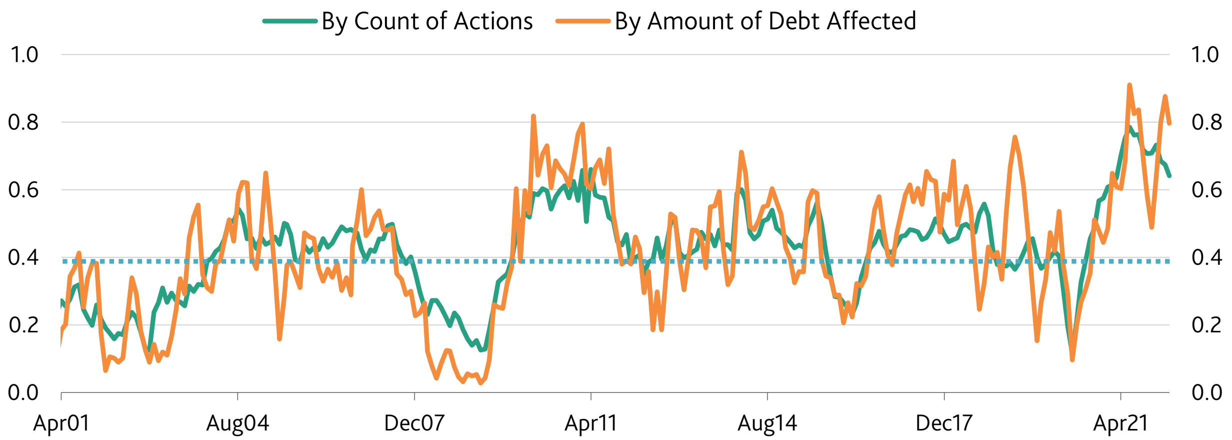
Despite the down week, the trend in U.S. credit rating activity remains strong, with upgrades easily outnumbering downgrades in both count as well as the amount of affected debt.

Europe

Western European rating change activity was credit positive last week, with upgrades accounting for 62% of total rating changes and all the reported affected debt. France and Ireland each saw two firms receive rating changes, while the remaining activity was split evenly among Italy, Norway, Spain and the U.K. The week’s most notable change in terms of affected debt was made to Irish-based AIB Group plc, which saw its senior unsecured debt ratings upgraded to A3, impacting $10.4 billion in senior unsecured debt. The upgrade of AIB Group follows Moody’s’ Investors Service recent upgrade of Ireland’s sovereign debt rating.

RATINGS ROUND-UP

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



* Trailing 3-month average

Source: Moody's

FIGURE 2
Rating Key

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

FIGURE 3

Rating Changes: Corporate & Financial Institutions - US

Date	Company	Sector	Rating	Amount ($ Million)	Up/ Down	Old LTD Rating	New LTD Rating	IG/ SG
5/11/2022	CCHN HOLDINGS, LLC-COMMUNITY CARE HEALTH NETWORK, LLC	Industrial	SrSec/BCF/LTCFR/PDR		D	B2	B3	SG
5/13/2022	FGI ACQUISITION CORP.	Industrial	SrSec/BCF/LTCFR/PDR		U	Caa2	Caa1	SG
5/16/2022	BED BATH & BEYOND INC.	Industrial	SrUnsec/LTCFR/PDR	1200.01	D	B2	B3	SG
5/17/2022	SYNIVERSE HOLDINGS, LLC	Industrial	LTCFR/PDR		U	Caa1	B3	SG
5/17/2022	AT HOME GROUP, INC.	Industrial	SrSec/SrUnsec/BCF/LTCFR/PDR	800.00	D	B1	B3	SG
5/17/2022	WEBER-STEPHEN PRODUCTS LLC	Industrial	SrSec/BCF/LTCFR/PDR		D	B1	B3	SG

Source: Moody's

FIGURE 4

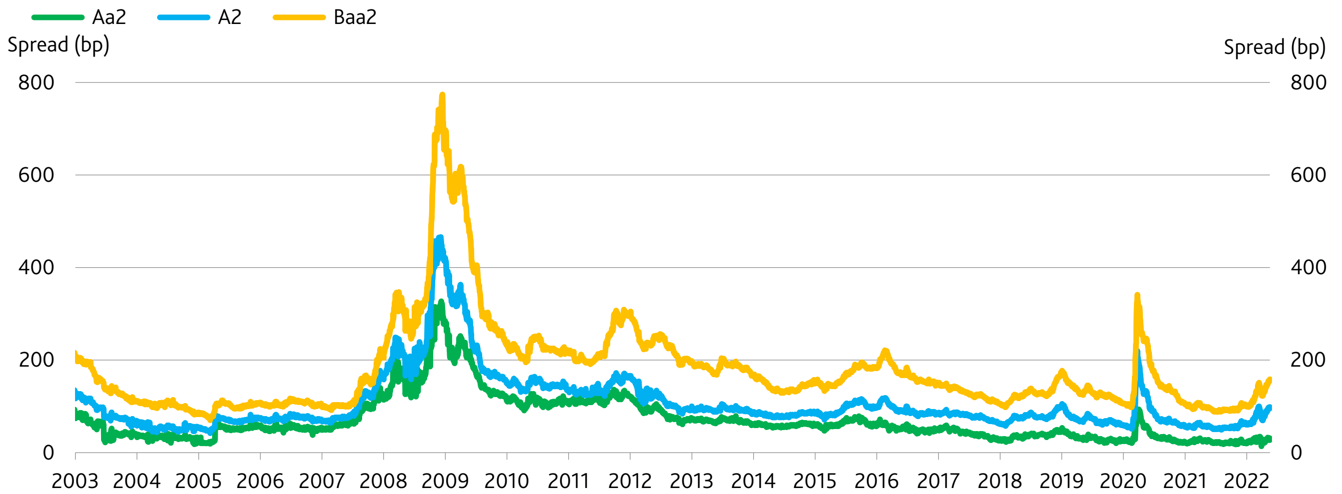
Rating Changes: Corporate & Financial Institutions - Europe

Date	Company	Sector	Rating	Amount ($ Million)	Up/ Down	Old LTD Rating	New LTD Rating	IG/ SG	Country
5/11/2022	BANCO BPM S.P.A.	Financial	SrUnsec/LTIR/STD/LTD/Sub/MTN	8002.03	U	Ba2	Ba1	SG	ITALY
5/12/2022	BOLUDA TOWAGE S.L.	Industrial	SrSec/BCF/LTCFR/PDR		D	B1	B2	SG	SPAIN
5/13/2022	CMA CGM S.A.	Industrial	SrUnsec/LTCFR/PDR	2736.92	U	B2	Ba3	SG	FRANCE
5/13/2022	AKER BP ASA	Industrial	SrUnsec/MTN	4873.48	U	Baa3	Baa2	IG	NORWAY
5/13/2022	BANK OF IRELAND GROUP PLC	Financial	SrUnsec/LTIR/LTD/Sub/JrSub/MTN	9863.64	U	A2	A1	IG	IRELAND
5/13/2022	AIB GROUP PLC	Financial	SrUnsec/LTD/Sub/MTN	10410.94	U	Baa1	A3	IG	IRELAND
5/16/2022	L1R HB FINANCE LIMITED	Industrial	SrSec/BCF/LTCFR/PDR		D	B3	Caa1	SG	UNITED KINGDOM
5/16/2022	TARKETT PARTICIPATION	Industrial	SrSec/BCF/LTCFR/PDR		D	Ba3	B1	SG	FRANCE

Source: Moody's

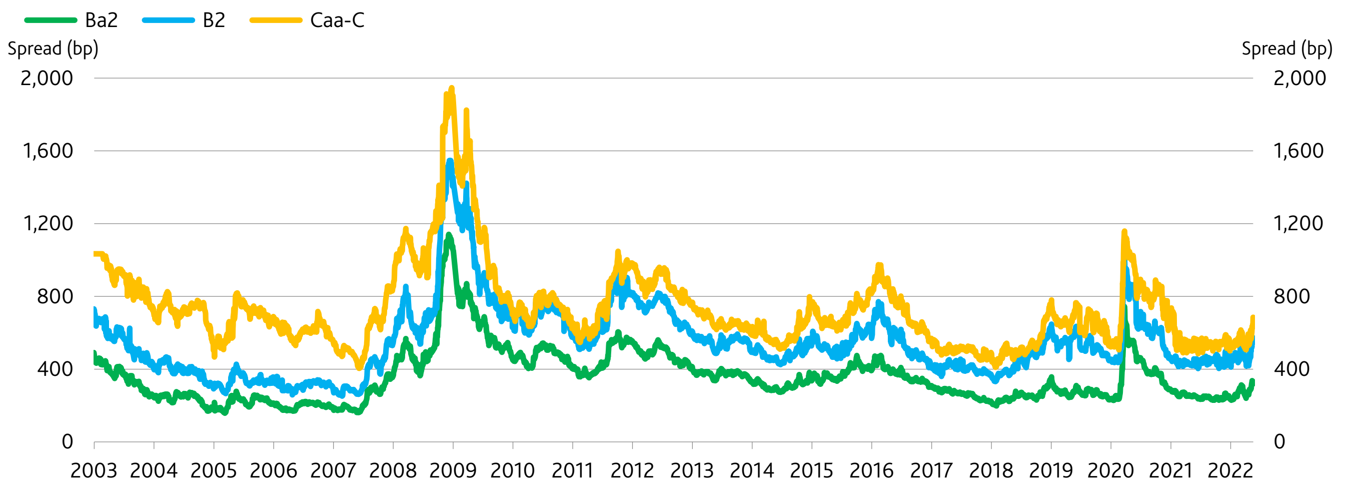
MARKET DATA

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

CDS MOVERS

Figure 3. CDS Movers - US (May 11, 2022 – May 18, 2022)

CDS Implied Rating Rises	CDS Implied Ratings		
Issuer	May. 18	May. 11	Senior Ratings
Toyota Motor Credit Corporation	Aa2	Aa3	A1
Apple Inc.	Aaa	Aa1	Aaa
Amazon.com, Inc.	Aa1	Aa2	A1
Pfizer Inc.	Aa2	Aa3	A2
PepsiCo, Inc.	Aa1	Aa2	A1
Home Depot, Inc. (The)	Aa2	Aa3	A2
Merck & Co., Inc.	Aa2	Aa3	A1
Intel Corporation	Aa2	Aa3	A1
Walt Disney Company (The) (Old)	Aaa	Aa1	A2
U.S. Bancorp	A1	A2	A2

CDS Implied Rating Declines	CDS Implied Ratings		
Issuer	May. 18	May. 11	Senior Ratings
CenterPoint Energy, Inc.	Baa2	A3	Baa2
PepsiCo, Inc.	A2	A1	A1
Philip Morris International Inc.	A2	A1	A2
General Electric Company	Baa3	Baa2	Baa1
Eli Lilly and Company	Aa2	Aa1	A2
FirstEnergy Corp.	Baa3	Baa2	Ba1
Emerson Electric Company	Baa1	A3	A2
Danaher Corporation	A3	A2	Baa1
Archer-Daniels-Midland Company	A2	A1	A2
United Rentals (North America), Inc.	Ba2	Ba1	Ba2

CDS Spread Increases		CDS Spreads		
Issuer	Senior Ratings	May. 18	May. 11	Spread Diff
Staples, Inc.	Caa2	1,924	1,436	488
Rite Aid Corporation	Caa2	3,351	2,966	385
Dish DBS Corporation	B3	1,183	1,066	117
Liberty Interactive LLC	B2	1,241	1,135	106
Carnival Corporation	B2	813	723	90
Royal Caribbean Cruises Ltd.	B2	644	558	87
Ryder System, Inc.	Baa2	217	131	85
United States Steel Corporation	B1	533	481	53
Macy's Retail Holdings, LLC	Ba2	509	460	49
Bath & Body Works, Inc.	Ba2	365	318	47

CDS Spread Decreases		CDS Spreads		
Issuer	Senior Ratings	May. 18	May. 11	Spread Diff
Nissan Motor Acceptance Company LLC	Baa3	299	338	-39
United Airlines, Inc.	Ba3	645	682	-37
Avis Budget Car Rental, LLC	B2	404	420	-16
Block Financial LLC	Baa3	103	118	-15
Xerox Corporation	Ba2	484	498	-14
United Airlines Holdings, Inc.	Ba3	694	708	-13
Paramount Global	Baa2	160	172	-12
American Axle & Manufacturing, Inc.	B2	658	669	-11
Realogy Group LLC	B2	785	797	-11
Occidental Petroleum Corporation	Ba1	168	178	-10

Source: Moody's, CMA

CDS Movers

Figure 4. CDS Movers - Europe (May 11, 2022 – May 18, 2022)

CDS Implied Rating Rises	CDS Implied Ratings		
Issuer	May. 18	May. 11	Senior Ratings
Spain, Government of	Aa3	A1	Baa1
Rabobank	Aa1	Aa2	Aa2
ABN AMRO Bank N.V.	A1	A2	A1
Lloyds Bank plc	Aa3	A1	A1
CaixaBank, S.A.	A2	A3	Baa1
Portugal, Government of	Aa3	A1	Baa2
Banque Federative du Credit Mutuel	Aa3	A1	Aa3
Landesbank Baden-Wuerttemberg	Aa2	Aa3	Aa3
Erste Group Bank AG	A2	A3	A2
UniCredit Bank AG	Baa1	Baa2	A2

CDS Implied Rating Declines	CDS Implied Ratings		
Issuer	May. 18	May. 11	Senior Ratings
Unibail-Rodamco-Westfield SE	Ba1	Baa3	Baa2
Eni S.p.A.	Baa2	Baa1	Baa1
Coca-Cola HBC Finance B.V.	Baa2	Baa1	Baa1
CECONOMY AG	B1	Ba3	Ba1
Stena AB	B2	B1	B2
United Kingdom, Government of	Aaa	Aaa	Aa3
Italy, Government of	Baa3	Baa3	Baa3
France, Government of	Aaa	Aaa	Aa2
Germany, Government of	Aaa	Aaa	Aaa
Austria, Government of	Aaa	Aaa	Aa1

CDS Spread Increases		CDS Spreads		
Issuer	Senior Ratings	May. 18	May. 11	Spread Diff
Iceland Bondco plc	Caa2	953	875	78
Ardagh Packaging Finance plc	Caa1	624	570	54
Stena AB	B2	474	449	25
Vue International Bidco plc	Ca	1,288	1,266	22
Marks & Spencer p.l.c.	Ba1	336	318	18
CECONOMY AG	Ba1	388	370	17
FCE Bank plc	Baa3	265	250	14
UPC Holding B.V.	B3	317	303	14
Unibail-Rodamco-Westfield SE	Baa2	171	158	13
Coca-Cola HBC Finance B.V.	Baa1	84	75	9

CDS Spread Decreases		CDS Spreads		
Issuer	Senior Ratings	May. 18	May. 11	Spread Diff
Boparan Finance plc	Caa3	1,973	2,263	-290
Casino Guichard-Perrachon SA	Caa1	1,138	1,225	-87
Piraeus Financial Holdings S.A.	Caa1	836	877	-41
thyssenkrupp AG	B1	355	390	-35
Telecom Italia S.p.A.	Ba3	382	400	-18
Renault S.A.	Ba2	358	375	-17
Jaguar Land Rover Automotive Plc	B1	708	724	-16
Banca Monte dei Paschi di Siena S.p.A.	Caa1	415	425	-10
RCI Banque	Baa2	175	184	-8
CMA CGM S.A.	Ba3	431	438	-7

Source: Moody's, CMA

CDS Movers

Figure 5. CDS Movers - APAC (May 11, 2022 – May 18, 2022)

CDS Implied Rating Rises	CDS Implied Ratings		
Issuer	May. 18	May. 11	Senior Ratings
Commonwealth Bank of Australia	Aa3	A1	Aa3
Westpac Banking Corporation	A1	A2	Aa3
Export-Import Bank of Korea (The)	Aa2	Aa3	Aa2
Korea Development Bank	Aa2	Aa3	Aa2
Thailand, Government of	Aa3	A1	Baa1
MUFG Bank, Ltd.	Aa2	Aa3	A1
Australia and New Zealand Banking Grp. Ltd.	Aa3	A1	Aa3
DBS Bank Ltd.	Aa2	Aa3	Aa1
SoftBank Group Corp.	B1	B2	Ba3
Hong Kong SAR, China, Government of	Aa1	Aa2	Aa3

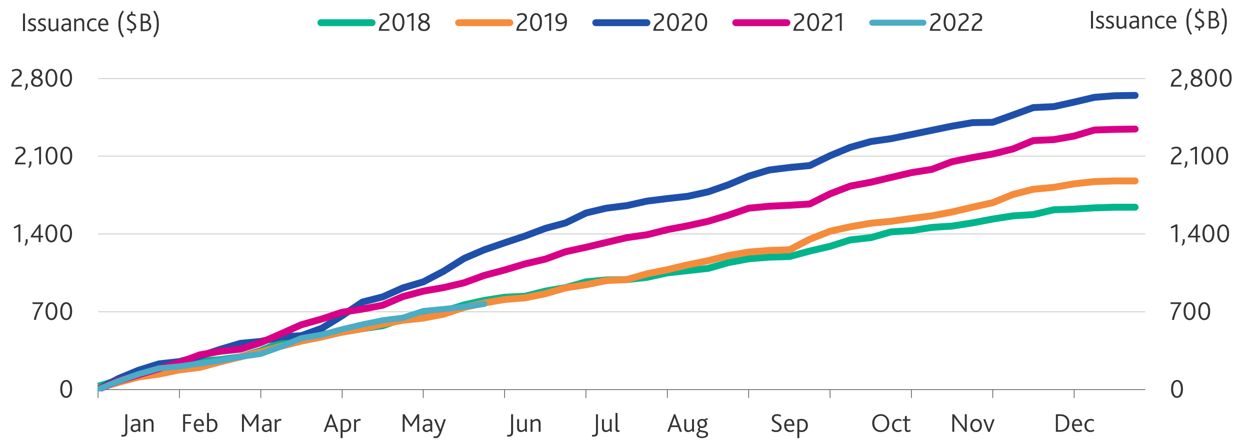
CDS Implied Rating Declines	CDS Implied Ratings		
Issuer	May. 18	May. 11	Senior Ratings
Sumitomo Mitsui Banking Corporation	Aa3	Aa2	A1
Kansai Electric Power Company, Incorporated	A1	Aa3	A3
Mizuho Bank, Ltd.	A1	Aa3	A1
Norinchukin Bank (The)	Baa1	A3	A1
Japan, Government of	Aaa	Aaa	A1
China, Government of	Baa1	Baa1	A1
Australia, Government of	Aaa	Aaa	Aaa
India, Government of	Baa3	Baa3	Baa3
Korea, Government of	Aa2	Aa2	Aa2
Indonesia, Government of	Baa3	Baa3	Baa2

CDS Spread Increases		CDS Spreads		
Issuer	Senior Ratings	May. 18	May. 11	Spread Diff
SK Hynix Inc.	Baa2	108	99	10
Development Bank of Kazakhstan	Baa2	271	261	9
Mizuho Bank, Ltd.	A1	53	45	8
Tata Motors Limited	B1	304	297	8
Kansai Electric Power Company, Incorporated	A3	52	45	7
Norinchukin Bank (The)	A1	78	71	7
Sumitomo Mitsui Banking Corporation	A1	46	41	5
Korea Expressway Corporation	Aa2	56	51	5
Korea, Government of	Aa2	43	40	4
Macquarie Group Limited	A3	91	87	4

CDS Spread Decreases		CDS Spreads		
Issuer	Senior Ratings	May. 18	May. 11	Spread Diff
Nissan Motor Co., Ltd.	Baa3	171	193	-22
SK Innovation Co. Ltd.	Baa3	123	131	-8
China Development Bank	A1	84	91	-7
India, Government of	Baa3	122	127	-5
JFE Holdings, Inc.	Baa3	50	55	-5
State Bank of India	Baa3	121	126	-5
Export-Import Bank of China (The)	A1	76	80	-4
SoftBank Group Corp.	Ba3	453	457	-4
Reliance Industries Limited	Baa2	119	123	-4
ICICI Bank Limited	Baa3	121	125	-4

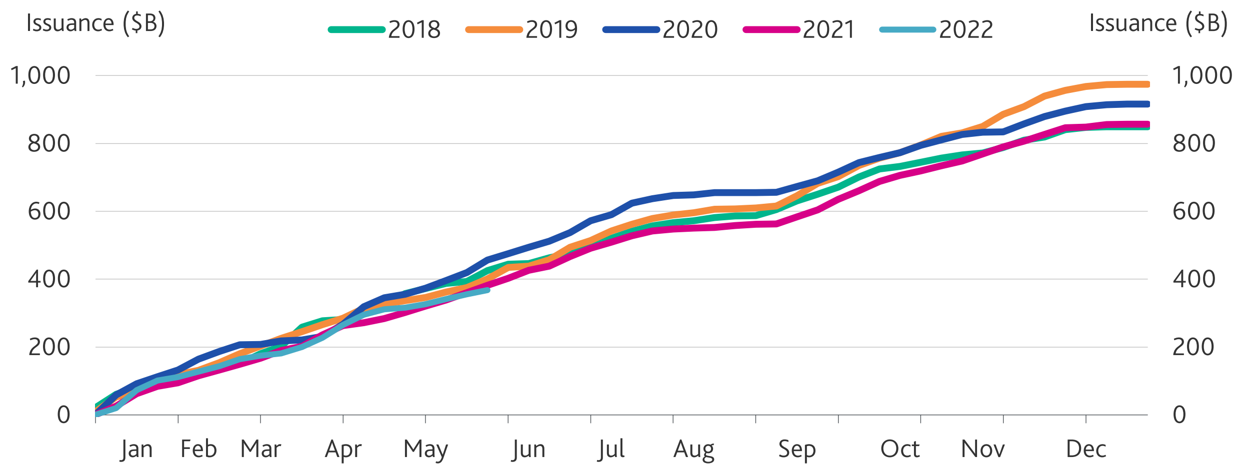
Source: Moody's, CMA

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



Source: Moody's / Dealogic

Figure 7. Market Cumulative Issuance - Corporate & Financial Institutions: Euro Denominated



Source: Moody's / Dealogic

ISSUANCE

Figure 8. Issuance: Corporate & Financial Institutions

	USD Denominated		
	Investment-Grade	High-Yield	Total*
	Amount $B	Amount $B	Amount $B
Weekly	24.179	1.200	25.724
Year-to-Date	668.935	79.801	769.618

	Euro Denominated		
	Investment-Grade	High-Yield	Total*
	Amount $B	Amount $B	Amount $B
Weekly	11.064	0.998	12.340
Year-to-Date	339.454	21.954	368.183

* Difference represents issuance with pending ratings.

Source: Moody's/ Dealogic

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

Report Number: 1329535

Editor
Reid Kanaley
help@economy.com

Contact Us
Americas
+1.212.553.1658
clientservices@moodys.com

Europe
+44.20.7772.5454
clientservices.emea@moodys.com

Asia (Excluding Japan)
+85 2 2916 1121
clientservices.asia@moodys.com

Japan
+81 3 5408 4100
clientservices.japan@moodys.com

© 2022 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, ASSESSMENTS, OTHER OPINIONS OR 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, 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 its 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, ASSESSMENT, 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 credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from $1,000 to approximately $5,000,000. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moodys.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 657AFSL 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 credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY100,000 to approximately JPY550,000,000.

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