

WEEKLY MARKET OUTLOOK

Moody's Analytics Research

Weekly Market Outlook Contributors:

John Lonski
1.212.553.7144
john.lonski@moodys.com

Yuki Choi
1.212.553.0906
yuckyung.choi@moodys.com

Moody's Analytics/Asia-Pacific:

Katrina Ell
+61.2.9270.8144
katrina.ell@moodys.com

Moody's Analytics/Europe:

Barbara Teixeira Araujo
+420.224.106.438
barbara.teixeiraraujo@moodys.com

Moody's Analytics/U.S.:

Ryan Sweet
1.610.235.5000
ryan.sweet@moodys.com

Greg Cagle
1.610.235.5211
greg.cagle@moodys.com

Michael Ferlez
1.610.235.5162
michael.ferlez@moodys.com

Editor
Reid Kanaley
1.610.235.5273
reid.kanaley@moodys.com

Upper-Tier Ba Rating Comprises Nearly Half of Outstanding High-Yield Bonds

[Credit Markets Review and Outlook](#) by John Lonski

Upper-Tier Ba Rating Comprises Nearly Half of Outstanding High-Yield Bonds

» FULL STORY PAGE 2

[The Week Ahead](#)

We preview economic reports and forecasts from the US, UK/Europe, and Asia/Pacific regions.

» FULL STORY PAGE 5

[The Long View](#)

Full updated stories and key credit market metrics: Despite a high-yield rally, speculative-grade borrowing activity continues to slump.

Credit Spreads

Investment Grade: We see year-end 2019's average investment grade bond spread under its recent 147 bp. High Yield: Compared to a recent 475 bp, the high-yield spread may approximate 525 bp by year-end 2019.

Defaults

US HY default rate: Moody's Investors Service forecasts that the U.S.' trailing 12-month high-yield default rate will rise from December 2018's 2.8% to 3.4% by December 2019.

Issuance

For 2018's US\$-denominated corporate bonds, IG bond issuance sank by 15.4% to \$1.276 trillion, while high-yield bond issuance plummeted by 38.8% to \$277 billion for high-yield bond issuance's worst calendar year since 2011's 274 billion. US\$-denominated corporate bond issuance's outlook for 2019 expects IG supply to rise by 0.3% to \$1.280 trillion, while high-yield supply grows by 6.0% to \$294 billion. A significant drop by 2019's high-yield bond offerings would suggest the presence of a recession.

» FULL STORY PAGE 11

[Ratings Round-Up](#)

Few Changes for the Latest Week

» FULL STORY PAGE 15

[Market Data](#)

Credit spreads, CDS movers, issuance.

» FULL STORY PAGE 17

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

Links to commentaries on: Stabilization, growth and leverage, buybacks, volatility, defaults, Fed policy, yields, profits, corporate borrowing, U.S. investors, eerie similarities, base metals prices, debt to EBITDA, trade war, Investment grades, higher rates, credit quality.

» FULL STORY PAGE 22

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.

Credit Markets Review and Outlook

Credit Markets Review and Outlook

By John Lonski, Chief Economist, Moody's Capital Markets Research, Inc.

Upper-Tier Ba Rating Comprises Nearly Half of Outstanding High-Yield Bonds

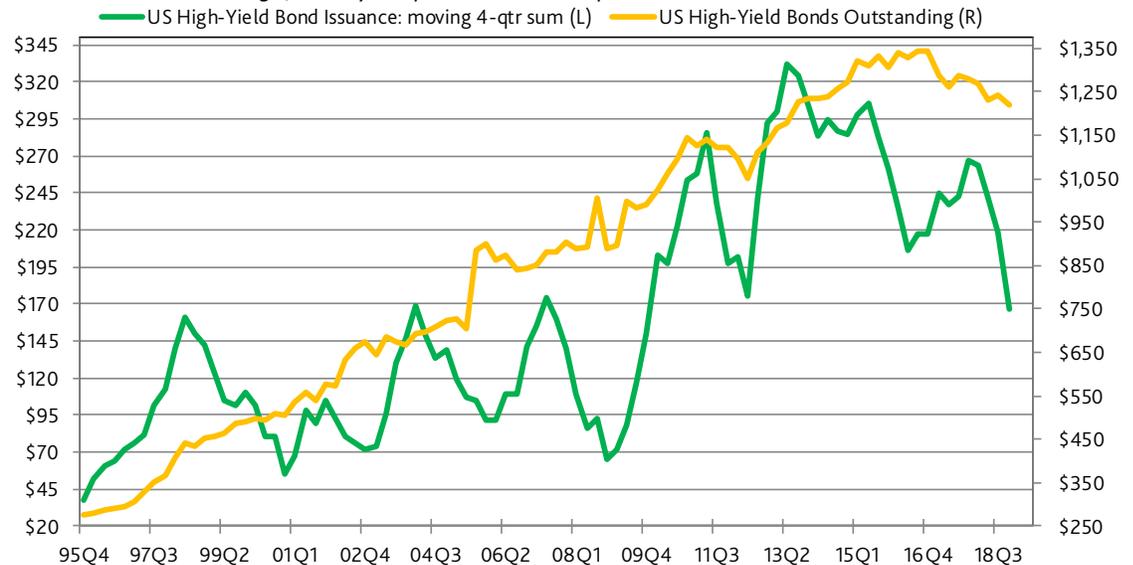
The outstanding high-yield corporate bonds of U.S.-domiciled issuers fell from a year earlier for an eighth consecutive quarter in 2018's final three months. Fourth-quarter 2018's 4.6% year-over-year drop lowered the outstandings of U.S. corporate high-yield bonds to \$1.221 trillion, which was 9.1% under fourth-quarter 2016's current zenith of \$1.344 trillion. Rising star upgrades and the increased reliance on loan debt in high-yield capital structures help explain the shrinkage of outstanding high-yield corporate bonds. According to a rough estimate, the amount of outstanding loans from high-yield issuers now tops \$1.5 trillion making 2018 the second consecutive year where outstanding high-yield loans exceed outstanding high-yield bonds.

The contraction of outstanding high-yield bonds has been accompanied by a plunge in the gross issuance of such bonds. After 2013's record high \$305 billion, the issuance of high-yield bonds by U.S. companies subsequently sank to 2018's \$166 billion for its lowest yearlong tally since 2009's \$151 billion. Moreover, 2018's issuance approximated a well below average 14% of outstandings. The record shows that very low ratios of high-yield bond issuance to outstanding high-yield bonds tend to be followed by a material percent increase for next year's high-yield bond issuance. Thus, after plunging by 38% annually in 2018, high-yield bond offerings from U.S. companies are likely to grow by at least 5% in 2019 provided that the default outlook does not deteriorate appreciably.

Figure 1: 2018's High-Yield Bond Issuance by US Companies Equaled 14% of Group's Outstandings for Lowest Such Ratio since 2009

\$ billions

sources: Dealogic, Moody's Capital Markets Group



From the end of 2016 through 2018's final quarter, the outstandings of U.S. high-yield bonds fell by 2.9% for Ba-grade bonds to \$609 billion, 8.0% for single-B bonds to \$430 billion, 27.1% for Caa-rated bonds to \$166 billion, and 27.2% for bonds graded less than Caa to \$15 billion. Note how the percentage drop in outstandings was deeper at the riskier high-yield rating categories. In fact, bonds having the least risky broad high-yield rating's designation of Ba accounted for a record high 49.9% of fourth-quarter 2018's outstanding high-yield bonds.

Credit Markets Review and Outlook

At the start of the Great Recession, Ba-grade bonds accounted for a smaller 38.5% of fourth-quarter 2007's outstanding high-yield corporates. Not long thereafter, that share would bottom at the 25.7% of 2008's third quarter.

Outstandings of Baa3-Grade Bonds Fall from Record High

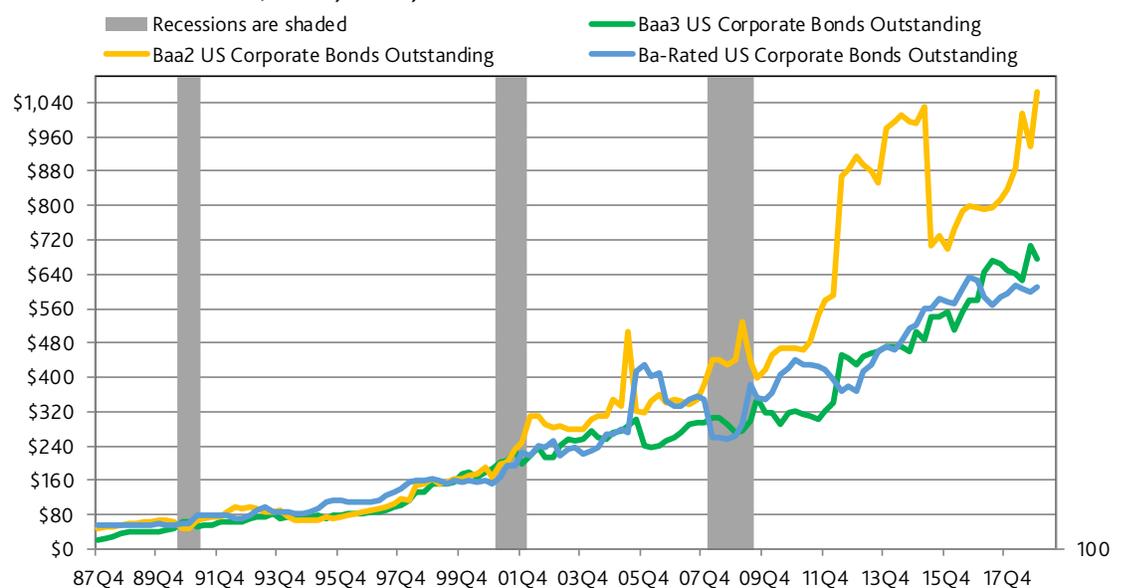
Unlike the prolonged shrinkage of high-yield bond debt, 2018's final quarter was the 26th straight quarter for which the outstandings of the U.S.' investment-grade corporate bonds grew year to year. More specifically, fourth-quarter 2018's outstandings of investment-grade bonds from U.S. companies rose by 3.5% year over year to a new record high of \$6.106 trillion.

Outstanding investment-grade corporate bonds fell from a year earlier in only 10, or 8.3%, of the 121 quarters since September 1988. In stark contrast, outstanding high-yield corporate bonds fell yearly in a much greater 27, or 22.3%, of the sample's quarters. Reflecting the stabilizing influence of diversity, the total outstandings of rated U.S. corporate bonds fell year to year in merely seven, or 5.8%, of the quarters since September 1988. In terms of yearly percent changes by quarter, U.S. investment-grade corporate bonds outstanding show a relatively low correlation of 0.19 with the outstandings of U.S. high-yield corporate bonds.

Fourth-quarter 2018's outstandings of Baa3-grade U.S. corporate bonds dropped from the record \$705 billion of 2018's third quarter to the \$674 billion of the fourth quarter. For the next higher ratings notch, outstandings of Baa2-rated bonds rose from the \$937 billion of the third quarter to the record high \$1.065 trillion of 2018's final quarter. For the notch just below Baa3, or the highest rung of the speculative-grade ratings ladder, fourth-quarter 2018's \$245 billion of outstanding Ba1-grade high-yield bonds barely dipped from the \$247 billion of the previous quarter.

Figure 2: US Corporate Bonds Outstanding: Baa2's \$1.065 Trillion Well Exceeds Baa3's \$674 Billion
\$ billions

sources: NBER, Moody's Analytics



Fourth-quarter 2018's broadest estimate of the outstandings of rated U.S. corporate bonds (investment-grade plus high-yield) rose by a very modest 2.1% yearly to a new zenith of \$7.327 trillion. High-yield's share of rated U.S. corporate bonds dropped to 20.0% for its lowest share since the 19.8% of 2002's first quarter. To the possible surprise of many, high-yield bonds peaked at 34.0% of outstanding rated U.S. corporate bonds in 1989's final quarter. The latter was at the start of a temporary collapse of the high-yield bond market, wherein the outstandings of high-yield bonds sank by a cumulative 11.9% from a fourth-quarter 1989 high of \$226.2 billion to a third-quarter 1992 low of \$199.3 billion.

Credit Markets Review and Outlook

Financials Supply 34% of Investment-Grade and 7% of High-Yield Bonds

As of 2018's final quarter, financial companies supplied \$2.065 trillion, or 33.8%, of the \$6.106 trillion of outstanding investment-grade bonds issued by U.S. corporations. By contrast, the outstanding high-yield bonds from U.S. financial companies totaled merely \$84 billion, or 6.9%, of fourth-quarter 2018's \$1.221 trillion of high-yield bonds. As of the final quarter of 2014, the financial companies' shares of outstanding U.S. corporate bonds were 40.2% for investment-grade and 12.6% for high-yield.

As derived from the Federal Reserve's "Financial Accounts of the United States," third-quarter 2018's \$9.157 trillion of outstanding U.S. corporate bonds rose by merely 1.7% yearly and consisted of \$5.475 trillion of bonds from nonfinancial corporations (which grew by 2.3% annually) and \$3.681 trillion of bonds from financial companies (which inched up by 0.7% annually).

It should be noted that this estimate of financial-company bonds outstanding and other mentioned estimates of outstanding financial-company debt exclude both asset- and mortgage-backed securities. As a result, our estimates of financial-company debt will differ from the raw aggregates provided by the Federal Reserve.

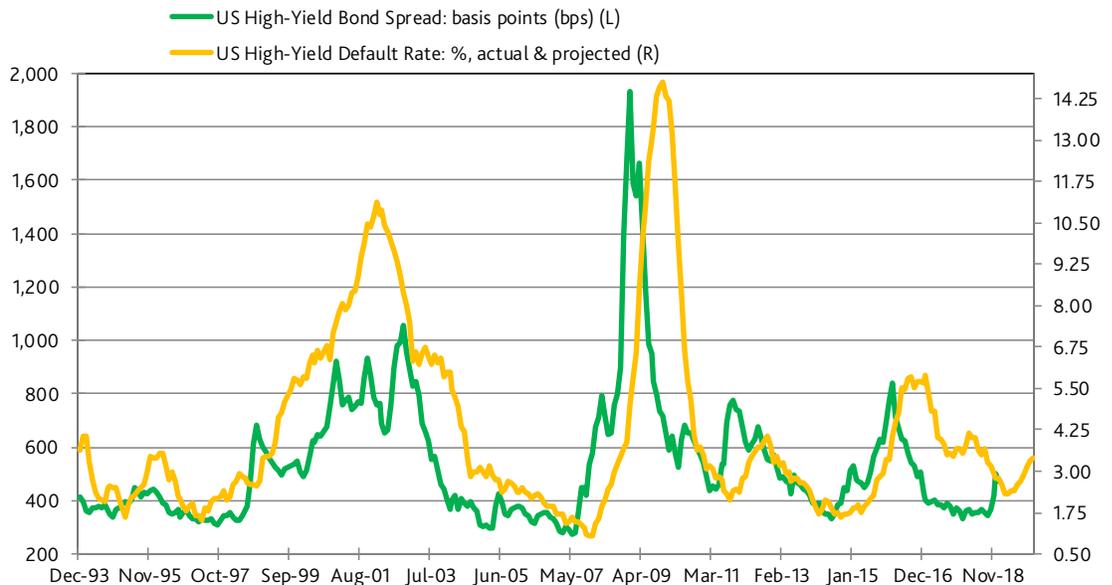
Rising Default Rate Likely Despite Powerful High-Yield Rally

After finishing 2018 at 2.8%, Moody's Investors Service predicts the U.S.' high-yield default rate will bottom at 2.3% by April 2019 and then rise to 3.4% by year-end 2019. The prospect of a rising default rate may limit the degree of yield spread narrowing by high-yield bonds.

Of late, however, high-yield bonds have rallied mightily from their lows of December 26, 2018. A composite speculative-grade bond yield has plunged by 92 basis points from December 26's 34-month high of 8.24% to January 9's 7.32%. It was for the span-ended March 8, 2016 that the spec-grade yield last plunged by 92 bp over nine trading days. In addition, the same composite yield's spread over comparably-dated Treasury securities narrowed by 80 bp, or from December 26's 555 bp to January 9's 475 bp. The latter spread predicts a 3.7% midpoint for October 2019's high-yield default rate implying a yearly increase of half of a percentage point for October 2019's default rate. The default rate's yearly increase last rose to half of a percentage point in July 2015. Nonetheless, provided that profits are expected to grow, any forthcoming rise by the default rate should be limited.

Figure 3: Recent High-Yield Bond Spread Favors a 3.7% Midpoint for October 2019's High-Yield Default Rate

sources: Moody's Investors Service, Moody's Capital Markets



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

THE U.S.

By Ryan Sweet, Moody's Analytics

The Shutdown and the Road to Recession

The partial U.S. government shutdown has had a minimal impact on GDP growth, but there is potential for the costs to increase substantially. There's also a darker scenario where it causes a significant slowing in the economy or even recession. Though the darker scenarios are unlikely and not our baseline, it's worth exploring since it's difficult to predict with confidence what will occur in Washington, particularly now given its dysfunction.

Costs so far

Let's start with the costs so far. The shutdown will likely reduce GDP growth in the fourth quarter by a little less than 0.1 of a percentage point—not significant. First quarter GDP growth is also at risk of being weaker than we forecast. In the National Accounts, the main direct or accounting effect on GDP of a shutdown rises because compensation of federal employees is treated as GDP produced by the federal government. However, the distinction between real and nominal compensation is important here. Nominal compensation reflects pay accruing to workers. Real compensation is based on hours actually worked, therefore it doesn't matter when the shutdown occurs during the quarter, it will be a drag on growth because it's unlikely that furloughed workers will make up the lost hours.

The spillover effects intensify the longer the shutdown. Real consumer spending growth could slow because of delayed purchases by furloughed workers, but this effect is likely marginal. A more significant hit could come if tax refunds are delayed and/or funding lapses for food stamps. The good news is that January normally isn't a big month for tax refunds. That's because the IRS doesn't begin accepting tax returns until late in the month. Refunds will matter for February and March. Any significant delay would have negative implications for spending and consumer credit. This lost spending would likely be made up once refunds are dispersed after the government opens. The White House said two days ago it will issue refunds despite the shutdown, reversing a longstanding policy of not doing so. But it's not clear if the assurance is guaranteed.

A lapse in funding for food stamps would be a significant, but again temporary, drag on consumer spending. The Department of Agriculture estimates food stamp funding is \$4.8 billion per month, and people who receive this benefit are very hard-pressed and the money is spent quickly. The impact on growth would be more than the \$4.8 billion because of the multiplier effect. We estimate the multiplier for the program, known as SNAP, at different phases of the business cycle. In a mid-to-late stage expansion the multiplier is 1.7. Therefore, a lapse in SNAP funding for a month would reduce GDP by \$8.2 billion, or \$31.6 billion at an annualized rate. The shutdown would have to extend into March for SNAP funding to lapse.

Housing, sentiment

While government-sponsored enterprises Fannie Mae and Freddie Mac are continuing with business as usual during the shutdown—since they don't depend on government money to run—potential homebuyers could run into delays getting mortgages to close on purchases especially if they rely on Federal Housing Administration or Department of Agriculture loans. The shutdown will cause sales to fall and house prices to weaken, and the impact intensifies the longer the shutdown continues.

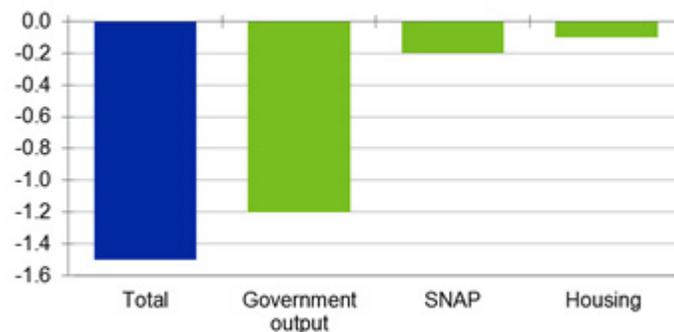
Assuming the worst and the shutdown doesn't end this quarter, the direct drag from less government output would be 1.2 percentage points; a lapse in funding for SNAP would be 0.2 of a percentage point; fewer home sales would shave an additional 0.1 of a percentage point off growth this quarter. For this exercise, we assume refunds are not delayed. Therefore, if this shutdown extends through the first quarter, it would reduce GDP growth by 1.5 of a percentage point, which is probably a conservative

The Week Ahead

estimate, since there are spillover effects that are difficult to estimate with precision. Also, this estimate doesn't factor in the likely tightening in financial market conditions.

Toll on the Economy Quickly Increases

Contribution to GDP if shutdown extends through March, 19Q1, ppts



Source: Moody's Analytics

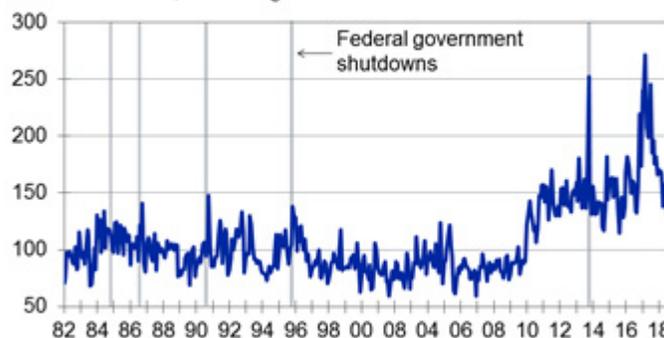
This drag would be sufficient to cause the economy to slow noticeably in the first quarter, though it is unlikely going to kill the expansion. The economy has gotten off to poor starts at times in this expansion only to see growth reaccelerate. However, this time could be different; this shutdown highlights the difficulty of passing legislation under a divided government, and the bigger challenge is ahead.

Uncertainty and partisan conflict

Another potential cost is heightened policy uncertainty and partisan conflict. Policy uncertainty remains elevated, a norm this cycle. Meanwhile, the Federal Reserve Bank of Philadelphia's measure of partisan conflict fell in December but remains elevated from a historical perspective. The index captures the frequency of newspaper coverage of articles reporting political disagreement about government policy both within and between national parties, normalized by the total number of news articles within a given period.

Partisan Conflict Likely to Move Higher

Partisan conflict, index avg of 100=1990



Sources: Federal Reserve Bank of Philadelphia, Moody's Analytics

By construction, the partisan conflict index captures some policy-related uncertainty. There are two types of economic policy uncertainty. The first relates to uncertainty about which policies will be

The Week Ahead

chosen at each point in time. The second one relates to uncertainty about the consequences of policies that have already been chosen by the government. Partisan conflict causes only the first type of uncertainty.

For example, the Philadelphia Fed's partisan conflict index is not overly responsive to either financial shocks or monetary policy, which can separately generate significant policy uncertainty. But not capturing these events is intuitive, as they are generally unrelated to government policy.

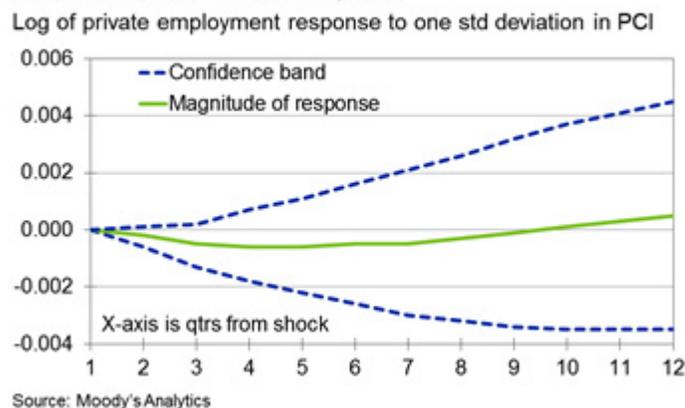
Policy uncertainty and partisan conflict also can diverge during periods of military conflict. The former increases while the latter is shown to remain relatively low or even decrease. The correlation coefficient between the Philadelphia Fed's partisan conflict index and the policy uncertainty index from January 1985 to December 2018 is only 0.38. The correlation between the two this cycle is 0.32, while there is almost no correlation between the two indexes since the 2016 presidential election.

Impacts of partisan conflict

The partisan conflict index will likely jump for January and remain elevated until the shutdown ends. On the surface this would imply some additional economic costs from the partial federal government shutdown. To assess how long a sudden increase in partisan conflict would impact private employment and business investment, the relationship between these two variables and the partisan conflict index is examined using a vector autoregression model.

The results show that a sudden increase in partisan conflict has a very small effect on private employment over the course of three years following the shock. The impact on real nonresidential fixed investment is more noticeable but not enormous.

Not an Enormous Impact



The results may seem a bit surprising. However, partisan conflict can, at times, be a positive factor for the economy. For example, conflict can cause brinkmanship, preventing fiscal policy from doing harm to the economy. In addition, bad economic policies often benefit groups with political influence, meaning that positive reforms can be politically contentious. These situations do not occur often but do highlight the difficulty in assessing the net costs of partisan conflict on the economy. More important, partisan conflict has a smaller effect on the economy than policy uncertainty. Overall, we don't see any overwhelming evidence of a significant economic impact from either policy uncertainty or partisan conflict due to the shutdown.

The Week Ahead

The cost of brinkmanship

The shutdown raises the risk of brinkmanship over a timely increase in the debt limit. Currently the debt limit is suspended until early March, after which Treasury would need to use extraordinary measures to finance its expenses. Still, the debt ceiling would likely have to be raised by late summer or early fall. Our past work has shown that the economic costs and impact on financial market conditions are higher around political battles that involve a nasty debate over the debt ceiling. Ultimately, the government will raise the debt ceiling, but a nasty fight could have significant costs. One scenario is that the economy bounces back in the second quarter—as economic activity following this shutdown resumes—but growth takes another hit in the second half of the year because of brinkmanship surrounding the debt ceiling, which will occur at a time that the support from the fiscal stimulus is fading.

All told, our baseline is that the current government shutdown will only have a small impact on growth but it's not hard to craft a dark scenario. Remember, expansions don't die of old age, something kills them. It's looking more likely that fiscal policy could kill this one.

We will publish our forecasts for next week's data on Monday on Economy.com.

EUROPE

By Barbara Teixeira Araujo of Moody's Analytics in Prague

Oil Prices Will Put Their Mark on Inflation Numbers

The week ahead is another busy one on the data front. The spotlight will be on December's CPI inflation figures for the U.K. and the euro zone, and we expect developments in both regions to have been similar. The key story was likely the sharp decline in energy inflation on the back of base effects in oil prices. Brent prices averaged only \$57 per barrel in December, their lowest monthly reading in over a year, compared to an average of \$64 for December 2017. This means that Brent prices are now falling in yearly terms, a completely different picture than the average rise of 37% recorded in the first eleven months of 2018. True, the price of the oil barrel since December has recovered somewhat—it is now reading at around \$61—but the recent rise is not enough to prevent further declines in energy inflation in coming months. Accordingly, we expect that a sharp drop in energy inflation (and we are not ruling out outright deflation in the sector by mid-2019, provided that Brent prices hold steady at around their current value) will be the main story of this new year. It should depress headline inflation in the euro zone and in the U.K. alike. This is good news for consumers, since it should help alleviate the pressure on their purchasing power.

Focusing on inflation numbers for December alone (and aside from motor fuels), we expect that underlying inflation pressures remained relatively steady in the euro zone as a whole. Individual country preliminary data suggest that services inflation didn't pick up as expected—volatility in package holidays inflation depressed the services headline in November, so we were penciling in a mean-reversion in December—and that core goods inflation more likely than not held steady. We still see the trend in both subsectors as being to the upside, though, due to the lagged effect of the lower euro and in line with labour market gains. We expect that food inflation stepped back even further below its trends, as temperatures in Europe exceeded their long-term average in December, and that for the ninth consecutive month. This likely prevented fresh produce prices from rising to the same extent they did in 2017, keeping the yearly rate contained. We see some upside for January, as temperatures fell back sharply at the start of the year and there were several snow storms.

In all, euro zone CPI inflation is expected to have fallen to only 1.6% in December, from 1.9% in November. This will make for an extremely dovish reading, but we caution that base effects in food and energy prices were fully behind the decline. The European Central Bank normally looks past volatility in the noncore components. But the truth is that prospects for a rate hike next year have declined sharply, which should make the ECB adopt a more dovish bias. We thus expect the ECB will stand pat on rates

The Week Ahead

throughout 2019 and soon change its forward guidance, which currently implies a rate hike in the fourth quarter.

In the U.K., the story is slightly different. While the outlook for energy inflation is similar than that for the euro zone, developments regarding the core rate are opposite. The pound's depreciation in the aftermath of the Brexit referendum back in 2016 lifted imported inflation, notably with regard to prices of consumer goods. But now base effects are pushing core goods prices sharply down. Accordingly, after core goods inflation rose to as much as 2.8% by mid-2017 and averaged 1.5% in 2018, we expect that it will fall to zero before this summer. True, the trend in services inflation is to the upside—in line with the developments in the labour market—but any increase in the services gauge is expected to be gradual. In all, then, we expect core and noncore inflation pressures to ease in the U.K. in 2019, pushing headline inflation back below its 2% target. For December alone, we are penciling in a 0.2 percentage point decline in the headline CPI rate, to 2.2%. The fall should accentuate itself in January, as new regulations on electricity and gas prices will prompt the sector into outright deflation and take a huge chunk of the headline.

For the Bank of England, this easing in inflation pressures will give a breather and allow the bank to stand pat in coming months—or at least until there is more clarity regarding Brexit—despite the recent jump in wage pressures.

	Key indicators	Units	Moody's Analytics	Last
Mon @ 10:00 a.m.	Euro Zone: Industrial Production for November	% change	-1.0	0.2
Mon @ 11:00 a.m.	OECD: Composite Leading Indicators for November		99.2	99.4
Tues @ 7:45 a.m.	France: Consumer Price Index for December	% change yr ago	1.9	2.2
Tues @ 8:00 a.m.	Spain: Consumer Price Index for December	% change yr ago	1.2	1.7
Tues @ 10:00 a.m.	Euro Zone: External Trade for November	bil euro	18.0	14.0
Wed @ 7:00 a.m.	Germany: Consumer Price Index for December	% change yr ago	1.7	2.3
Wed @ 9:30 a.m.	U.K.: Consumer Price Index for December	% change yr ago	2.1	2.3
Wed @ 10:00 a.m.	Italy: Consumer Price Index for December	% change yr ago	1.2	1.6
Thur @ 10:00 a.m.	Euro Zone: Consumer Price Index for December	% change yr ago	1.6	1.9
Thur @ 2:00 p.m.	Russia: Industrial Production for December	% change yr ago	2.2	2.4
Thur @ 2:00 p.m.	Russia: Retail Sales for December	% change yr ago	2.8	3.0
Fri @ 9:30 a.m.	U.K.: Retail Sales for December	% change yr ago	2.8	3.7
Fri @ 2:00 p.m.	Russia: Foreign Trade for November	\$ bil	19.6	19.7

ASIA-PACIFIC

By Katrina Ell and the Asia-Pacific staff of Moody's Analytics in Sydney

Reserve Bank of India Could Loosen Monetary Settings Early in 2019

India's inflation picture has cooled, increasing the odds that the Reserve Bank of India will loosen monetary settings early in 2019. CPI growth hit a 17-month low at 2.3% y/y in November and we expect only a modest uptick to 2.5% in December. Food prices are the primary driver of the subdued inflation picture, and lower oil prices are a more recent contributor. Inflation has been below the Reserve Bank of India's medium-term 4% inflation target for four months now. The RBI has turned dovish since the surprise resignation of RBI Governor Urjit Patel in December amid reported tensions with the government for not taking a more expansionary stance.

Core inflation in Japan remains elevated by historical standards, but it's not making a move towards the elusive 2% inflation that the Bank of Japan targets. We expect core CPI inflation, which includes energy prices, held at 0.9% y/y in December. Oil prices remain the primary driver of inflation, and higher

The Week Ahead

energy costs are filtering through to other industries such as transport and equipment but this is unlikely to persist, adding downside risk to inflation early in 2019.

Bank Indonesia concluded an eventful 2018 with a pause and we expect it will remain on the sidelines in January. The seven-day reverse repo rate was kept at 6% at its December meeting, after a cumulative 175 basis points' worth of interest rate hikes since mid-May. Bank Indonesia has used monetary policy to help control negative sentiment in 2018 as emerging markets came under pressure globally this year. The Federal Reserve's monetary policy outlook looks more dovish in 2019. This has contributed to recent stability in Indonesia's stock and equity markets and was a major contributor to BI's pause in December and forecast pause in January. It's too early to suggest the tightening cycle is over, particularly as the risk of emerging market asset volatility in 2019 remains elevated.

	Key indicators	Units	Confidence	Risk	Moody's Analytics	Last
Mon @ 11:00 p.m.	India Consumer price index for December	% change yr ago	3	←	2.5	2.3
Tues @ Unknown	Indonesia Foreign trade for December	US\$ bil	3	←	-1.02	-2.05
Tues @ Unknown	India Foreign trade December	US\$ bil	3	↑	-15.8	-16.7
Wed @ 10:50 a.m.	Japan Machinery orders for November	% change	2	↓	3.2	7.6
Thurs @ Unknown	Singapore Foreign trade for December	% change yr ago	2	↑	3.5	-2.6
Thurs @ Unknown	Indonesia Monetary policy for January	%	4	←	6.0	6.0
Fri @ 10:30 a.m.	Japan Consumer price index for December	% change yr ago	3	←	0.9	0.9

The Long View

The Long View

Despite a high-yield rally, speculative-grade borrowing activity continues to slump.

By John Lonski, Chief Economist, Moody's Capital Markets Research Group
January 10, 2019

CREDIT SPREADS

As measured by Moody's long-term average corporate bond yield, the recent investment grade corporate bond yield spread of 147 basis points exceeded its 122-point mean of the two previous economic recoveries. This spread may be no wider than 140 bp by year-end 2019.

The recent high-yield bond spread of 475 bp is wider than what might be inferred from the spread's principal drivers, but is thinner than what is suggested by the accompanying long-term Baa industrial company bond yield spread of 232 bp and a VIX of 20.1 points. The adverse implications for liquidity of possibly significantly higher interest rates merit consideration.

DEFAULTS

December 2018's U.S. high-yield default rate of 2.8% was less than the 3.7% of December 2017. Moody's Investors Service now expects the default rate will average 3.3% during 2019's fourth quarter.

US CORPORATE BOND ISSUANCE

Yearlong 2017's US\$-denominated bond issuance rose by 6.8% annually for IG, to \$1.508 trillion and soared by 33.0% to \$453 billion for high yield. Across broad rating categories, 2017's newly rated bank loan programs from high-yield issuers sank by 26.2% to \$72 billion for Baa, advanced by 50.6% to \$319 billion for Ba, soared by 56.0% to \$293 billion for programs graded single B, and increased by 28.1% to \$25.5 billion for new loans rated Caa.

Fourth-quarter 2017 revealed year-over-year advances for worldwide offerings of corporate bonds of 17.6% for IG and 77.5% for high-yield, wherein US\$-denominated offerings posted increases of 21.0% for IG and 56.7% for high yield.

First-quarter 2018's worldwide offerings of corporate bonds incurred year-over-year setbacks of 6.3% for IG and 18.6% for high-yield, wherein US\$-denominated offerings posted sank by 14.4% for IG and 20.8% for high yield.

Second-quarter 2018's worldwide offerings of corporate bonds eked out an annual increase of 2.8% for IG, but incurred an annual plunge of 20.4% for high-yield, wherein US\$-denominated offerings rose by 1.6% for IG and plummeted by 28.1% for high yield.

Third-quarter 2018's worldwide offerings of corporate bonds showed year-over-year setbacks of 6.0% for IG and 38.7% for high-yield, wherein US\$-denominated offerings plunged by 24.4% for IG and by 37.5% for high yield.

Fourth-quarter 2018's worldwide offerings of corporate bonds incurred annual setbacks of 23.4% for IG and -75.5% for high-yield, wherein US\$-denominated offerings plunged by 26.1% for IG and by 74.1% for high yield.

During yearlong 2017, worldwide corporate bond offerings increased by 4.1% annually (to \$2.501 trillion) for IG and advanced by 41.5% for high yield (to \$603 billion).

For 2018, worldwide corporate bond offerings sank by 7.2% annually (to \$2.321 trillion) for IG and plummeted by 37.7% for high yield (to \$376 billion). The projected annual percent changes for 2019's worldwide corporate bond offerings are -5.0% for IG and +5.0% for high yield.

US ECONOMIC OUTLOOK

As inferred from the CME Group's FedWatch Tool, the futures market recently assigned an implied probability of 22 to a year-end 2019 federal funds rate that exceeds its current 2.375%. In view of the underutilization of the world's productive resources, low inflation should help to rein in Treasury bond yields. As long as the

The Long View

global economy operates below trend, the 10-year Treasury yield may not remain above 3% for long. A fundamentally excessive climb by Treasury bond yields and a pronounced slowing by expenditures in dynamic emerging market countries are among the biggest threats to the adequacy of economic growth and credit spreads.

EUROPE

By Barbara Teixeira Araujo and Brendan Meighan of Moody's Analytics
January 10, 2019

FRANCE

There is no way to sugarcoat France's awful factory growth results for November, but it is important to keep in mind that a mid-quarter decline was already expected. First, October's strong increases warranted some mean-reversion. Second and more important, the widespread "yellow vests" protests that swept the country in the final two months of 2018 disrupted supply chains and blockaded refineries, depressing output in several industrial plants.

So we were not surprised to see that manufacturing production declined across the board in November. True, the key downside detail was the double-digit fall in petroleum products as refinery workers went on strike, but clothing, machinery and equipment, pharmaceuticals, and basic metals production also fell off a cliff. All is not doom and gloom, though, since in some subsectors (for example, clothing and machinery and equipment) November's plunge still failed to completely reverse October's strong results.

An upside detail was that other transport equipment production rose sharply by 4.9% m/m over the month. This followed three consecutive months of decline caused by disruptions amid the introduction of the EU's new emissions scheme on September 1. Car production was down, but we caution that production in the sector has been volatile over the past few months.

Apart from manufacturing, the picture was similarly grim. Electricity, mining and quarrying, and water supply production each fell during November. But the drop in electricity production was expected, as temperatures over the month remained above their seasonal norms, depressing demand for heating. It's now been eight straight months that temperatures have exceeded their long-term averages in France. The good news is that December brought some cooler weather, so we expect a sharp mean-reversion in electricity production in the year's closing month.

We also expect December will bring further downside for France's industrial production, as the social protests intensified over the month. Overall, then, we look for industrial output to have shed almost 1% q/q in the three months to December, following a 0.7% increase previously. But we are not sounding the alarms over this, since it creates favorable base effects for the start of 2019. Industrial production will likely remain subdued in 2019, following a deceleration in 2018.

EURO ZONE

November's euro zone labour report came as a relief for euro zone financial markets and policymakers following this week's barrage of gloomy economic data. That the area's unemployment rate fell further was the key upside detail, but also welcome was that October's rate was revised down on the back of large adjustments in most of the smaller countries' headlines.

The details were also bright, with the number of job seekers down by 90,000 over the month. Also welcome was that October's increase was revised down to 3,000 from 12,000, and that's despite Italy's job seekers adding 66,000 over that month. Volatility in Italy's numbers has been tainting the euro zone's aggregate unemployment figures, we think because of problems with the country's seasonal adjustment methodology. Italy aside, the numbers for October and November clearly show that the euro zone's job seeker numbers are headed lower.

Attesting to this was that joblessness held steady or fell in all euro zone member countries. Germany's unemployment held ground at an impressive 3.3%, while joblessness in France was also unchanged following gains in October. Italy's rate fell by 0.2 percentage point, while Spain's dropped for the 10th straight month to its lowest since December 2008. Spain's labour market has done well lately, with room for even bigger improvements in

The Long View

months to come since the unemployment rate is still among the highest in the euro area. In France, we expect President Macron's labour market reforms to boost employment in the medium term.

Overall, November's data confirmed that the euro zone's job market remains robust despite the recent drop in confidence and growth numbers across the currency bloc. But that's not something we didn't already know; the labour market is normally a lagging indicator of activity, which means that employment gains could remain solid even as GDP growth is easing.

Accordingly, we expect joblessness in the euro area to continue to trend downward in the next six to nine months—it should reach 7.5% by mid-year—reflecting the still-solid economic conditions around the monetary bloc and the monetary stimulus measures from the European Central Bank

ASIA PACIFIC

By Katrina Ell of Moody's Analytics
January 10, 2018

CHINA

GDP is a widely used indicator, providing an encompassing view of an economy. But in China, GDP is less useful because of persistent questions about accuracy of the data. Concerns have been far-reaching, with Premier Li Keqiang referring to China's GDP data in 2007 as "man-made and therefore unreliable." China's quarterly GDP data have been suspiciously stable for years, with minor deviations from quarter to quarter, a difficult achievement in any environment.

Getting a handle on how China's economy is tracking is not straightforward, but it is necessary, not least because China is the world's second largest economy and a critical stimulant of global demand. China's economy is also grappling with a partially policy-induced domestic slowdown alongside an unresolved trade war with the U.S., so understanding the impact is important. As a result, we've turned to alternate indicators to gain insight and discern relationships and underlying trends.

Manufacturing PMI shows deterioration

The official manufacturing PMI has little correlation with China's monthly industrial production or quarterly GDP data. The correlation coefficient between industrial production and the official manufacturing PMI from 2012 to December 2018 was 0.14. The correlation with GDP over the same period was -0.27, a counterintuitive result given that falls in the PMI would be expected to follow with softer GDP growth. While there can be a disconnect between sentiment and real economic activity—what agents feel can be different from how they act—we should not discount the indicator.

The manufacturing PMIs are a good barometer of sentiment in China and timely indicators of turning points. China's official manufacturing PMI finished 2018 at its weakest level since February 2016. The gauge has steadily deteriorated since the middle of the year, and December's data brought no better news. Production slipped for a fourth straight month to its weakest reading since February. China's outlook is weighted to the downside with forward indicators of demand also softening. The new orders subcategory fell by 0.7 point and into contractionary territory at 49.7 in December, suggesting further weakness in 2019.

The manufacturing PMI has become the poster child for the impact the trade war is having on China. This is reasonable, particularly given the sustained drop in new export orders since midyear, coinciding with the escalation of the dispute. But other factors are also at play.

In particular, global demand looks to have passed its peak in this cycle, so it's not surprising that manufacturing conditions in China are cooling after a sustained upswing. Another driver closer to home is Beijing's crackdown on its own financial risks. Delivering higher-quality and sustainable growth was always going to translate into weaker domestic demand that would be reflected in manufacturing conditions.

More subtle insights

Some more subtle insights can be garnered from the manufacturing PMI data. The correlation coefficient between the input prices subcategory of the official manufacturing PMI with producer prices from 2005 to

The Long View

December 2018 was 0.56. A Granger causality test with a lag length of 3 found evidence of a causal relationship, with input prices leading producer prices but not the other way around. Input prices deteriorated by 5.5 points in December to 44.8 and have fallen by 12.9 points since June 2018, suggesting further downside for producer prices, which reached a 25-month low in November at 2.7% y/y.

A lower correlation coefficient of 0.42 was observed between consumer prices and the input prices subcategory. This likely reflects government intervention to smooth volatility of essential consumer items such as food and fuel. Also, for a time, producers often fully or partially absorb imported price changes. Further, the CPI basket has a heavy weighting towards food, which is assumed to be lower in the PPI basket.

Another interesting relationship is between China's monthly export data and the new export orders subcategory of the official manufacturing PMI. The correlation coefficient from January 2005 to November 2018 was 0.47. A Granger causality test with a lag length of 3 found evidence of a causal relationship, with new export orders leading export growth but not the other way around. New export orders contracted in December for a seventh straight month, cooling by 0.4 point to 46.6, suggesting further downside to China's export performance heading into 2019, building on the deterioration observed in November's foreign trade data.

Services fly under the radar

Less publicized but rising in importance is China's services sector, which now accounts for over half of China's GDP, up from 44% in 2011. The services sector is also responsible for 55% of the labour force, according to the World Bank. Monthly retail trade data from the National Bureau of Statistics provide a good first look at how the consumer sector is faring, but other services are not captured, including health, education, banking and other professional services, all rising in importance with growing incomes.

For this, the nonmanufacturing PMIs play a role. The official nonmanufacturing PMI improved by 0.4 point to 53.8 in December, with new orders expanding at their fastest pace in three months at 50.4. The Caixin Services PMI tells a similarly brighter story, compared with its manufacturing PMI counterpart.

With manufacturing on a sustained downtrend, we expect the services sector will play a greater role driving growth in the year ahead.

Ratings Round-Up

Ratings Round-Up

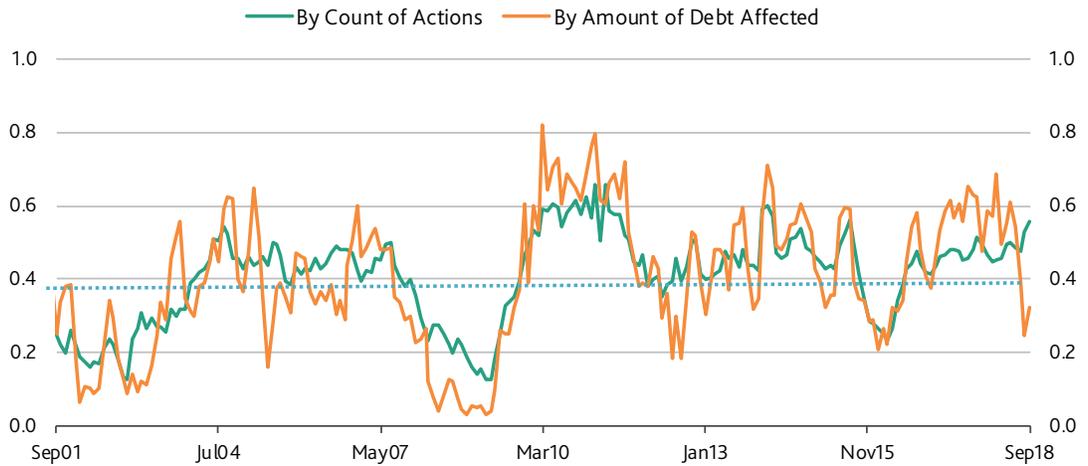
Few Changes for the Latest Week

By Michael Ferlez

Rating change activity was scarce last week, with a total of three rating changes across the U.S. and Europe. In the U.S., Output Services Group, Inc., accounted for the sole rating change. The billing and customer communications saw its senior unsecured debt downgraded to B3 from B2, which reflects the firm's elevated financial risk following two recent acquisitions.

In Europe, there were two rating changes, with an even split between upgrades and downgrades. Santander U.K. Group Holding PLC's preferred stock was upgraded to B3 from B2, affecting roughly \$1.6 billion in debt. While on the downgrade side, Italian construction company, Astaldi S.P.A.'s senior unsecured credit rating was cut two notches to Ca from Caa2. The change impacted \$856 million of the firm's debt.

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



* Trailing 3-month average

Source: Moody's

Ratings Round-Up

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	Up/ Down	Old LTD Rating	New LTD Rating	IG/ SG
1/4/19	OUTPUT SERVICES GROUP, INC.	Industrial	SrSec/BCF /LTCFR/PDR	D	B2	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
1/4/19	ASTALDI S.P.A.	Industrial	SrUnsec /LTCFR/PDR	856	D	Caa2	Ca	SG	ITALY
1/8/19	BANCO SANTANDER S.A. (SPAIN) - SANTANDER UK GROUP HOLDINGS PLC	Financial	PS	1,590	U	Ba2	Ba1	SG	UNITED KINGDOM

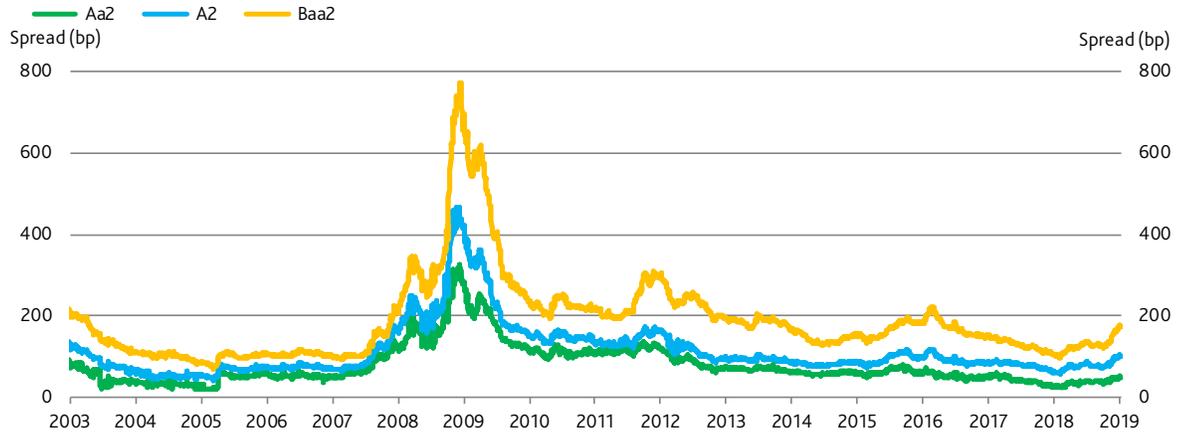
Source: Moody's

Market Data

Market Data

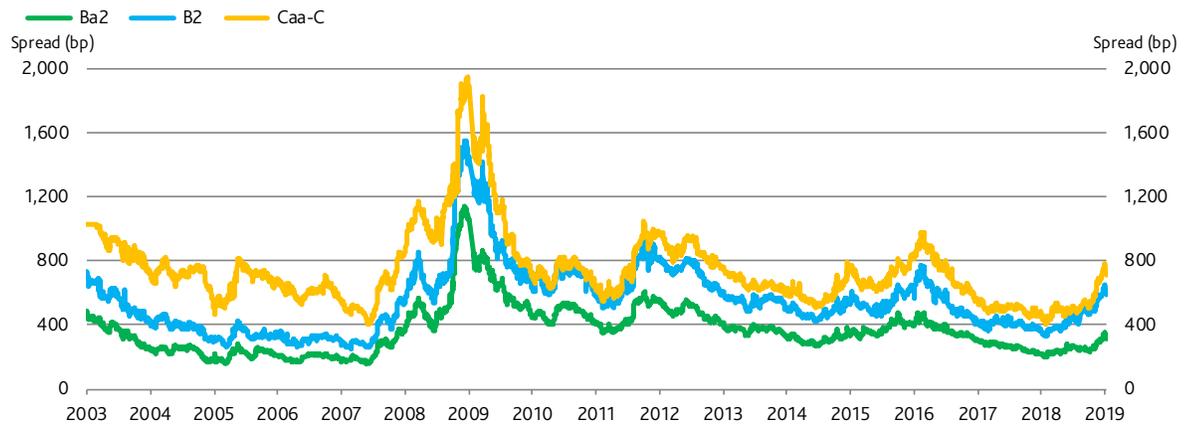
Spreads

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 (January 2, 2019 – January 9, 2019)

CDS Implied Rating Rises		CDS Implied Ratings		
Issuer	Jan. 9	Jan. 2	Senior Ratings	
Hertz Corporation (The)	Caa2	Ca	B3	
Talen Energy Supply, LLC	Caa1	Caa3	B3	
AK Steel Corporation	Caa2	Ca	B3	
AT&T Inc.	Baa3	Ba1	Baa2	
Philip Morris International Inc.	A2	A3	A2	
Dish DBS Corporation	Caa1	Caa2	B1	
Kroger Co. (The)	Baa2	Baa3	Baa1	
Crown Castle International Corp.	Baa3	Ba1	Baa3	
Plains All American Pipeline L.P.	Baa3	Ba1	Ba1	
Praxair, Inc.	Aa2	Aa3	A2	

CDS Implied Rating Declines		CDS Implied Ratings		
Issuer	Jan. 9	Jan. 2	Senior Ratings	
Cigna Corporation	A2	Aa2	Baa1	
Radian Group Inc.	B2	Ba2	Ba2	
MGIC Investment Corporation	B2	Ba2	Ba2	
Ford Motor Company	B2	Ba3	Baa3	
CSC Holdings, LLC	B2	Ba3	B2	
Altria Group Inc.	Baa2	A3	A3	
Sprint Communications, Inc.	B3	B1	B3	
Xerox Corporation	B3	B1	Ba1	
MGM Resorts International	B2	Ba3	Ba3	
Exelon Corporation	A1	Aa2	Baa2	

CDS Spread Increases		CDS Spreads		
Issuer	Senior Ratings	Jan. 9	Jan. 2	Spread Diff
Penney (J.C.) Corporation, Inc.	Caa2	3,618	3,121	497
Weatherford International, LLC (Delaware)	Caa1	2,100	1,701	399
Windstream Services, LLC	Caa2	3,087	2,873	214
K. Hovnanian Enterprises, Inc.	Caa3	2,639	2,425	214
Frontier Communications Corporation	Caa1	2,440	2,259	181
Neiman Marcus Group LTD LLC	Ca	1,887	1,722	166
Chesapeake Energy Corporation	B3	800	668	133
Dean Foods Company	B3	876	753	124
Rite Aid Corporation	Caa2	1,241	1,140	101
Diamond Offshore Drilling, Inc.	B3	613	526	87

CDS Spread Decreases		CDS Spreads		
Issuer	Senior Ratings	Jan. 9	Jan. 2	Spread Diff
General Electric Company	Baa1	186	202	-17
Arconic Inc.	Ba2	397	411	-15
Baker Hughes, a GE company, LLC	A3	112	123	-10
Talen Energy Supply, LLC	B3	730	737	-7
Meritor, Inc.	B1	302	308	-6
NRG Energy, Inc.	Ba3	135	139	-4
FCA US LLC	Ba2	129	134	-4
Comcast Cable Communications, LLC	A3	42	46	-4
International Game Technology	Ba2	255	259	-4
TRW Automotive Inc.	Baa3	47	51	-4

Source: Moody's, CMA

Market Data

Figure 4. CDS Movers - Europe (January 2, 2019 – January 9, 2019)

CDS Implied Rating Rises		CDS Implied Ratings		
Issuer		Jan. 9	Jan. 2	Senior Ratings
Alpha Bank AE		Caa1	Caa3	Caa2
UniCredit Bank Austria AG		Aa3	A2	Baa1
Piraeus Bank S.A.		Caa2	Ca	Caa2
National Bank of Greece S.A.		Caa1	Caa3	Caa2
CMA CGM S.A.		Caa1	Caa3	B3
Novafives S.A.S.		Caa1	Caa3	Caa1
Spain, Government of		Baa1	Baa2	Baa1
Intesa Sanpaolo S.p.A.		Ba1	Ba2	Baa1
Deutsche Bank AG		Ba1	Ba2	A3
UniCredit S.p.A.		Ba1	Ba2	Baa1

CDS Implied Rating Declines		CDS Implied Ratings		
Issuer		Jan. 9	Jan. 2	Senior Ratings
Natixis		A2	Aa2	A1
Nationwide Building Society		Baa1	A2	Aa3
Bank VTB, PJSC		B2	Ba3	Ba1
Unipol Gruppo S.p.A.		B2	Ba3	Ba2
Virgin Media Finance PLC		B2	Ba3	B2
Evraz Group S.A.		B2	Ba3	Ba2
Premier Foods Finance plc		B3	B1	Caa1
Lloyds Bank plc		Baa1	A3	Aa3
Abbey National Treasury Services plc		A3	A2	Aa3
Turkey, Government of		B3	B2	Ba3

CDS Spread Increases		CDS Spreads		
Issuer	Senior Ratings	Jan. 9	Jan. 2	Spread Diff
Galapagos Holding S.A.	Caa3	6,093	5,429	664
Marks & Spencer p.l.c.	Baa3	221	183	38
Matalan Finance plc	Caa1	948	913	35
Russian Standard Bank	Caa2	1,102	1,068	34
Stena AB	B3	657	624	32
Suedzucker AG	Baa3	165	136	30
NEXT plc	Baa2	158	131	27
CMA CGM S.A.	B3	739	718	20
Metsa Board Corporation	Ba1	106	86	20
Eurobank Ergasias S.A.	Caa2	945	930	15

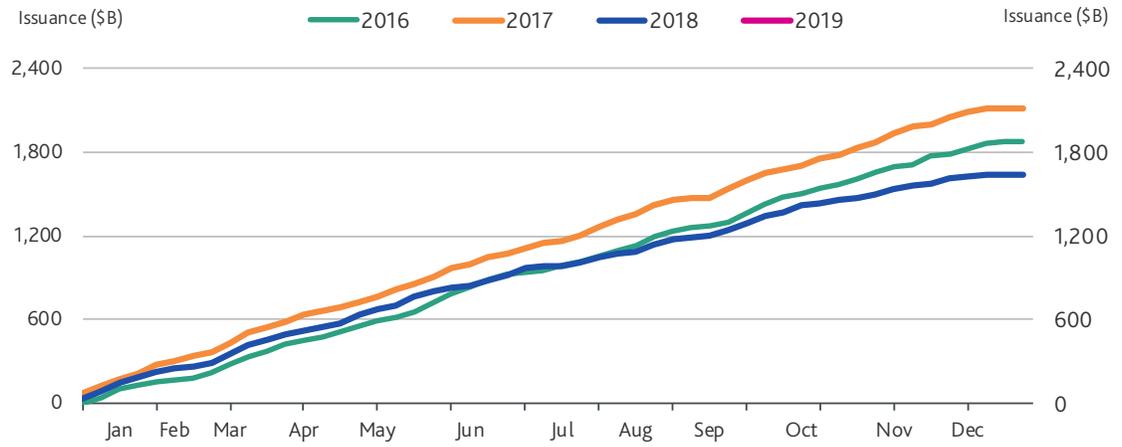
CDS Spread Decreases		CDS Spreads		
Issuer	Senior Ratings	Jan. 9	Jan. 2	Spread Diff
PizzaExpress Financing 1 plc	Caa2	2,696	2,778	-82
Sappi Papier Holding GmbH	Ba2	288	352	-64
Boparan Finance plc	Caa1	1,227	1,273	-46
Care UK Health & Social Care PLC	Caa1	172	205	-33
Turkey, Government of	Ba3	341	366	-25
Intesa Sanpaolo S.p.A.	Baa1	161	179	-18
Akbank TAS	B1	457	473	-17
UniCredit S.p.A.	Baa1	160	175	-16
Banco Sabadell, S.A.	Baa3	118	134	-16
Novo Banco, S.A.	Caa2	964	980	-16

Source: Moody's, CMA

Market Data

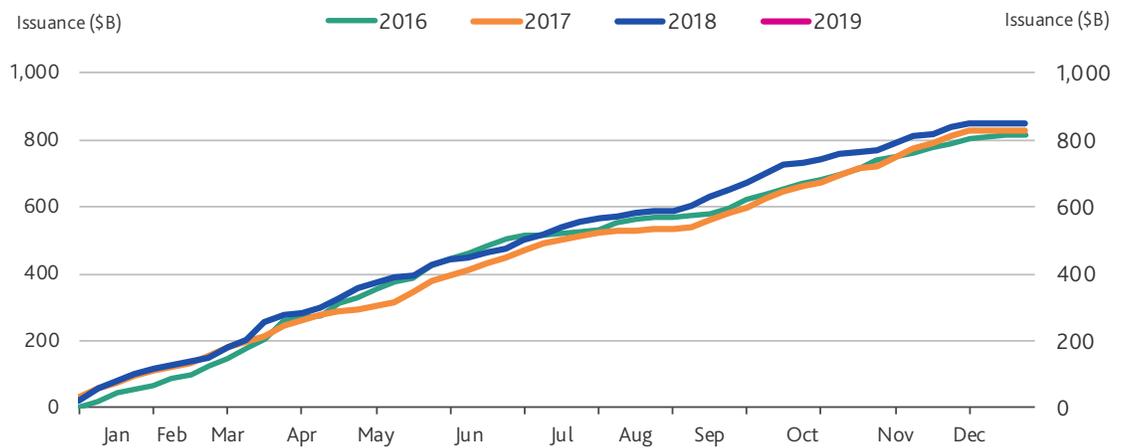
Issuance

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 & Financial Institutions

	USD Denominated		
	Investment-Grade	High-Yield	Total*
	Amount \$B	Amount \$B	Amount \$B
Weekly	11.600	0.895	12.495
Year-to-Date	11.600	0.895	12.495

	Euro Denominated		
	Investment-Grade	High-Yield	Total*
	Amount \$B	Amount \$B	Amount \$B
Weekly	7.986	0.000	8.190
Year-to-Date	7.986	0.000	8.190

* Difference represents issuance with pending ratings.

Source: Moody's/ Dealogic

Moody's Capital Markets Research recent publications

Stabilization of Equities and Corporates Requires Treasury Bond Rally (Capital Markets Research)

High Leverage Will Help Set Benchmark Interest Rates (Capital Markets Research)

Medium-Grade's Worry Differs from High-Yield's Complacency (Capital Markets Research)

Slower Growth amid High Leverage Lessens Upside for Interest Rates (Capital Markets Research)

Core Profit's Positive Outlook Lessens Downside Risk for Credit (Capital Markets Research)

Unprecedented Amount of Baa-Grade Bonds Menaces the Credit Outlook (Capital Markets Research)

Gridlock Stalls Fiscal Policy and Elevates Fed Policy (Capital Markets Research)

Navigating Choppy Markets: Safety-First Equity Strategies Based on Credit Risk Signals

Net Stock Buybacks and Net Borrowing Have Yet to Alarm (Capital Markets Research)

Financial Liquidity Withstands Equity Volatility for Now (Capital Markets Research)

Stepped Up Use of Loan Debt May Yet Swell Defaults (Capital Markets Research)

Financial Market Volatility May Soon Influence Fed Policy (Capital Markets Research)

Equities Suggest Latest Climb by Treasury Yields Is Excessive (Capital Markets Research)

Profits Determine Effect of High Corporate Debt to GDP Ratio (Capital Markets Research)

Higher Interest Rates Suppress Corporate Borrowing (Capital Markets Research)

Middling Ratio of Net Corporate Debt to GDP Disputes Record Ratio of Corporate Debt to GDP (Capital Markets Research)

There's No Place Like Home for U.S. Investors (Capital Markets Research)

Significant Differences, Eerie Similarities (Capital Markets Research)

Base Metals Price Slump May Dispute Benign Default Outlook (Capital Markets Research)

Profit Outlook Offsets Record Ratio of Corporate Debt to GDP (Capital Markets Research)

Upon Further Review, Debt to EBITDA Still Falls Short as an Aggregate Predictor (Capital Markets Research)

Base Metals Price Drop Suggests All Is Not Well (Capital Markets Research)

Markets Suggest U.S. Fares Best in a Trade War (Capital Markets Research)

Trade War Will Turn Ugly if Profits Shrink (Capital Markets Research)

Investment-Grade Looks Softer and High-Yield Looks Firmer Compared With Year-End 2007 (Capital Markets Research)

Fewer Defaults Strongly Favor a Higher Equity Market (Capital Markets Research)

Higher Interest Rates Will Be the Source of Their Own Demise (Capital Markets Research)

Low Utilization Rate Favors Profits Growth and Fewer Defaults (Capital Markets Research)

Equities Give and Take Away from Credit Quality (Capital Markets Research)

M&A both Enhances and Diminishes Corporate Credit Quality (Capital Markets Research)

Loan Default Rate May Approach Bond Default Rate (Capital Markets Research)

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

Report Number: 1157448

Editor
Reid Kanaley
reid.kanaley@moody.com

Contact Us

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

© 2019 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 INVESTORS SERVICE, INC. ("MIS") AND ITS AFFILIATES ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND CREDIT RATINGS AND RESEARCH PUBLICATIONS PUBLISHED BY MOODY'S ("MOODY'S PUBLICATIONS") MAY INCLUDE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES. 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. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS AND MOODY'S 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. CREDIT RATINGS AND MOODY'S PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. NEITHER CREDIT RATINGS NOR MOODY'S PUBLICATIONS COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS AND PUBLISHES MOODY'S 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 AND MOODY'S PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS FOR RETAIL INVESTORS TO CONSIDER MOODY'S CREDIT RATINGS OR MOODY'S PUBLICATIONS IN MAKING ANY 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.

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 SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

MIS, 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 MIS have, prior to assignment of any rating, agreed to pay to MIS for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,500,000. 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 under the heading "Shareholder Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

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 clients. It would be dangerous for "retail clients" to make any investment decision based on MOODY'S credit rating. If in doubt you should contact your financial or other professional adviser.

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.