

OUTLOOK

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TABLE OF CONTENTS

Strong demand across most sectors to drive EBITDA growth	2
Demand drivers remain strong, but are moderating and vary among regions	3
Rising commodity costs, wages could slow growth	4
Uncertain trade environment poses biggest risk to manufacturers	6
What could change our outlook	8
Moody's related publications	9

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Manufacturing - Global

Outlook still positive on robust earnings growth, but input costs, tariffs pose risks

Our outlook for the global manufacturing industry is positive. This outlook reflects our expectations for the fundamental business conditions in the industry over the next 12 to 18 months.

- » **Strong demand across most sectors to drive EBITDA growth.** We are maintaining a positive outlook on the global manufacturing industry due to strong demand across most sectors and end markets. Combined with efforts to improve operating efficiencies, this should drive steady revenue growth with robust margin improvement. As such, we expect aggregate EBITDA growth of 4.3% in 2018 and accelerating to 5.7% in 2019, with the latter projection two percentage points stronger than our forecast in February of 3.5% growth next year. However, our projections may represent a peak in earnings growth for the current industrial cycle. Rising input costs and trade tensions have the potential to lead to a downward shift in the industry's bullish growth trajectory.
- » **Demand drivers remain strong, but are moderating and vary among regions.** Our expectations for continued growth in the manufacturing industry is supported by our G-20 GDP growth forecast of 3.3% this year and 3.1% in 2019. Similarly, purchasing manager sentiment as indicated by global PMI also points to continued expansion in the manufacturing sector, albeit amid signs of softening. PMI readings tend to be volatile, and a sudden deterioration in sentiment among US or euro area manufacturers, possibly coinciding with lower GDP growth forecasts, could indicate a swift deceleration in industrial demand.
- » **Rising input costs could slow margin improvement, constrain earnings growth.** Expanding global demand is increasing prices for important raw materials, while many regions of the industrial world are experiencing tight labor markets, which may not only raise wages but could also affect investment decisions. Transportation costs are also rising, with a shortage of truckers to serve the industry, particularly in the US.

- » **Uncertain trade environment poses biggest risk to manufacturers.** Since the Trump administration's announcement in March of its plans to implement 10% tariffs on imported aluminum and 25% on imported steel, China, Canada, Mexico and the European Union have announced retaliatory tariffs. These tariffs will hurt manufacturers by 1) further raising input costs, 2) disrupting supply chains that rely on overseas production of raw material or components and 3) reducing the volume of exported US commodities, which in turn hurts demand for equipment in that segment. But mitigating factors, including local sourcing, longtime supply contracts and pass-through pricing may enable companies to withstand the impact of tariffs without significant damage to their earnings.
- » **What could change our outlook.** We would consider changing our outlook to stable if, among other things, sentiment among Moody's analysts changes to reflect more normal market conditions, informed by expectations for EBITDA growth among global manufacturers to decline to below 3%, or global PMI readings falling into the 50-52 range for several months. GDP growth expectations falling below 3% would also factor into a stable sector outlook.

Since outlooks represent our forward-looking view on business conditions that factor into our ratings, a negative (positive) outlook suggests that negative (positive) rating actions are more likely on average. However, the industry outlook does not represent a sum of upgrades, downgrades or ratings under review, or an average of the rating outlooks of issuers in the industry, but rather our assessment of the main direction of business fundamentals within the overall industry.

Strong demand across most sectors to drive EBITDA growth

We are maintaining a positive outlook on the global manufacturing industry due to strong demand across most sectors and end markets. Combined with on-going operating efficiency efforts, this should drive steady revenue growth with modest margin improvement. As such, we expect aggregate EBITDA growth of 4.3% in 2018, which exceeds our estimate in February of 3.8% growth. We expect further earning expansion in 2019 at 5.7% growth, which is significantly greater than our February estimate of 3.5%.

However, while demand looks strong across most manufacturing sectors, we believe our projections may represent a peak in earnings growth for the current industrial cycle. Rising input costs and trade tensions have the potential to lead to a downward shift in the industry's bullish growth trajectory.

Exhibit 1

While growth prospects are strongest in aerospace/defense, the vast majority of manufacturing end markets are in a strong growth environment

Our growth expectations for manufacturing end markets over the next 12 to 18 months

Segment	Q3 17	Q4 17	Q1 18	Q2 18
Aerospace / Defense	Strong	Strong	Strong	Strong
Agriculture	Weak ↑	Strong	Strong	Strong
Construction	Moderate	Strong	Strong	Strong
Energy / Chemicals	Moderate	Strong	Strong	Strong
Mining	Moderate ↑	Strong	Strong	Strong
Process Control / Components	Moderate	Strong	Strong	Strong
Transportation	Moderate	Moderate	Moderate	Moderate
Utilities	Weak	Weak	Weak	Weak

Legend
Strong
Moderate
Weak

There is no numerical range for strong, moderate, and weak. The decision on which category each end market is in is decided by a group of Moody's analysts.

Up arrow indicates strengthening of growth prospects; down arrow indicates weakening of growth prospects

Source: Moody's Estimates

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moody's.com for the most updated credit rating action information and rating history.

Our increased earnings forecasts are most heavily influenced by growth in three areas:

- » **Aerospace and defense:** We are expecting operating profit growth of 7%-9% in this sector through 2019, largely driven by rising commercial aircraft production rates to chip away at multi-year order backlogs, as well as growth in US and global defense spending. European companies are likely to post particularly strong improvements in margins due to favorable comparisons versus 2017 reported results, which reflected production woes and charges on certain challenged programs, like [Airbus SE's](#) (A2, stable) A400M, though ongoing engine issues and related provisions remain high for [Rolls-Royce plc](#) (A3, negative) in 2018.
- » **Construction:** Robust earnings growth is being led by the US building products segment in particular. Economic factors such as strong employment data, increasing housing starts, wage growth and high consumer confidence continue to support stronger backlogs and increased bidding activity in the homebuilding sector. Beneficiaries of these trends include building products manufacturers such as [Masco Corporation](#) (Baa3, stable) and equipment rental companies such as [United Rentals \(North America\), Inc.](#) (Ba2, stable) and [H&E Equipment Services, Inc.](#) (B1, stable).
- » **Agricultural equipment:** Global farm equipment sales are improving during 2018. This is largely due to demand recovering in North America following a protracted downturn. The long-term fundamentals for farm equipment demand remains favorable due to growing population and improving diets. However, Chinese tariffs on US agricultural products (see further discussion about the soybean trade on page 6) and the expected volatility in product pricing that would ensue could weaken near-term equipment demand. Despite these risks, the three major global farm equipment manufacturers - [Deere & Company](#) (A2, stable), [AGCO Corporation](#) (Baa3, stable) and [CNH Industrial N.V.](#) (Ba1, positive) - have the capacity to contend with the possible stress.

Meanwhile, two segments are likely to see relatively soft growth:

- » **Utilities:** Sector expected to endure weak market conditions for several years. In particular, we cite structurally lower demand for large gas turbines (over 100 megawatts) as power generation gradually shifts toward renewable sources. This will hurt very large suppliers such as [Siemens Aktiengesellschaft](#) (A1, stable) and [General Electric Company](#) (GE, A2, negative). Siemens said in May that it expects no mid-term recovery for the large gas turbines market. The company estimates that the global market has a capacity of around 100 units in a year, down from 186 (or around 45%) in fiscal 2015.
- » **Automotive:** Although we changed our [industry outlook for global automotive manufacturers](#) in March to stable from negative on expectations of an improved business environment in the global light vehicle market, growth in this segment will likely remain relatively soft compared to other manufacturing sectors. We expect global light vehicle sales to rise by 1.5% in 2018, and by only 1.3% in 2019. US sales will likely decline in both years, while sales growth in Japan and Europe will remain below 2% in 2019, although we do expect a slight acceleration in sales growth in China next year. Notwithstanding the considerable resources being devoted to vehicle electrification, ride hailing and autonomous driving, we expect that during the next two to three years the credit quality of most auto makers will be driven primarily by the strength of their core internal combustion engine vehicle operations. Weakness in these core automotive operations are a major contributor to the negative rating outlook for [Ford Motor Company](#) (Baa3, negative).

Demand drivers remain strong, but are moderating and vary among regions

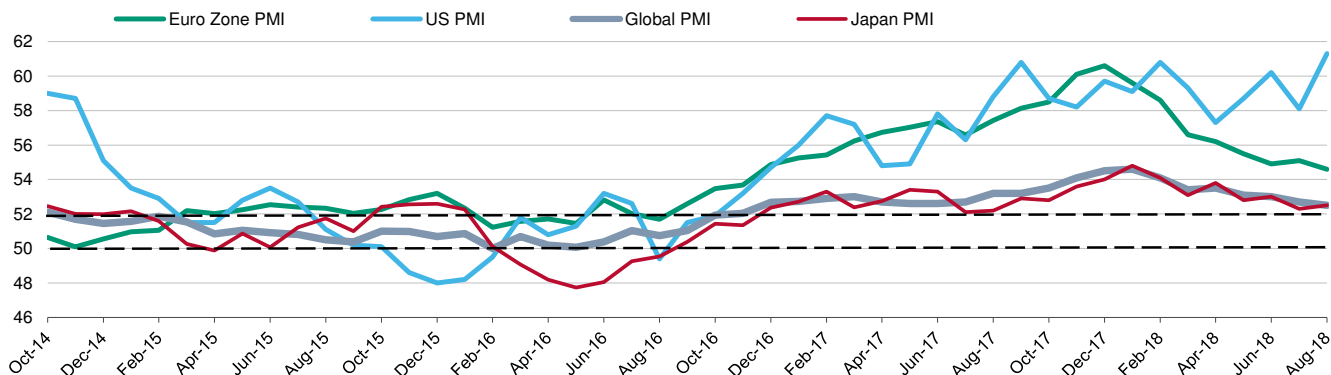
Our expectations for continued growth in the manufacturing industry is supported by our G-20 GDP growth forecast of 3.3% this year and 3.1% in 2019 (see [Global Macro Outlook: 2018-19 \[August 2018 Update\]: Growth will remain solid in the near term, but early indications suggest it has peaked](#)). We expect particularly robust growth of 5.1% through 2019 in emerging economies such as China and India, while advanced economies, such as the US, Europe and Japan, are collectively likely to see more modest growth of around 2.3% in 2018, before moderating to 2.0% in 2019.

Similarly, purchasing manager sentiment also points to continued expansion in the manufacturing sector, although this metric is moderating and regional readings vary. JPMorgan Global Manufacturing Purchasing Managers' Index (PMI) posted a reading of 52.5 in August – still indicative of an expansion but down from its near seven-year high of 54.5 last December and its lowest reading in 21 months. The softer global PMI numbers indicate that manufacturing output, ordering, exports, employment, and pricing are still rising, but at a slower rate. Moreover, while the PMIs for the US and the euro area remain quite strong, sentiment is much softer in Asia, where PMI's are pointing to slow or no expansion in manufacturing activity.

Exhibit 2

US and European PMIs indicate slowing expansion

Eurozone, US, Japan and global PMI readings since October 2014



Oct-14 = October 2014

Euro Zone PMI = Euro Area Manufacturing PMI; Japan PMI = Japan Manufacturing PMI

Source: Institute for Supply Management, Trading Economics, IHS Markit, Markit Economics

The absence of consistency in global growth forecasts and PMI readings indicate a vulnerability in manufacturing sector growth. PMI trends are volatile, and a sudden dip in US or euro area readings, possibly coinciding with lower GDP growth forecasts, could indicate a swift deceleration in industrial demand. That would likely lead to slowing earnings growth as well.

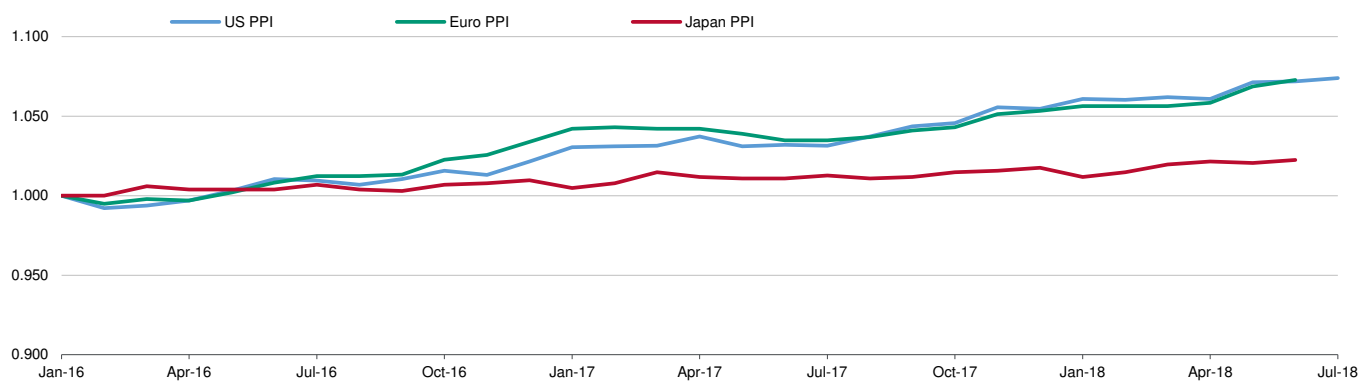
Rising commodity costs, wages could slow growth

Rising input costs could potentially slow margin improvement and constrain earnings growth. Expanding global demand is increasing prices for important raw materials, such as metals and energy. At the same time, many regions of the industrial world are experiencing tight labor markets, which may not only raise wages but could also affect investment decisions (e.g., moving production closer to lower cost labor or investing in more automation). Transportation costs are also rising, with a shortage of truckers to serve the industry, particularly in the US. As shown in Exhibit 3, manufacturing input costs as represented by producer price indexes (PPI), have risen steadily in advanced industrial economies, led by the US and Europe while Japanese costs have risen more gradually.

Exhibit 3

Input costs rising since 2016

Producer Price Indexes for US, Euro area, and Japan; January 2016 = 1.00



US PPI: Producer Price Index by Commodity for Final Demand: Finished Goods, Monthly, Seasonally Adjusted

Euro area PPI: European Union (current composition) - Total output price index - Industry (except construction, sewerage, waste management and remediation activities) - Unadjusted data (i.e. neither seasonally adjusted nor calendar adjusted data)

Japan PPI: Services Producer Price Index - All items

Source: Eurostat, Federal Reserve Bank of St. Louis, U.S. Bureau of Labor Statistics, Bank of Japan

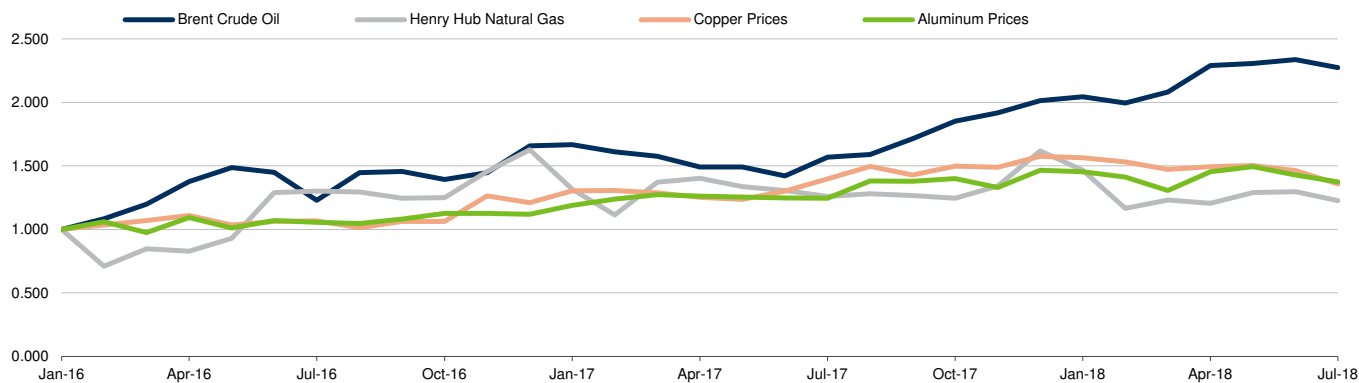
Manufacturers are dealing with rising raw material input costs that have occurred with the current cyclical recovery in the sector. Using key energy and raw metals pricing data to illustrate this trend, Exhibit 4 shows significant growth in pricing for important input

products over the last two years. For the most part, price increases have moderated somewhat in 2018, although crude oil prices have remained elevated. Such levels of input price inflation can be expected in this point in the industry cycle, and this should only have a modest impact on near term earnings growth.

Exhibit 4

Crude oil is leading the rising inflationary pressures of commodities

Index prices of Brent crude oil, Henry Hub natural gas, copper, and aluminum; January 2016 = 1.00



Source: FactSet

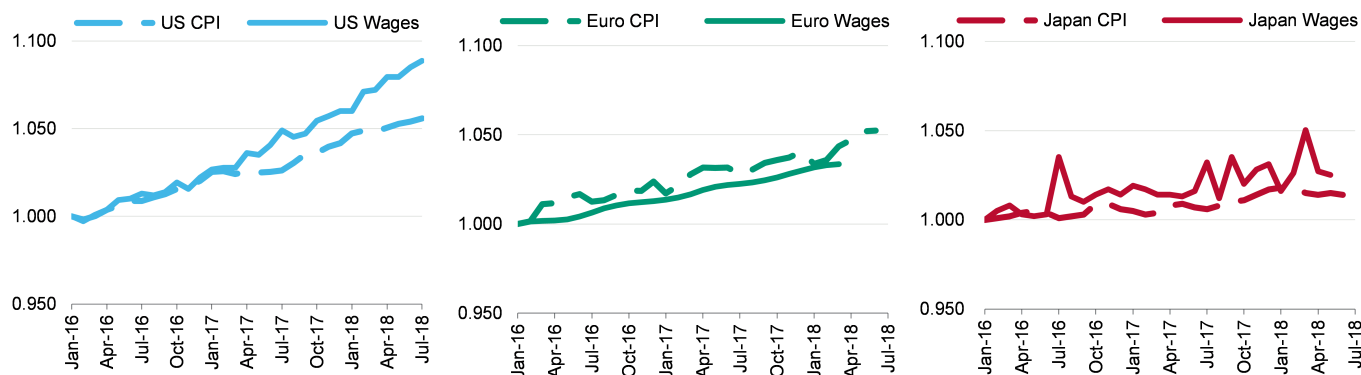
Wages have also grown in manufacturing, emblematic of tightness in the industrial labor market during a rising industry demand period. This is particularly acute in the US region, where wage growth is dramatically outpacing general inflation measures as represented by US Consumer Price Indexes (CPI, see Exhibit 5). Wage growth is also seen in Europe and Japan, but is closer to overall inflation levels in those regions.

We expect wages to accelerate further and that the lack of available industrial workers will become an important constraint on production. As such, companies may need to consider changing investment plans, possibly involving shifting more production overseas, or accelerating investments in automation to reduce the number of staff needed for this upturn (and, conversely, less of a need to reduce headcount in downturns).

Exhibit 5

Wage growth tracking near or above general inflation in advanced economies

Consumer Price Index for US, Euro Area, and Japan; January 2016 = 1.0; and Index of hourly manufacturing wages (US, Japan); manufacturing wages and salaries (Euro Zone); January 2016 = 1.00



US CPI is consumer prices for all items, for all urban consumers - US city average, and is seasonally adjusted. Euro CPI represents the European Union (current composition) and is all-items HICP - monthly data. Latest available Euro CPI data is June 2018. Japan CPI is all items, monthly; latest available data is June 2018. US Wages = Indexes of Aggregate Weekly Payrolls of All Employees: Manufacturing, Monthly, Seasonally Adjusted. Euro Wages = Labour Cost Index - Nominal Value [NACE Rev. 2] - Wages and salaries [D11] - Manufacturing [C], (Index 2012=100, WDASA) for Euro Zone. Latest available Euro wage data is March 2018. Japan Wages = Hourly Earnings: Manufacturing for Japan, Monthly, Seasonally Adjusted; latest available data is May 2018.

Source: CPI Data: U.S. Bureau of Labor Statistics, Factset, Eurostat, and E-Stat, the Portal Site of Official Statistics of Japan; Wages Data: European Commission: Eurostat, © European Union, 1995-2015 [lc_lci_r2_q]; Organization for Economic Co-operation and Development; Federal Reserve Bank of St. Louis - Economic Research Division

Uncertain trade environment poses biggest risk to manufacturers

Escalation of tariffs on international trade could raise input costs and dampen long-term industrial growth

We now believe that US trade tensions with China are more likely to worsen this year, weighing on global growth in 2019. In addition, we expect to see more restrictions on Chinese acquisitions of firms in the US and Europe. Our base case assumes that the US administration will go forward with some of the proposed restrictions on imports from China, in addition to the 25% tariffs on \$50 billion worth of imports and the steel and aluminum tariffs currently in effect. We also expect China to impose retaliatory measures. We maintain our view that negotiations between the US, Canada and Mexico regarding the future of NAFTA will continue, likely resulting in an updated, modernized agreement in 2019 (see below). Similar to NAFTA negotiations, negotiations with the EU will likely proceed over an extended period. Tariffs will have a negative effect on manufacturers globally by 1) further raising input costs, 2) potentially disrupting supply chains that rely on overseas production of raw material or components and 3) reducing the volume of exported US commodities, which in turn hurts demand for equipment in that segment.

Chinese retaliatory tariffs on US soybean imports illustrate how tariffs could disrupt the supply chain. Such tariffs would cause significant changes in global sourcing of soybeans, as it is likely that Chinese demand for soybeans will shift to Brazil, reducing the supply of Brazilian soybean available to other consumers, who will in turn look to other sources, such as the US, to meet their needs. As noted above, we expect that the changes in soybean geographic supply and demand relationships, and the related volatility in soybean prices, will contribute to some softening in near-term equipment demand.

We estimate that the scope of current tariffs affect roughly \$180 billion in international trade. At this level, we believe that potential input cost increases will not likely lead to a sharp drop in profitability for the manufacturing industry due to:

- » **Strong point in industrial cycle:** Manufacturers are reporting and expecting higher margins through 2019 despite input cost inflation. Current tariffs may dampen, but not reverse, this trend.
- » **Local sourcing:** Over the years, many companies have developed a “produce where they sell” operating strategy. Raw material and components are likely to be sourced locally, protecting those operations from duties or potential supply-chain disruptions.
- » **Long-term supply contracts:** Many companies have entered into contracts that lock in raw material prices. While this doesn't immunize the producer from tariffs on imports, it protects the company from commodity price escalation triggered by the imposition of tariffs. This protection may only be effective for a short period, depending on the term of such supply contracts.
- » **Pass-through pricing:** Component manufacturers that are important providers to customers' supply chains tend to operate under contracts that include provisions to pass-through raw material costs to their customers.

These mitigating factors are most likely found among larger manufacturers. Smaller companies that operate in highly competitive and fragmented markets may not have the flexibility or market power to counter input cost escalation, and are therefore more vulnerable under even a modest tariff scenario.

Many manufacturing companies have already commented on the impact that trade and tariffs will have on their operations. Most claim to have the ability to absorb the impact of proposed tariffs with little effect on their forecasted earnings. But surprisingly few have indicated that the trade disputes are affecting their operating or investment plans. Nonetheless, as shown in Exhibit 6, some companies have been more explicit in how tariffs affect their planning:

Exhibit 6

US, EU and China tariffs are mostly credit negative for manufacturers over the near term
Manufacturers that have acknowledged the impact of international trade tensions on their operations

Company	Segment	(Date of) Announcement	Credit Impact	Credit Implication
Harley-Davidson, Inc.	Transportation	(June 25, 2018) Due to EU's imposition of a 25% tariff on the company's motorcycles imported from the US, the company said it would shift production of European Union (EU)-bound motorcycles from US manufacturing facilities to its international plants	Credit Negative	It indicates the increasing burden that rising trade tensions between the US and its trading partners is placing on Harley-Davidson at the same time the company is contending with a protracted downturn in motorcycle demand.
Daimler AG	Transportation	(June 20, 2018) Resulting from Chinese import duties, Daimler warned that profits will be impacted	Credit Negative	It adds to the multiple challenges for the automotive manufacturer including the high investment needs the industry is facing to comply with future emission regulations, the transitioning to alternative fuel vehicles, the development of autonomous driving technology and new mobility services.
ABB Ltd.	Process Control/Components	(June 11, 2018) In response to US steel tariffs, the CEO mentioned that certain power transformers would be hit by higher procurement costs for certain types of steel	Credit Negative	The jobs of 4,000 US-based employees making transformers and motors in the US are at risk. This implies restructuring costs, loss of revenues and foregone profits.
Valmont Industries, Inc.	Agriculture	(July 12, 2018) After proposed US tariffs on Chinese goods, along with a trucker strike in Brazil and weakness in China's construction market, the company lowered revenue/profit guidance. Tariffs caused farmers in N America to delay irrigation purchases.	Credit Negative	Tariffs have added uncertainty to farmers and is disrupting the timing of shipments.

Credit impact and credit implications of announcements are as described by the analyst who covers the company. Analyst coverage can be found on Moodys.com by searching the company name and going to the company's home page.

Source: Moody's Investors Service, Company Disclosures

While current tariff levels may only have a modest impact on manufacturers over the near term, there is the potential for a sharp escalation in trade tensions. On July 10, the Trump administration announced plans for 10% tariffs on an additional \$200 billion of imports from China, about 80% of which are represented by intermediate goods and capital goods that would significantly affect the manufacturing sector. We expect that China will retaliate in kind. Unless it is short-lived, such an escalation scenario would have a more pernicious effect on the manufacturing sector, ultimately resulting in reduced industrial output, tighter margins and cash flow generation, and postponed investment in growth.

Brexit - UK's departure from the European Union could be disruptive to supply chains

Our base case is that there will be a trade agreement upon the UK leaving the European Union. In the absence of such an agreement, we believe that Brexit will have a negative impact on manufacturers' supply chains, which can disrupt production, result in higher costs and less competitiveness where there is a meaningful production footprint in the UK, or dependency on mission-critical supplies from the UK and when relevant parts cannot be obtained from other sources.

[Bombardier Inc.](#) (B3, negative) recently warned that the company's business in Northern Ireland may have to carry higher inventories at a cost of up to £30 million. Medical equipment manufacturer Royal Philips in July said that the cost of its exports from the UK will increase substantially if no single customs union were to be maintained. It echoes other comments made by Airbus and Rolls Royce who said that they would incur higher costs from carrying higher inventories as a safeguard against supply chain disruptions in case of the absence of a trade agreement. Additionally, Airbus stated in June 2018 that a Brexit scenario without an agreement would lead to severe disruption and interruption of its UK production. This scenario would force Airbus to reconsider its investments in the UK, and its long-term footprint in the country.

NAFTA - developments towards a new agreement so far indicate the most negative impact is on the auto sector

Although the US and Mexico have reached a compromise on various trade issues that had previously stalled progress, Canada will need to re-engage to complete the NAFTA negotiations. The credit implications for different companies and sectors in Canada, Mexico and the US could vary depending on the details of the agreement. Moreover, because the US Congress has a very tight window to ratify any new trade deal, there is no guarantee that an agreement will be in place by the end of this year.

The information available so far suggests that the US-Mexico deal would be negative for the North American auto sector. [According to the Office of the US Trade Representative](#), the agreement would increase the percentage of a vehicle's parts that must be built in North America to qualify for tariff-free treatment to 75%, from 62.5% currently and require that 40%-45% of a vehicle's content be produced by workers earning at least \$16 per hour. Such requirements are likely to increase the cost of producing vehicles in North America, a credit negative for US manufacturers and international car makers operating in the region. However, the impact would not be as severe as some alternative proposals, such as the 25% tariff on imported vehicles and parts contemplated as part of the US Commerce Department's 232 investigation.

What could change our outlook

We would consider changing our outlook to stable if, among other things, sentiment among Moody's analysts changes to reflect more normal market conditions, informed by expectations for EBITDA growth among global manufacturers to decline to below 3%, or global PMI readings falling into the 50-52 range for several months. GDP growth expectations falling below 3% would also factor into a stable sector outlook.

The key risks to current expansion and margin trends in the manufacturing sector relate to global trade tensions and production cost inflation. In particular, increasing evidence that the continued implementation of harmful trade policies, such as extending the scope of tariffs, will curtail growth or put pressure on industry margins could cause us to change the outlook to stable. This might be the case even if current industry conditions are strong, as policies that are detrimental to trade could quickly stall growth trends.

Moody's related publications

Issuer In-Depth

- » [General Electric Company: Planned separation of Healthcare and Locomotives provides pathway to much lower leverage and lean corporate structure, July 2018](#)
- » [Grainger \(W W\) Inc.: Restoring profitability to historical levels is unlikely due to greater market transparency and pricing pressure, May 2018](#)
- » [General Electric Company: GE Capital's drag on GE's credit quality worsens, despite remedial steps to mitigate insurance risks, January 2018](#)

Sector In-Depth

- » [Cross Sector - Trade: Escalation of global trade tensions becomes the baseline expectation, July 2018](#)
- » [Automotive — Global: Potential US tariffs on imported vehicles, parts credit negative for most of industry, June 2018](#)
- » [Cross-Sector - US: Looming US restrictions on technology transfer to China will moderately disrupt certain US industries, June 2018](#)
- » [Rated non-financial companies - China: Domestic focus and low reliance on US tech reduce exposure to US-China trade dispute, May 2018](#)
- » [Wind turbine generator manufacturers - Europe: Margins to drop in 2018 as industry adapts to changing market, May 2018](#)
- » [Corporates - Global: Agribusiness will benefit from rising food demand, with the help of new technology, May 2018](#)
- » [Manufacturing - Europe: Pockets of underperformance persist among energy-related manufacturers, May 2018](#)
- » [Trade - China: Tech most exposed to US tariffs; supply chains to amplify effect on other sectors, April 2018](#)
- » [Trade – US: Steel and aluminum tariffs would hit heavy manufacturing sector the hardest, March 2018](#)

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