MOODY'S
INVESTORS SERVICE

RATING METHODOLOGY
21 May 2021

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Rating Methodology

Automobile Manufacturers

This rating methodology replaces the *Automobile Manufacturer Industry* methodology published in June 2017. We have reordered and have made editorial updates to various sections of the methodology, and we have changed the presentation of the scorecard. These updates do not change our methodological approach.

Scope

This methodology applies to companies globally that are primarily* engaged in the design and manufacture of passenger vehicles, including cars, light trucks and motorcycles.

Companies primarily engaged in the production and sale of other types of vehicles or related products (including large commercial vehicles, automobile components and other industrial products) are rated under other methodologies, such as our methodologies for automotive suppliers and for manufacturing companies.[1]

The universe of companies rated under this methodology also excludes the captive finance subsidiaries of automakers, which are covered under our methodology for captive finance subsidiaries of nonfinancial corporations. Captive finance subsidiaries provide automotive financing services on the wholesale level, i.e., sales from the automaker to the dealer network, and the retail level, i.e., sales from dealers to consumers.[2]

*The determination of a company's primary business is generally based on the preponderance of the company's business risks, which are usually proportionate to the company's revenues, earnings and cash flows.

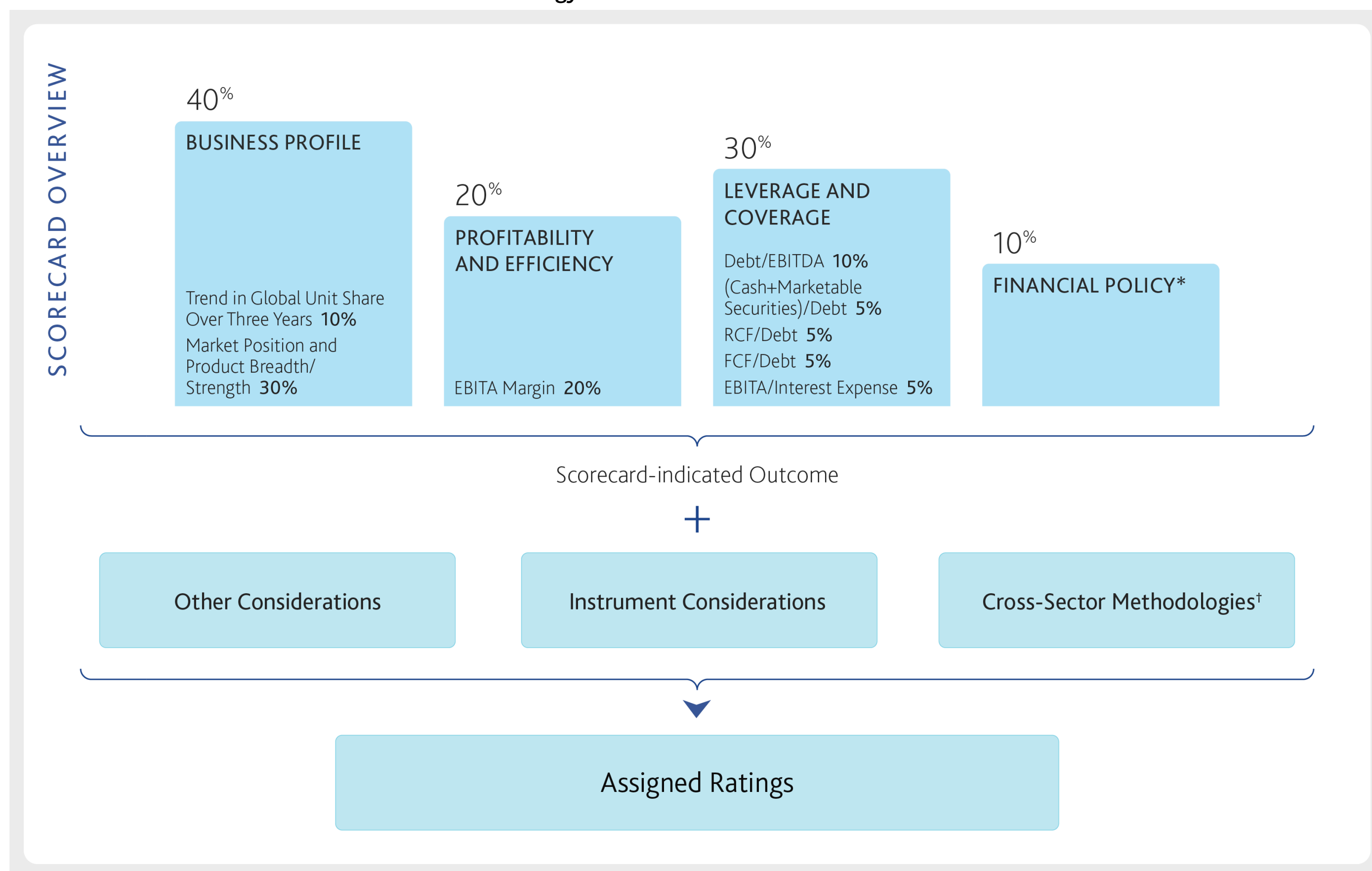
Rating approach

In this rating methodology, we explain our general approach to assessing credit risk of issuers in the automobile manufacturer industry globally, including the qualitative and quantitative factors that are likely to affect rating outcomes in this sector. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

The following schematic illustrates our general framework for the analysis of automobile manufacturers, which includes the use of a scorecard.[3] The scorecard-indicated outcome is not expected to match the actual rating for each company. For more information, see the "Other considerations" and "Limitations" sections.

Exhibit 1

Illustration of the automobile manufacturer methodology framework



* This factor has no sub-factors.

† Some of the methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

Source: Moody's Investors Service

Automobile manufacturer scorecard

For general information about how we use the scorecard and for a discussion of scorecard mechanics, please see the "Using the scorecard to arrive at a scorecard-indicated outcome" section. The scorecard does not include or address every factor that a rating committee may consider in assigning ratings in this sector. Please see the "Other considerations" and "Limitations" sections.

Exhibit 2

Automobile manufacturer scorecard

	BUSINESS PROFILE (40%)		PROFITABILITY and EFFICIENCY (20%)	LEVERAGE and COVERAGE (30%)					FINANCIAL POLICY (10%)
	Trend in Global Unit Share Over Three Years[1] (10%)	Market Position and Product Breadth/Strength (30%)	EBITA Margin[4] (20%)	Debt / EBITDA[5] (10%)	(Cash + Marketable Securities) / Debt[6] (5%)	RCF / Debt[7] (5%)	FCF / Debt[8] (5%)	EBITA / Interest Expense[9] (5%)	Financial Policy (10%)
Aaa	Increase > 2%	Very strong competitive position in most of the four key global geographic regions (North America, Europe, Japan and China); very strong and profitable product offering in all segments relevant to those markets,[2] supported by competitive and frequent model launches. Emissions-reducing technologies and AFV[3] product development are extremely strong and clearly lead the market in terms of innovation and customer acceptance; sophisticated, very well-articulated strategy and robust, consistent investments to meet future regulatory standards, including emissions and fuel economy.	≥ 16%	≤ 0.5x	≥ 160%	≥ 100%	≥ 70%	≥ 20x	Expected to have extremely conservative financial policies (including risk and liquidity management); very stable metrics; essentially no event risk that would cause a rating transition; and public commitment to very strong credit profile over the long term.
Aa	Increase >1% but ≤ 2%	Strong competitive position in at least two of the four key global geographic regions; highly competitive and profitable product portfolio in its entirety with a stable rate of model renewal, though there may be some gaps/areas of weakness. Emissions-reducing technologies and AFV product development are very strong with a leading (top quintile) market position in terms of innovation and customer acceptance; comprehensive, well-articulated strategy and mostly ample, consistent investments to meet future regulatory standards, including emissions and fuel economy.	13% - 16%	0.5x - 1.5x	120% - 160%	70% - 100%	40% - 70%	12x - 20x	Expected to have very conservative financial policies (including risk and liquidity management); stable metrics; minimal event risk that would cause a rating transition; and public commitment to strong credit profile over the long term.
A	Increase > 0.25% but ≤ 1%	Strong competitive position in at least two of the four key global geographic regions; highly competitive and profitable product portfolio in its entirety with modest variations in rate of model renewal, though there may be some gaps/areas of weakness. Emissions-reducing technologies and AFV product development are strong with an above-average market position in terms of innovation and customer acceptance; well-articulated strategy and consistent investments sufficient to meet future regulatory standards, including emissions and fuel economy.	10% - 13%	1.5x - 2.5x	90% - 120%	40% - 70%	20% - 40%	6x - 12x	Expected to have predictable financial policies (including risk and liquidity management) that preserve creditor interests; although modest event risk exists, the effect on leverage is likely to be small and temporary; strong commitment to a solid credit profile.

	BUSINESS PROFILE (40%)		PROFITABILITY and EFFICIENCY (20%)	LEVERAGE and COVERAGE (30%)					FINANCIAL POLICY (10%)
	Trend in Global Unit Share Over Three Years[1] (10%)	Market Position and Product Breadth/Strength (30%)	EBITA Margin[4] (20%)	Debt / EBITDA[5] (10%)	(Cash + Marketable Securities) / Debt[6] (5%)	RCF / Debt[7] (5%)	FCF / Debt[8] (5%)	EBITA / Interest Expense[9] (5%)	Financial Policy (10%)
Baa	Increase ≤ 0.25% to decrease ≤ 0.25%	Strong competitive position with a degree of concentration in one of the four key global geographic regions; product range mostly competitive and profitable with moderate variations in the rate of model renewal, though there may be some gaps/areas of weakness; earnings rely on specific products or segments. Emissions-reducing technologies and AFV product development are sufficient with an average market position in terms of customer acceptance; reasonably well-articulated strategy and generally sufficient investments to meet future regulatory standards for emissions and fuel economy.	7% - 10%	2.5x - 3.5x	70% - 90%	20% - 40%	10% - 20%	3.5x - 6x	Expected to have financial policies (including risk and liquidity management) that balance the interests of creditors and shareholders; some risk that debt funded acquisitions or shareholder distributions could lead to a weaker credit profile.
Ba	Decrease > 0.25% but ≤ 2%	Defensible competitive position focused on one of the four key global geographic regions; gaps/areas of weakness in the product portfolio exist with evidence of material variations in the rate of model renewal; earnings rely on specific products or segments or returns on key products cause periodic pressure. Emissions-reducing technologies and AFV product development may be somewhat lagging, but company has articulated a strategy and concrete plans to attain an industry-average market position in terms of customer acceptance; or investments to meet future regulatory standards are uneven, but company has reasonable leeway before delays will have a meaningful impact on ability to meet future regulatory standards.	4% - 7%	3.5x - 4.75x	50% - 70%	10% - 20%	5% - 10%	1.75x - 3.5x	Expected to have financial policies (including risk and liquidity management) that tend to favor shareholders over creditors; above-average financial risk resulting from shareholder distributions, acquisitions, or other significant capital structure changes.
B	Decrease > 2% but ≤ 3%	Weak or eroding competitive position in key geographic regions or product categories with material and chronic variations in product renewal rate or an extended time frame for the renewal of critical models; evidence of weak profitability across most of the model range. Emissions-reducing technologies and AFV product development or investments are lagging, and leeway is limited before delays will have a meaningful impact on ability to meet future regulatory standards.	1% - 4%	4.75x - 6x	40% - 50%	5% - 10%	0% - 5%	0.75x - 1.75x	Expected to have financial policies (including risk and liquidity management) that favor shareholders over creditors; high financial risk resulting from shareholder distributions, acquisitions, or other significant capital structure changes.

	BUSINESS PROFILE (40%)		PROFITABILITY and EFFICIENCY (20%)	LEVERAGE and COVERAGE (30%)					FINANCIAL POLICY (10%)
	Trend in Global Unit Share Over Three Years[1] (10%)	Market Position and Product Breadth/Strength (30%)	EBITA Margin[4] (20%)	Debt / EBITDA[5] (10%)	(Cash + Marketable Securities) / Debt[6] (5%)	RCF / Debt[7] (5%)	FCF / Debt[8] (5%)	EBITA / Interest Expense[9] (5%)	Financial Policy (10%)
Caa	Decrease > 3% but ≤ 4%	Long-term viability in one or more key geographic regions or product categories could be threatened, with material and chronic variations in product renewal rate or an extended time frame for the renewal of critical models; product range may not be able to sustain adequate reinvestment needs and significant operational restructuring is required. Extremely limited regulatory flexibility: material challenges to develop (or acquire) and implement emissions-reducing technologies or meet future regulatory standards.	0% - 1%	6x - 8x	30% - 40%	0% - 5%	-5% - 0%	0x - 0.75x	Expected to have financial policies (including risk and liquidity management) that create elevated risk of debt restructuring in varied economic environments.
Ca	Decrease > 4%	Long-term viability in one or more key geographic regions or in a critical product segment is at clear risk, with structural profit issues and inadequate rate of model renewal. Meaningful current impact from regulation: material challenges or inability to develop (or acquire) and implement emissions-reducing technologies are causing a failure to meet regulatory targets.	< 0%	> 8x	< 30%	< 0%	< -5%	< 0x	Expected to have financial policies (including risk and liquidity management) that create elevated risk of debt restructuring even in healthy economic environments.

[1] This metric is not scored with linear interpolation.
[2] These segments may include luxury, mid-price and economy cars; light trucks and sport utility vehicles; crossover vehicles; and alternative fuel vehicles.
[3] AFV stands for alternative fuel vehicle.
[4] For the linear scoring scale, the Aaa endpoint value is 30%. A value of 30% or better equates to a numeric score of 0.5. The Ca endpoint value is -5%. A value of -5% or worse equates to a numeric score of 20.5.
[5] For the linear scoring scale, the Aaa endpoint value is 0.0x. A value of 0.0x equates to a numeric score of 0.5. The Ca endpoint value is 10x. A value of 10x or worse equates to a numeric score of 20.5, as does a negative Debt/EBITDA value.
[6] For the linear scoring scale, the Aaa endpoint value is 300%. A value of 300% or better equates to a numeric score of 0.5. The Ca endpoint value is 0%. A value of 0% equates to a numeric score of 20.5.
[7] For the linear scoring scale, the Aaa endpoint value is 130%. A value of 130% or better equates to a numeric score of 0.5. The Ca endpoint value is -15%. A value of -15% or worse equates to a numeric score of 20.5.
[8] For the linear scoring scale, the Aaa endpoint value is 100%. A value of 100% or better equates to a numeric score of 0.5. The Ca endpoint value is -20%. A value of -20% or worse equates to a numeric score of 20.5.
[9] For the linear scoring scale, the Aaa endpoint value is 40x. A value of 40x or better equates to a numeric score of 0.5. The Ca endpoint value is -5x. A value of -5x or worse equates to a numeric score of 20.5.
Source: Moody's Investors Service

Sector overview

Automobile manufacturing is a global industry, with most companies operating across multiple continents. Companies with stronger credit profiles tend to be larger and tend to have a global footprint, with automotive operations in the key markets of North America, Europe, Japan and China. They typically have a strong market position and competitive products across a broad range of vehicle categories. Companies with weaker credit profiles tend to be smaller and less established in key regional markets. Also, they typically have more limited product diversity and lower profitability.

High cash flow volatility is a characteristic of automobile manufacturers, owing to the cyclical nature of the industry and a high degree of competition within each market. Consumer sentiment tends to follow macro- economic, social and product trends, which in turn requires automobile manufacturers to actively manage their product development cycles in order to stay competitive. This results in high capital intensity, with manufacturers typically engaged in robust and ongoing reinvestment.

Because of its fundamental role in the global economy, the automobile industry is the subject of significant political and regulatory attention across jurisdictions. Political and regulatory intervention can take many forms and can be negative or positive for a company's credit profile. Government scrutiny of environmental and safety standards can create additional costs, for example, but financial support in times of stress has proved critical.

Discussion of the scorecard factors

In this section, we explain our general approach for scoring each scorecard factor or sub-factor, and we describe why they are meaningful as credit indicators.

Factor: Business Profile (40% weight)

Why it matters

The business profile of an automobile manufacturer is important because it greatly influences the ability to generate operating cash flows and the stability and sustainability of those flows.

Core aspects of an automaker's business profile include changes in its market share, its competitive position within each market, the breadth and strength of its product offering, and its capacity to adapt to consumer, political and regulatory trends.

Trend in Global Unit Share Over Three Years

Market share trends are an important indicator of an automobile manufacturer's ability to sustain its competitive position in its core market segments. Increases or decreases in market share provide insight into an automaker's ability to offer, over an average product life cycle, a portfolio of models that remain attractive to consumers across a wide array of vehicle categories.

Declining or volatile[4] market share may indicate that a company's model renewal schedule is uneven, with weak renewal rates in some years compensated only partially by higher renewal rates in other years, which in turn may be an indication that capacity to meet market demand is weak. Conversely, sustained growth in market share typically reflects a more consistent model renewal rate and a stronger capacity to meet demand in key markets.

Market Position and Product Breadth/Strength

Market position and product breadth and strength are meaningful indications of how well an automaker will be able to withstand changes in market demand. A strong competitive position in the key auto markets of North America, Europe, Japan and China, combined with a profitable product offering, can make an automaker more resilient to cyclical downturns than automakers that rely significantly on specific regions or market sub-segments.

The breadth and strength of a company's product portfolio is a critical indicator of its ability to sustain its competitive position. Automakers that make continuous investments in new technologies related to vehicle safety, carbon emissions and performance are better able to differentiate their products in the marketplace and avoid consumer perceptions that product features are stale or outdated. Failing to maintain a strong product image could exacerbate the effects of a cyclical downturn on a given manufacturer, materially weakening its chances of recovery.

A diverse vehicle lineup is also important, because of the crucial role consumer sentiment plays in automobile demand. Gasoline prices, regulatory mandates and environmental concerns can cause demand to shift toward or away from specific vehicle types. For instance, sales of large trucks and sport utility vehicles (SUVs) could be at risk in periods of high gasoline prices. If gasoline prices are low and consumers are more focused on safety, larger vehicles may have broader appeal. Consequently, automakers with a narrow product range may be more vulnerable to changes in demand patterns than automakers that offer a full range of vehicles.

How we assess it for the scorecard

Scoring for this factor is based on two sub-factors: Trend in Global Unit Share Over Three Years; and Market Position and Product Breadth/Strength.

TREND IN GLOBAL UNIT SHARE OVER THREE YEARS:

The scoring of this primarily quantitative sub-factor is based on changes in global market share by units (i.e., number of passenger vehicles sold) over the last three years. Where an automaker's business focuses on a specific, segregated sub-segment of the broader automobile market with little competitive overlap from other segments of the industry (e.g., luxury sports cars), we score this sub-factor based on changes in global market share in that sub-segment. Many automakers renew their models on a five- to seven-year schedule and attempt to stagger the scheduled renewals of different models, but may make minor updates in the interim. In cases where consistent market share data are not available, we may estimate the historical changes in global market share.

We may also make adjustments to the sub-factor score to differentiate between companies that are experiencing long-term upward or downward trends in market share and companies that are experiencing cyclical or one-time changes that are likely to reverse in the near future. For instance, for an automaker that had a temporary disruption in production that was subsequently resolved and that is unlikely to recur, we may make an adjustment to reflect the underlying sustainable trend.

MARKET POSITION AND PRODUCT BREADTH/STRENGTH:

The scoring of this sub-factor is based on a qualitative assessment of the relative market position of the automaker and the breadth and strength of its product offering. We typically consider a number of aspects of a company's competitive position, with particular emphasis on its footprint in key markets and in the various segments, the strength and profitability of its products, and its strategy and ability to meet future regulatory standards.

Our assessment of a manufacturer's ability to offer a broad and diverse range of products within its key geographic markets is typically based on the company's track record as well as our view of its product strategies with respect to consumer trends in these markets and in potential new markets. We also typically assess the manufacturer's capacity to successfully carry out those strategies.

While our assessment of this sub-factor is largely qualitative, a quantitative measure that can be useful is the product renewal rate, with a higher rate typically indicating a lower risk of obsolescence. In assessing a company's product renewal rate, we generally take into account the potential benefits of a strategically important product launch or an expected acceleration in the pace of product introductions. We also consider the level of profitability of the portfolio and of the different products within the portfolio, with high and even profitability typically resulting in a higher score for this sub-factor.

In assessing product breadth and strength, we also consider a company's ability to comply with regulatory standards, mainly for stricter curbs on emissions and tighter enforcement. In particular, we consider a company's record of developing emissions-reducing technologies and alternative-fuel vehicles (AFVs), including the level of innovation and customer acceptance. Given the complexity and variety of emissions regulations across advanced and emerging economies, our assessment also typically focuses on how well articulated and transparent a company's carbon transition strategy is, including its ability and willingness to direct sufficient and consistent investments toward meeting future regulatory standards.

Factor: Profitability and Efficiency (20% weight)

Why it matters

Profits matter because they are needed to maintain a competitive position, which includes making sufficient reinvestments in marketing, research, facilities and human capital. The ability to sustain high profitability is generally a strong indicator of operating efficiency and of substantial competitive advantages, particularly if combined with evidence of stable or rising market share.

How we assess it for the scorecard

EBITA MARGIN:

We use EBITA margin, which is the ratio of earnings before interest, taxes and amortization (EBITA) to revenue.

Factor: Leverage and Coverage (30% weight)

Why it matters

Leverage and coverage measures are important indicators of the financial flexibility and long-term viability of a company, including its ability to adapt to changes in the economic and business environments in the segments in which it operates.

Automakers typically require a strong cash position to mitigate the volatility that can occur in their cash flows. Economic downturns as well as company-specific circumstances that consume cash, such as the potential for high product development costs, product defects or recalls, or capital calls from a captive finance subsidiary, make financial flexibility important.

This factor comprises five quantitative sub-factors:

Debt / EBITDA

The ratio of debt to earnings before interest, taxes, depreciation and amortization (Debt/EBITDA) is an indicator of debt serviceability and financial leverage. The ratio is commonly used in this sector as a proxy for comparative financial strength.

(Cash + Marketable Securities) / Debt

The ratio of cash plus marketable securities to debt ((Cash + Marketable Securities)/Debt) provides an indication of a company's financial flexibility and ability to absorb fluctuations in working capital needs or unforeseen events. It also provides an indication of the amount of cash, relative to debt, that would be available in periods of stress or when faced with an inability to access the capital markets.

RCF / Debt

The ratio of retained cash flow to total debt (RCF/Debt) is an indicator of a company's. cash generation (before working capital movements and capital expenditures, and after dividend payments) relative to its debt burden.

FCF / Debt

The ratio of free cash flow to debt (FCF/Debt) provides a different view of a company's ability to repay its debt, because it compares cash flow generation after working capital movements, capital expenditures and dividends to total debt. Many automakers have limited discretion to cut capital expenditures because of the need to regularly refresh the fleet and invest in technology and capacity.

EBITA / Interest Expense

The ratio of earnings before interest, taxes and amortization to interest expense (EBITA/Interest Expense) is an indicator of a company's ability to meet its interest obligations.

How we assess it for the scorecard

Scoring for this factor is based on five sub-factors: Debt/EBITDA; (Cash + Marketable Securities)/Debt; RCF/Debt; FCF/Debt; and EBITA/Interest Expense.

DEBT / EBITDA:

The numerator is total debt, and the denominator is EBITDA.

(CASH + MARKETABLE SECURITIES) / DEBT:

The numerator is the sum of cash, marketable securities and short-term investments, and the denominator is total debt.

RCF / DEBT:

The numerator is RCF, and the denominator is total debt.

FCF / DEBT:

The numerator is FCF, and the denominator is total debt.

EBITA / INTEREST EXPENSE:
The numerator is EBITA, and the denominator is interest expense.

Factor: Financial Policy (10% weight)

Why it matters

Management and board tolerance for financial risk is an important rating determinant, because it directly affects debt levels, credit quality, and the risk of adverse changes in financing and capital structure.

Our assessment of financial policies includes the perceived tolerance of a company's governing board and management for financial risk and the future direction for the company's capital structure. Considerations include a company's public commitments in this area, its track record for adhering to commitments and our views on the ability of the company to achieve its targets.

Financial risk tolerance serves as a guidepost to investment and capital allocation. An expectation that management will be committed to sustaining an improved credit profile is often necessary to support an upgrade. For example, we may not upgrade the ratings of a company that has built flexibility within its rating category if we believe the company will use that flexibility to fund a strategic acquisition, cash distribution to shareholders, spin-off or other leveraging transaction. Conversely, a company's credit rating may be better able to withstand a moderate leveraging event if management places a high priority on returning credit metrics to pre-transaction levels and has consistently demonstrated the commitment to do so through prior actions. Liquidity management[5] is an important aspect of overall risk management and can provide insight into risk tolerance.

Some automobile manufacturers have historically used acquisitions to spur revenue growth, expand business lines, consolidate market positions, advance cost synergies or seek access to new technology.

How we assess it for the scorecard

We assess the company's desired capital structure or targeted credit profile, its history of prior actions, including its track record of risk and liquidity management, and its adherence to its commitments. Attention is paid to management's operating performance and use of cash flow through different phases of economic and industry cycles. Also of interest is the way in which management responds to key challenges, such as changes in the credit markets and liquidity environment, legal actions, competitive threats or regulatory pressures.

When considering event risks in the context of scoring financial policy, we assess the likelihood and potential negative impact of M&A or other types of balance-sheet-transforming events. Management's appetite for M&A activity is assessed, with a focus on the type of transactions (i.e., core competency or new business) and funding decisions. Frequency and materiality of acquisitions and previous financing choices are evaluated. A history of debt-financed or credit-transforming acquisitions will generally result in a lower score for this factor. We may also consider negative repercussions caused by shareholders' willingness to sell the company.

We also consider a company's and its owners' past record of balancing shareholder returns and debtholders' interests. A track record of favoring shareholder returns at the expense of debtholders is likely to be viewed negatively in scoring this factor.

Other considerations

Ratings may reflect consideration of additional factors that are not in the scorecard, usually because the factor's credit importance varies widely among the issuers in the sector or because the factor may be important only under certain circumstances or for a subset of issuers. Such factors include financial controls and the quality of financial reporting; corporate legal structure; the quality and experience of management; assessments of corporate governance as well as environmental and social considerations; exposure to uncertain licensing regimes and possible government interference in some countries. Regulatory, litigation, liquidity, technology and reputational risk as well as changes to consumer and business spending patterns, competitor strategies and macroeconomic trends also affect ratings.

Following are some examples of additional considerations that may be reflected in our ratings and that may cause ratings to be different from scorecard-indicated outcomes.

Captive Finance Subsidiaries
Some automobile manufacturers have captive finance subsidiaries that provide inventory financing for dealers and automotive financing and lease financing for retail customers.

Ownership of a captive finance subsidiary can be particularly helpful for an automobile company during economic downturns because the captive finance subsidiary can be used to provide subsidies to customers, which in turn helps support sales volumes. Beyond this important strategic role, captive finance subsidiaries also can place stress on an automaker's financial flexibility. This stress can result from the finance operation's need for supplementary equity capital and liquidity, which are typically formalized in a support agreement. [6]

In our assessment of the potential negative impact a captive finance subsidiary may have on the creditworthiness of an automaker, we typically consider the likelihood and cost of the support the automaker may extend. For more details on how we assess the credit impact of a captive finance subsidiary on an automaker, please see our methodology for rating captive finance subsidiaries of nonfinancial corporations.[7]

Environmental, Social and Governance Considerations
Environmental, social and governance (ESG) considerations may affect the ratings of issuers in the automobile manufacturers industry. For information about our approach to assessing ESG issues, please see our methodology that describes our general principles for assessing these risks.[8]

Among the areas of focus in corporate governance, for example, are audit committee financial expertise, the incentives created by executive compensation packages, related party transactions, interactions with outside auditors and ownership structure.

Regulatory Considerations
Automobile manufacturers are subject to a substantial degree of regulatory oversight, including consumer safety and environmental standards (notably related to carbon and other emissions) — two areas in which regulation can intersect with product reputation and consumer preferences. The ability of an automobile manufacturer to successfully navigate regulatory issues is more likely to be a credit differentiator when regulations are increasing in scope or when there are meaningful regional differences in regulation. The impacts of increasing environmental regulation can include increased costs, demand substitution and a higher potential for technology disruptions.

Regulatory considerations are an important element in assessing market position and product breadth or strength, and they play an important role in our expectations of future financial metrics as well as our confidence level in the ability of an issuer to generate sufficient cash flows relative to its debt burden over the medium- and longer-term. In some circumstances, regulatory considerations may also be a rating factor outside the scorecard, for instance when regulatory change is swift, or when a material breach of regulations is disclosed by the issuer, alleged by a regulator or the subject of litigation.

Management Strategy
The quality of management is an important factor supporting a company's credit strength. Assessing the execution of business plans over time can be helpful in assessing management's business strategies, policies and philosophies and in evaluating management performance relative to performance of competitors and our projections. Management's track record of adhering to stated plans, commitments and guidelines provides insight into management's likely future performance, including in stressed situations.

Financial Controls
We rely on the accuracy of audited financial statements to assign and monitor ratings in this sector. The quality of financial statements may be influenced by internal controls, including the proper tone at the top, centralized operations, and consistency in accounting policies and procedures. Auditors' reports on the effectiveness of internal controls, auditors' comments in financial reports and unusual restatements of financial statements or delays in regulatory filings may indicate weaknesses in internal controls.

Liquidity
Liquidity is an important rating consideration for all automobile manufacturer companies, although it may not have a substantial impact in discriminating between two issuers with a similar credit profile. Liquidity can be particularly important for companies in highly seasonal or cyclical operating environments where working capital needs must be considered, and ratings can be heavily affected

by extremely weak liquidity. Automobile manufacturers often face increasing working capital needs in a downturn as a consequence of the combined effects of decreasing sales, increasing inventories and a reduction in trade payables. We form an opinion on likely near-term liquidity requirements from the perspective of both sources and uses of cash. For more details on our approach, please see our liquidity cross-sector methodology.[9]

Excess Cash Balances

Some companies in this sector maintain cash balances (meaning liquid short-term investments as well as cash) that are far in excess of their operating needs. This excess cash can be an important credit consideration; however, the underlying policy and motivations of the issuer in holding high cash balances are often as or more important in our analysis than the level of cash held. We have observed significant variation in company behavior based on differences in financial philosophy, investment opportunities, availability of committed revolving credit facilities and shareholder pressures.

Most issuers need to retain some level of cash in their business for operational purposes. The level of cash required to run a business can vary based on the region or regions of operation and the specific sub-sectors in which the issuer operates. Some issuers have very predictable cash needs and others have much broader intra-period swings, for instance related to mark-to-market collateral requirements under hedging instruments. Some companies may hold large levels of cash at times because they operate without committed, long-term bank borrowing facilities. Some companies may hold cash on the balance sheet to meet long-term contractual liabilities, whereas other companies with the same types of liabilities have deposited cash into trust accounts that are off balance sheet. The level of cash that issuers are willing to hold can also vary over time based on the cost of borrowing and macroeconomic conditions. The same issuer may place a high value on cash holdings in a major recession or financial crisis but seek to pare cash when inflation is high. As a result, while one of our ratios captures cash balances, cash on the balance sheet is most often considered qualitatively, by assessing the issuer’s track record and financial and liquidity policies, rather than by measuring how a point-in-time cash balance would affect a specific metric.

Across all corporate sectors, an important shareholder-focused motivation for cash holdings, sometimes over very long periods, is cash for acquisitions. In these cases, we do not typically consider that netting cash against the issuer's current level of debt is analytically meaningful; however, the cash may be a material mitigant in our scenario analyses of potential acquisitions, share buybacks or special dividends. Tax minimization strategies have at times been another primary motivation for holding large cash balances. Given shareholder pressures to return excess cash holdings, when these motivations for holding excess cash are eliminated, we generally expect that a large portion of excess cash will be used for dividends and share repurchases.

By contrast, some companies maintain large cash holdings for long periods of time in excess of their operating and liquidity needs solely due to conservative financial policies, which provides a stronger indication of an enduring approach that will benefit creditors. For instance, some companies have a policy to routinely pre-fund upcoming required debt payments well in advance of the stated maturity. Such companies may also have clearly stated financial targets based on net debt metrics and a track record of maintaining their financial profile within those targets.

While the scorecard in this methodology uses leverage and coverage ratios with total (gross) debt rather than net debt, we do consider excess cash holdings in our rating analysis, including in our ratio of cash to debt as well as in our assessment of the financial and liquidity policy. For issuers where we have clarity into the extent to which cash will remain on the balance sheet and/or be used for creditor-friendly purposes, excess cash may be considered in a more quantitative manner. While we consider excess cash in our credit assessment for ratings, we do not typically adjust the balance sheet debt for any specific amount because this implies greater precision than we think is appropriate for the uncertain future uses of cash. However, when cash holdings are unusually large relative to debt, we may refer to debt net of cash, or net of a portion of cash, in our credit analysis and press releases in order to provide additional insight into our qualitative assessment of the credit benefit. Alternatively, creditor-friendly use of cash may be factored into our forward view of metrics, for instance when the cash is expected to be used for debt-repayment. We may also cite rating threshold levels for certain issuers based on net debt ratios, particularly when these issuers have publicly stated financial targets based on net debt metrics.

Even when the eventual use for excess cash is likely to be for purposes that do not benefit debtholders, large holdings provide some beneficial cushion against credit deterioration, and cash balances are often considered in our analysis of near-term liquidity sources and uses. Such downside protection is usually more important for low rated companies than for highly rated companies due to differences in credit stability and the typically shorter distance from potential default for issuers at the lower end of the ratings spectrum.

Additional Metrics

The metrics included in the scorecard are those that are generally most important in assigning ratings to companies in this industry; however, we may use additional metrics to inform our analysis of specific companies. These additional metrics may be important to our forward view of metrics that are in the scorecard or other rating factors.

For example, material changes in accounts payable days on hand can signal a changing dynamic between an automobile manufacturer and its suppliers. Supplier relationships are of particular importance to automakers, because many suppliers provide specialized, high-value-added products that may be tailored to a particular brand or model. A shortening of the number of days on hand can signal lower supplier confidence in the automaker. A higher number of days on hand could be a sign that the automaker can command better credit terms from suppliers, but it can also be a sign that the automaker is short of liquidity and it is a particular concern for an automaker with low or materially decreasing profitability.

Furthermore, in a downturn, high reliance on trade credit can expose the automaker to a more rapid deterioration of working capital.

Non-wholly Owned Subsidiaries

Some companies in the automobile manufacturer sector may choose to dilute their equity stake in certain material subsidiaries, for example through an initial public offering, which may in some cases negatively impact future financial flexibility. While improving cash holdings on a one-off basis, selling minority interests in subsidiaries may have a negative impact on cash flows available to the parent company that may not be fully reflected in consolidated financial statements.[10] The parent's share of dividend flows from a non-wholly owned subsidiary is reduced, and minority stakes can increase structural subordination, since dividend flows to minority interest holders are made before the cash flows are available to service debt at the parent company. While less frequent, sale of a minority stake may be accompanied by policies protective of the subsidiary that further limit the parent's financial flexibility, for instance restrictions on cash pooling with other members of the corporate family, limitations on dividends and distributions, or arms-length business requirements. Minority stakeholders may have seats on the board of the subsidiary. In many cases, we consider the impact of non-wholly owned subsidiaries qualitatively. However, in some cases we may find that an additional view of financial results, such as analyzing cash flows on a proportional consolidation basis, may be very useful to augment our analysis based on consolidated financial statements. When equity dilution or structural subordination arising from non-wholly owned subsidiaries is material and negative, the credit impact is captured in ratings but may not be fully reflected in scorecard-indicated outcomes.

For companies that hold material minority interest stakes, consolidated funds from operations typically includes the dividends received from the minority subsidiary, while none of its debt is consolidated. When such dividends are material to the company's cash flows, these cash flows may be subject to interruption if they are required for the minority subsidiary's debt service, capital expenditures or other cash needs. When minority interest dividends are material, we may also find that proportional consolidation or another additional view of financial results is useful to augment our analysis of consolidated financials. We would generally also consider structural subordination in these cases.[11] When these credit considerations are material, their impact is captured in ratings but may not be fully reflected in scorecard-indicated outcomes.

Event Risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in an issuer's fundamental creditworthiness, which may cause actual ratings to be lower than the scorecard- indicated outcome. Event risks — which are varied and can range from leveraged recapitalizations to sudden regulatory changes or liabilities — can overwhelm even a stable, well-capitalized firm. Some other types of event risks include M&A, asset sales, spin-offs, litigation, pandemics, significant cyber-crime events and shareholder distributions.

Parental Support

Ownership can provide ratings lift for a particular company in the automobile manufacturer industry if it is owned by a highly rated owner(s) and is viewed to be of strategic importance to those owners. In our analysis of parental support, we consider whether the parent has the financial capacity and strategic incentives to provide support to the company in times of stress or financial need (e.g., a major capital investment), or has already done so in the past. Conversely, if the parent puts a high dividend burden on the issuer, which in turn reduces its flexibility, the ratings would reflect this risk.

Government-related issuers may receive ratings uplift due to expected government support. However, for certain issuers, government ownership can have a negative impact on the underlying Baseline Credit Assessment.[12] For example, price controls, onerous taxation and high distributions can have a negative effect on an issuer's underlying credit profile.

Other Institutional Support

In some countries, large corporate issuers have received government or banking support in the event of financial difficulties because of their overall importance to the functioning of the economy. In Japan, our corporate ratings consider the support that has operated there for large and systemically important organizations. Over the years, this has resulted in lower levels of default than might otherwise have occurred. Our approach considers whether the presence of group and banking relationships may provide support when systemically important companies encounter significant financial stress.

Seasonality

Seasonality can be a concern for some automobile manufacturers. Higher volatility creates less room for errors in product or operational execution.

Cyclical Sectors

Scorecard-indicated outcomes in cyclical sectors may be higher than the rating at the top of the cycle and lower than the rating at the bottom of the cycle. While using annual financials in the scorecard typically provides very useful insights into recent or near-term results, ratings may also reflect our expectations for the progression of yearly results over a longer period that may include a full economic cycle. However, cyclicality itself poses many different types of risks to companies, and cycles do not reverse themselves with predictable regularity, and a cyclical sector may also be affected by a secular decline or expansion. These considerations may be incorporated qualitatively in ratings.

Using the scorecard to arrive at a scorecard-indicated outcome

1. Measurement or estimation of factors in the scorecard

In the "Discussion of the scorecard factors" section, we explain our analytical approach for scoring each scorecard factor or sub-factor,[13] and we describe why they are meaningful as credit indicators.

The information used in assessing the sub-factors is generally found in or calculated from information in the company's financial statements or regulatory filings, derived from other observations or estimated by Moody's analysts. We may also incorporate non-public information.

Our ratings are forward-looking and reflect our expectations for future financial and operating performance. However, historical results are helpful in understanding patterns and trends of a company's performance as well as for peer comparisons. Financial ratios,[14] unless otherwise indicated, are typically calculated based on an annual or 12-month period. However, the factors in the scorecard can be assessed using various time periods. For example, rating committees may find it analytically useful to examine both historical and expected future performance for periods of several years or more.

All of the quantitative credit metrics incorporate our standard adjustments[15] to income statement, cash flow statement and balance sheet amounts for items such as underfunded pension obligations and operating leases. We may also make other analytical adjustments that are specific to a particular company.

2. Mapping scorecard factors to a numeric score

After estimating or calculating each factor or sub-factor, each outcome is mapped to a broad Moody's rating category (Aaa, Aa, A, Baa, Ba, B, Caa or Ca, also called alpha categories) and to a numeric score.

Qualitative factors are scored based on the description by broad rating category in the scorecard. The numeric value of each alpha score is based on the scale below.

Exhibit 3

Aaa	Aa	A	Baa	Ba	B	Caa	Ca
1	3	6	9	12	15	18	20

Source: Moody's Investors Service

Quantitative factors are scored on a linear continuum. For each metric, the scorecard shows the range by alpha category. We use the scale below and linear interpolation to convert the metric, based on its placement within the scorecard range, to a numeric score, which may be a fraction. As a purely theoretical example, if there were a ratio of revenue to interest for which the Baa range was 50x to 100x, then the numeric score for an issuer with revenue/interest of 99x, relatively strong within this range, would score closer to 7.5, and an issuer with revenue/interest of 51x, relatively weak within this range, would score closer to 10.5. In the text or table footnotes, we define the endpoints of the line (i.e., the value of the metric that constitutes the lowest possible numeric score, and the value that constitutes the highest possible numeric score).

Exhibit 4

Aaa	Aa	A	Baa	Ba	B	Caa	Ca
0.5-1.5	1.5-4.5	4.5-7.5	7.5-10.5	10.5-13.5	13.5-16.5	16.5-19.5	19.5-20.5

Source: Moody's Investors Service

3. Determining the overall scorecard-indicated outcome

The numeric score for each sub-factor (or each factor, when the factor has no sub-factors) is multiplied by the weight for that sub-factor (or factor), with the results then summed to produce an aggregate numeric score. The aggregate numeric score is then mapped back to a scorecard-indicated outcome based on the ranges in the table below.

Exhibit 5

Scorecard-indicated outcome

Scorecard-indicated outcome	Aggregate numeric score
Aaa	x ≤ 1.5
Aa1	1.5 < x ≤ 2.5
Aa2	2.5 < x ≤ 3.5
Aa3	3.5 < x ≤ 4.5
A1	4.5 < x ≤ 5.5
A2	5.5 < x ≤ 6.5
A3	6.5 < x ≤ 7.5
Baa1	7.5 < x ≤ 8.5
Baa2	8.5 < x ≤ 9.5
Baa3	9.5 < x ≤ 10.5
Ba1	10.5 < x ≤ 11.5
Ba2	11.5 < x ≤ 12.5
Ba3	12.5 < x ≤ 13.5
B1	13.5 < x ≤ 14.5
B2	14.5 < x ≤ 15.5
B3	15.5 < x ≤ 16.5
Caa1	16.5 < x ≤ 17.5
Caa2	17.5 < x ≤ 18.5
Caa3	18.5 < x ≤ 19.5
Ca	19.5 < x ≤ 20.5
C	x > 20.5

Source: Moody's Investors Service

For example, an issuer with an aggregate numeric score of 11.7 would have a Ba2 scorecard-indicated outcome.

In general, the scorecard-indicated outcome is oriented to the corporate family rating (CFR) for speculative-grade issuers and to the senior unsecured rating for investment-grade issuers. For issuers that benefit from rating uplift from parental support, government ownership or other institutional support, we consider the underlying credit strength or Baseline Credit Assessment for comparison to

the scorecard-indicated outcome. For an explanation of the Baseline Credit Assessment, please refer to *Rating Symbols and Definitions* and to our cross-sector methodology for government-related issuers.[16]

Assigning issuer-level and instrument-level ratings

After considering the scorecard-indicated outcome, other considerations and relevant cross-sector methodologies, we typically assign a CFR to speculative-grade issuers or a senior unsecured rating for investment-grade issuers. For issuers that benefit from rating uplift from government ownership, we may assign a Baseline Credit Assessment.[17]

Individual debt instrument ratings may be notched up or down from the CFR or the senior unsecured rating to reflect our assessment of differences in expected loss related to an instrument's seniority level and collateral. The documents that provide broad guidance for such notching decisions are the rating methodology on loss given default for speculative-grade non-financial companies, the methodology for notching corporate instrument ratings based on differences in security and priority of claim, and the methodology for assigning short-term ratings.[18]

Key rating assumptions

For information about key rating assumptions that apply to methodologies generally, please see *Rating Symbols and Definitions*.[19]

Limitations

In the preceding sections, we have discussed the scorecard factors and many of the other considerations that may be important in assigning ratings. In this section, we discuss limitations that pertain to the scorecard and to the overall rating methodology.

Limitations of the scorecard

There are various reasons why scorecard-indicated outcomes may not map closely to actual ratings.

The scorecard in this rating methodology is a relatively simple reference tool that can be used in most cases to approximate credit profiles of companies in this sector and to explain, in summary form, many of the factors that are generally most important in assigning ratings to these companies. Credit loss and recovery considerations, which are typically more important as an issuer gets closer to default, may not be fully captured in the scorecard. The scorecard is also limited by its upper and lower bounds, causing scorecard-indicated outcomes to be less likely to align with ratings for issuers at the upper and lower ends of the rating scale.

The weights for each factor and sub-factor in the scorecard represent an approximation of their importance for rating decisions across the sector, but the actual importance of a particular factor may vary substantially based on an individual company's circumstances.

Factors that are outside the scorecard, including those discussed above in the "Other considerations" section, may be important for ratings, and their relative importance may also vary from company to company. In addition, certain broad methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector.[20] Examples of such considerations include the following: how sovereign credit quality affects non-sovereign issuers, the assessment of credit support from other entities, the relative ranking of different classes of debt and hybrid securities, and the assignment of short-term ratings.

We may use the scorecard over various historical or forward-looking time periods. Furthermore, in our ratings we often incorporate directional views of risks and mitigants in a qualitative way.

General limitations of the methodology

This methodology document does not include an exhaustive description of all factors that we may consider in assigning ratings in this sector. Companies in the sector may face new risks or new combinations of risks, and they may develop new strategies to mitigate risk. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

Ratings reflect our expectations for an issuer's future performance; however, as the forward horizon lengthens, uncertainty increases and the utility of precise estimates, as scorecard inputs or in other considerations, typically diminishes. Our forward-looking opinions are based on assumptions that may prove, in hindsight, to have been incorrect. Reasons for this could include unanticipated changes in any of the following: the macroeconomic environment, general financial market conditions, industry competition, disruptive technology, or regulatory and legal actions. In any case, predicting the future is subject to substantial uncertainty.

Moody's related publications

Credit ratings are primarily determined through the application of sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. A list of sector and cross-sector credit rating methodologies can be found here.

For data summarizing the historical robustness and predictive power of credit ratings, please click here.

For further information, please refer to *Rating Symbols and Definitions*, which is available here.

Moody's Basic Definitions for Credit Statistics (User's Guide) can be found here.

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Endnotes

1 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

2 The information in this report applies to automobile manufacturing company stand-alone financial statements and excludes the contribution from the finance operations where publicly available financial information permits. For the impact of captive finance subsidiaries on the standalone rating of parent manufacturers, please see the "Other considerations" section.

3 In our methodologies and research, the terms "scorecard" and "grid" are used interchangeably.

4 The introduction of a high-profit, strategically important vehicle can temporarily boost an automaker's market share position and operating performance. However, as that product ages, share position and performance are likely to weaken until the next reintroduction of the product.

5 Liquidity management is distinct from the level of liquidity, which is discussed in the "Other considerations" section.

6 Formal support agreements are typically granted by the manufacturer for the benefit of the finance company and the holders of the finance company's rated debt.

7 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

8 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

9 A link to a list of our cross-sector methodologies can be found in the "Moody's related publications" section.

10 For example, in the case of an equity stake reduction in a subsidiary down to 75%, in the parent's financial statements, all revenues and EBITDA of the subsidiary would typically still be consolidated at the group level.

11 Proportional consolidation brings a portion of the minority subsidiary's debt onto the balance sheet, but this debt is structurally senior to the debt at the parent company, because it is closer to the assets and cash flows of the minority subsidiary.

12 For an explanation of the Baseline Credit Assessment, please refer to *Rating Symbols and Definitions* and to our cross-sector methodology for government-related issuers. A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.

13 When a factor comprises sub-factors, we score at the sub-factor level. Some factors do not have sub-factors, in which case we score at the factor level.

14 For definitions of our most common ratio terms, please see *Moody's Basic Definitions for Credit Statistics (User's Guide)*. A link can be found in the "Moody's related publications" section.

15 For an explanation of our standard adjustments, please see the cross-sector methodology that describes our financial statement adjustments in the analysis of non-financial corporations.

16 A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.

17 For an explanation of the Baseline Credit Assessment, please refer to *Rating Symbols and Definitions* and to our cross-sector methodology for government-related issuers. A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.

18 A link to a list of our sector and cross-sector rating methodologies can be found in the "Moody's related publications" section.

19 A link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.

20 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

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REPORT NUMBER 1275604

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