MOODY'S
INVESTORS SERVICE

RATING METHODOLOGY
5 August 2021

TABLE OF CONTENTS

Analyst Contacts

James Wilkins +1.212.553.0528
VP-Senior Analyst
james.wilkins@moodys.com

Elena Nadtotchi +1.212.553.7991
Senior Vice President
elena.nadtotchi@moodys.com

Arvinder Saluja, CFA +1.212.553.1639
VP-Senior Analyst
arvinder.saluja@moodys.com

Janko Lukac +49.69.70730.925
VP-Senior Analyst
janko.lukac@moodys.com

Sweta Patodia +65.6398.8317
Analyst
sweta.patodia@moodys.com

Hui Ting Sim +65.6311.2643
Analyst
huiting.sim@moodys.com

» Analyst Contacts continued on last page

Rating Methodology

Refining and Marketing

This rating methodology replaces the *Refining and Marketing Industry* methodology published in November 2016. 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 processing of crude oil and intermediate feedstocks into various refined products, such as gasoline, diesel and jet fuel.

*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.

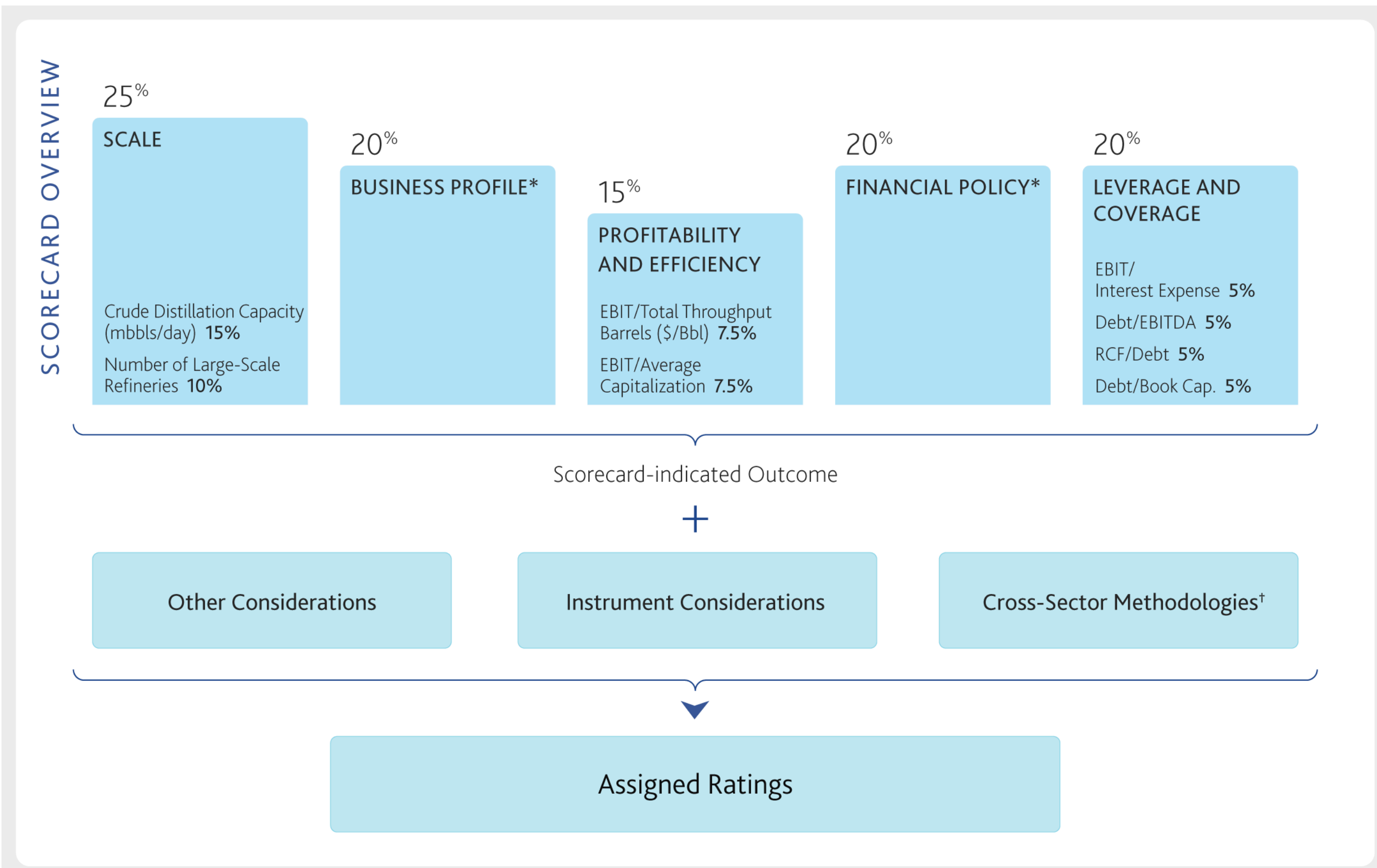
Rating approach

In this rating methodology, we explain our general approach to assessing credit risk of issuers in the refining and marketing 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 refining and marketing companies, which includes the use of a scorecard.[1] 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 refining and marketing 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

Refining and marketing 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
Refining and marketing scorecard

	SCALE (25%)		BUSINESS PROFILE (20%)	PROFITABILITY and EFFICIENCY (15%)		FINANCIAL POLICY (20%)	LEVERAGE and COVERAGE (20%)			
	Crude Distillation Capacity (mbbls/day) (15%)	**Number of Large-Scale Refineries (10%)**	**Business Profile (20%)**	**EBIT / Total Throughput Barrels ($/Bbl) (7.5%)**	**EBIT / Average Capitalization (7.5%)**	**Financial Policy (20%)**	**EBIT / Interest Expense (5%)**	**Debt / EBITDA[1] (5%)**	**RCF / Debt (5%)**	**Debt / Book Capitalization[2] (5%)**
Aaa	≥ 3,000	≥15	Industry Risk not compatible with "Aaa" rating	Industry Risk not compatible with "Aaa" rating	Industry Risk not compatible with "Aaa" rating	Expected to have extremely conservative financial policies; very stable metrics; public commitment to very strong credit profile over the long term	Industry Risk not compatible with "Aaa" rating	Industry Risk not compatible with "Aaa" rating	Industry Risk not compatible with "Aaa" rating	Industry Risk not compatible with "Aaa" rating
Aa	2,000 - 3,000	9 - 14	Industry Risk not compatible with "Aa" rating	Industry Risk not compatible with "Aa" rating	Industry Risk not compatible with "Aa" rating	Expected to have very stable and conservative financial policies; stable metrics; minimal event risk that would cause a rating transition; public commitment to strong credit profile over the long term	Industry Risk not compatible with "Aa" rating	Industry Risk not compatible with "Aa" rating	Industry Risk not compatible with "Aa" rating	Industry Risk not compatible with "Aa" rating
A	1,000 - 2,000	6 - 8	**Very Good** Strong market diversity and fundamentals; Very high quality product slate; Very good degree of feedstock flexibility; Extensive downstream integration; Supportive regulatory environment	≥ $8	≥ 15%	Expected to have predictable financial policies 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	≥ 10x	< 2x	≥ 40%	< 25%

	SCALE (25%)		BUSINESS PROFILE (20%)	PROFITABILITY and EFFICIENCY (15%)		FINANCIAL POLICY (20%)	LEVERAGE and COVERAGE (20%)			
	Crude Distillation Capacity (mbbls/day) (15%)	Number of Large-Scale Refineries (10%)	Business Profile (20%)	EBIT / Total Throughput Barrels ($/Bbl) (7.5%)	EBIT / Average Capitalization (7.5%)	Financial Policy (20%)	EBIT / Interest Expense (5%)	Debt / EBITDA[1] (5%)	RCF / Debt (5%)	Debt / Book Capitalization[2] (5%)
Baa	500 - 1,000	3 – 5	**Good** Good market diversity and fundamentals; High quality product slate; Material degree of feedstock flexibility; Material downstream integration; Supportive to neutral regulatory environment	$4 - $8	12% - 15%	Expected to have financial policies that balance the interest of creditors and shareholders; some risk that debt funded acquisitions or shareholder distributions could lead to a weaker credit profile	5x - 10x	2x - 3x	25% - 40%	25% - 35%
Ba	250 - 500	2	**Average** Moderate market diversity and fundamentals; Good quality product slate; Moderate degree of feedstock flexibility; Moderate downstream integration; Neutral regulatory environment	$2 - $4	7% - 12%	Expected to have financial policies that tend to favor shareholders over creditors; above average financial risk resulting from shareholder distributions, acquisitions or other significant capital structure changes	2.5x - 5x	3x - 4x	10% - 25%	35% - 50%
B	50 - 250	1	**Below Average** Limited market diversity and fundamentals; Lower quality product slate; Limited degree of feedstock flexibility; Minimal downstream integration; Neutral to negative regulatory environment	$1 - $2	4% - 7%	Expected to have financial policies that favor shareholders over creditors; high financial risk resulting from shareholder distributions, acquisitions or other significant capital structure changes	1x - 2.5x	4x - 6x	5% - 10%	50% - 70%

	SCALE (25%)		BUSINESS PROFILE (20%)	PROFITABILITY and EFFICIENCY (15%)		FINANCIAL POLICY (20%)	LEVERAGE and COVERAGE (20%)			
	Crude Distillation Capacity (mbbls/day) (15%)	Number of Large-Scale Refineries (10%)	Business Profile (20%)	EBIT / Total Throughput Barrels ($/Bbl) (7.5%)	EBIT / Average Capitalization (7.5%)	Financial Policy (20%)	EBIT / Interest Expense (5%)	Debt / EBITDA[1] (5%)	RCF / Debt (5%)	Debt / Book Capitalization[2] (5%)
Caa	25 - 50	0 and multiple smaller refineries	**Weak** Weak market diversity and fundamentals; Weak quality product slate; Weak degree of feedstock flexibility; Weak downstream integration; Negative regulatory environment	$0 - $1	0% - 4%	Expected to have financial policies that create elevated risk of debt restructuring in varied economic environments	0.5x - 1x	6x - 8x	1% - 5%	70% - 90%
Ca	< 25	0 and single small refinery	**Threatening** Poor market diversity and fundamentals; Poor quality product slate; Poor degree of feedstock flexibility; No downstream integration; Threatening regulatory environment	< $0	< 0%	Expected to have financial policies that create elevated risk of debt restructuring even in healthy economic environments	< 0.5x	≥ 8x	< 1%	≥ 90%

[1] When debt is zero, the score is A. When debt is positive and EBITDA is negative, the score is Ca.
[2] When debt is zero, the score is A. When debt is positive and capitalization is negative, the score is Ca.
Source: Moody's Investors Service

Sector overview

Refining and marketing companies are a diverse group that are made up of large and small independent companies, government owned/supported entities, and issuers that are owned by large sponsors.

The global refining and marketing industry is fragmented, highly competitive – both regionally and worldwide – and extremely capital intensive. Both revenues and costs are subject to global and regional commodity price forces that are usually beyond any one issuer's control.

Refineries process a variety of crude oils and other feedstocks into petroleum products such as gasoline, diesel, and jet fuel. Some refining and marketing companies also have midstream or petrochemical operations with varying scale. Marketing involves the distribution of petroleum products through a variety of wholesale and retail (service stations) channels.

Crude and refined products are international commodities that are traded freely on the open market, with major trading hubs. Refined product prices are determined by both regional and global supply/demand fundamentals. The industry is inherently cyclical, following global and regional patterns of economic growth and product demand and industry patterns of investment, surplus and shortage. During periods of high refining margins, companies may find it economical to add capacity. This typically pressures margins when demand growth slows or declines.

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: Scale (25% weight)

Why it matters

Scale is an important indicator of the overall depth of a company's business and its success in attracting a variety of customers, as well as its resilience to shocks, such as sudden shifts in demand or rapid changes in commodity prices for crude oil and refined products. Larger refining and marketing companies benefit from more financial resources and tend to be more broadly diversified, which can reduce volatility and credit risk.

Companies with substantial refining capacity and several large-scale refineries usually exhibit a high degree of operational and geographic diversification. For example, having multiple refineries or a large-scale refinery offers a higher degree of optionality for refiners to adjust their crude sources, throughput volumes, or product slate to adapt to changing margins. Larger scale also tends to facilitate access to the capital markets through various points in the cycle, not just when times are good.

This factor has two sub-factors:

Crude Distillation Capacity

Crude distillation capacity captures a refiner's total crude processing capacity on a daily basis without regard to the types of crude oil it runs or the type of products that are produced.

While crude distillation capacity is not a guarantee of acceptable returns in an industry that is susceptible to excess capacity, refining is a volume-driven business with a large fixed cost component that benefits from economies of scale. A company with significant capacity is also generally in a better position than a small refiner to negotiate discounts on crude and other feedstock supplies. It is also more likely to have logistics assets such as pipelines and terminals that can provide more efficient market access.

Number of Large-Scale Refineries

We define large-scale refineries as those having more than 100,000 barrels per day of crude distillation capacity. We also consider the number of redundant process trains in a refinery, as multiple trains in large-scale refineries provide redundancies that can help mitigate the effects of unplanned downtime. For example, we consider a refinery with 500,000 barrels per day of crude distillation capacity and two full process trains as equivalent to two large-scale refineries.

Economies of scale can benefit a large-scale refinery by enabling it to reduce unit costs and improve efficiency. A large-scale refinery is more likely than a smaller unit to be the efficient survivor during a period of low refining margins. Large scale refineries also typically have more options and greater flexibility in terms of expansions and/or upgrades that could benefit credit quality.

Companies with more operational diversity are also better positioned to withstand unexpected downtime that is inherent in this business. Owning only one refinery exposes a company to extended outages or shutdowns and total loss of cash flows resulting from a natural disaster (floods, hurricanes) or accidents like fires or leaks in certain processing units, or strikes.

How we assess it for the scorecard

Scale is measured (or estimated in the case of forward-looking expectations) using crude distillation capacity (mbbls/day) and number of large-scale refineries.

Factor: Business Profile (20% weight)

Why it matters

The business profile of a refining and marketing company provides an indication of the likely variability in its performance, competitiveness and long-term viability. It includes the strength of an issuer's refinery characteristics and operating environment. Core aspects of a refining and marketing company's business profile are its market diversity and fundamentals, quality of product slate, feedstock flexibility, downstream integration, and regulatory environment. While the refining and marketing sector is inherently volatile and cyclical, participants in the sector can have notable differences in these underlying aspects of their business profile.

Market Diversity and Fundamentals

Greater end market diversity can help stem cash flow volatility. Exposure to seasonality, margin characteristics, supply and demand fundamentals, regulations and other factors can vary from market to market and across national boundaries. For example, a niche market position in a region with few refineries, competitive pricing and low competition from imports because of limited pipeline access can be beneficial to a company's cash flows.

Quality of Product Slate

The larger the proportion of high-value products in a refinery's product yield, the more complex the refinery (i.e., the more processing units it has) and the higher the value of its refined product output. Refineries that produce large amounts of residual fuel oil, for example, generate lower revenue than those whose product slates have a higher middle distillate and gasoline component. However, depending on market conditions and relative price differences in light and heavy crudes, a high complexity refinery may not necessarily be the most profitable one across an industry cycle. Likewise, a less complex refinery well-positioned in a niche market may be more profitable than a large complex one.

Feedstock Flexibility

Feedstock costs are affected by the general level of crude oil prices, by the types of crude oils a refinery can process (its crude slate) as determined by the refinery's configuration (the processing units within the refinery), the refinery's location (near growing local crude production, land-locked, on a river, near ports) and by transportation costs. Diversity of crude sources is important because heavy reliance on one source could force a refiner to shut down its operations if that source becomes unavailable or faces a significant, near-term decline. The relative competitiveness and sources of a refiner's energy costs, which are the single largest cost for refiners after the purchased crude, is also important. In addition, refiners with regional integrated crude oil sourcing incur lower transportation costs as compared to refiners that must import crude. However, reliance on regional crude production that is mature or declining exposes a refinery to supply risk and margin deterioration.

Downstream Integration

The economic integration of refining operations with retail marketing networks or with petrochemical operations can help diversify a refiner's earnings and cash flow. Substantial midstream logistics infrastructure such as pipelines, terminals, railcars, barges, storage, treatment and offloading assets can be particularly beneficial to refiners in both sourcing crude and accessing a variety of refined product end markets, as well as a source of additional value and third-party earnings. Downstream retail integration eliminates the middlemen and reduces exposure to discounting during periods of excess capacity. In addition, because changes in wholesale prices attributable to crude price movements take longer to be reflected in retail prices, marketing earnings tend to be more stable than earnings from refining. Refiners with no retail marketing segment generally exhibit greater margin volatility (higher peaks and lower lows) than companies that have significant retail operations.

Regulatory Environment

Government regulations can be supportive, neutral or detrimental to a refiner's credit quality. Over time, the global refining and marketing industry has been subject to increasing environmental regulations and mandates that require companies to make substantial investments in their assets without necessarily receiving compensation in the form of higher product prices. The decision on these low to no-return investments often boils down to refiners either making the expenditures or closing a refinery that does not meet the more stringent requirements. Government pricing policies can also impact a refiner's credit quality. Intense political pressure can prompt refiners to voluntarily reduce (or limit the timely increase in) refined product prices.

Barriers to entry or import protections are also an important consideration as they can indicate how a refiner is positioned in its markets.

Government regulations in some import-dependent countries can mandate that refining and marketing companies hold minimum refined product inventories. This creates high working capital burdens, which are often debt-financed.

How we assess it for the scorecard

Scoring for this factor is based on our assessment of a company's market diversity and fundamentals; quality of product slate; feedstock flexibility; downstream integration; and regulatory environment.

Scoring for this factor cannot exceed the A rating category. Industry risk within the refining and marketing sector is not compatible with either the Aa or Aaa rating categories due to inherent cyclicality and volatility, capital intensity, and environmental and legal risk.

Generally, we do not expect a given company's business profile to exactly match each of the attributes listed for a given scoring category. We typically assign the factor score to the alpha category for which the company has the greatest number of characteristics. However, there may be cases in which one characteristic is sufficiently important to a particular company's credit profile that it has a large influence on the factor score. For example, limited market diversity (particularly if due to limited operational diversity) or limited to no downstream integration, both of which can negatively impact cash flow stability, can influence overall scoring. Similarly, material exposure to a negative or threatening regulatory environment can negatively constrain scoring.

MARKET DIVERSITY AND FUNDAMENTALS:

We consider the diversity and nature of end-markets served, both domestically and internationally, the refined product demand fundamentals of markets served, and the degree of exposure to niche, regulated, or competitive markets that may or may not have favorable pricing dynamics. We also consider market position in a region if it is supportive of more favorable pricing dynamics.

QUALITY OF PRODUCT SLATE:

We assess an issuer's yields of higher quality products (e.g., middle distillates, specialty lubricants, gasoline, and ability to meet high environmental specifications) versus lower quality products (e.g., fuel oil, lower environmental specifications). We also consider the demand fundamentals for the refiner's product slate and product slate flexibility. Generally, the highest quality product slates have high diesel or lube yields with limited bottoms. Mid-range scoring refiners show yields weighted more heavily to gasoline. The lowest quality product slates typically have high residual oil yields or lower quality environmental specifications.

FEEDSTOCK FLEXIBILITY:

We consider if the issuer has access to various sources of crude at favorable terms, if the issuer is able to process various types of crude (due to high process complexity), and if the issuer is reliant on imports. We also consider if the issuer is advantaged or disadvantaged in its energy costs relative to peers.

DOWNSTREAM INTEGRATION:

We assess the extent to which the refinery operations are integrated with retail marketing, petrochemical assets, and midstream logistics infrastructure.

REGULATORY ENVIRONMENT:

We assess whether government regulations and the operating environment are supportive, neutral, or negative to the issuer's long-term financial performance. We consider if there are high regulatory spending requirements, what government policies are with regards to effective pass-through of costs, and if there are barriers to entry/import protection.

Factor: Profitability and Efficiency (15% weight)

Why it matters

Profitability and efficiency measures are key to management of a refining and marketing operation, which is a commodity business. Fundamentally, reliable levels of profitability and efficiency indicate whether a refiner can expect to remain a going concern regardless of industry conditions.

Trends in a refiner's profitability allow us to determine the main drivers of the company's earnings and cash flow through cycles of varying margin volatility, providing valuable insight into operating efficiency as well as the quality of refining and marketing assets. Understanding these drivers allows us to form an overall opinion on the earnings power of a refiner's asset base and its ability to make capital investments necessary to remain profitable going forward. Efficiency metrics also reflect the impact of debt financing for the enterprise and encompass the large amounts of invested capital.

A refinery's gross margin (or crack spread) is determined by the price it receives for its refined products less the cost of feedstocks (over 80% of which is typically comprised of crude oil). However, using a benchmark crack spread as a proxy for profitability is generally not a reliable indicator of a refinery's profitability since it does not account for losses that may be incurred on lower value products (by-products), nor does it take into account crude or product differentials a particular refinery may actually realize or its other cash operating costs. It is important to look at realized profitability on each barrel run through a company's refineries in order to sift through the noise that a generic crack spread contains.

To achieve competitive profitability and efficiency through cycles, a refining and marketing company has to maintain a lean cost structure, controlling cash operating costs while also optimizing invested capital. Because refineries are characterized by high operating leverage and are volume-driven, we consider not only the company's cost structure but also management's track record in operating refineries with minimum unplanned downtime.

Refineries are heavily capital-intensive and have high maintenance costs. Aside from routine maintenance, they require more extensive turnarounds every four to five years. Refiners must also comply with environmental rules. Strategic projects designed to improve a refinery's product slate, expand its capacity to increase product yields, or reduce the cost of its crude slate can involve significant amounts of capital.

In addition to reviewing a company's overall profitability and efficiency, we believe it is important to examine the profitability and efficiency of each individual refinery, particularly in the case of small refining companies with relatively few assets. A refinery-by-refinery analysis is helpful in identifying specific geographic considerations, assessing whether a company will need to make capital investments in the future to improve a refinery's operating performance and profitability, and determining whether a particular refinery is more vulnerable to margin swings and if it may be a candidate for being idled if margin weakness is expected to be persistent. The refinery-by-refinery analysis can also assist with refinery valuation in the event that debt is secured by refining assets.

We compare a refining company's profitability and efficiency with that of its regional and international peers to assess relative performance at different refining margin levels. Profitability and efficiency metrics are volatile and cyclical, as is the refining industry cycle. An important element of our analysis is the relative ranking of peer performance through cycles.

How we assess it for the scorecard

Our assessment of this factor is based on two sub-factors: EBIT/Total Throughput Barrels; and EBIT/Average Capitalization.

Scoring for the Profitability and Efficiency factor cannot exceed the A rating category. Industry risk within the refining and marketing sector is not compatible with either the Aa or Aaa rating categories due to inherent cyclicality and volatility, capital intensity, and environmental and legal risk.

EBIT / TOTAL THROUGHPUT BARRELS:

We use the ratio of earnings before interest and taxes to total throughput barrels (EBIT/Total Throughput Barrels). We use an issuer's one-year consolidated unit EBIT in US dollars. We do not use refining-only EBIT, which would exclude earnings from retail marketing, petrochemicals and other non-refining businesses because it is not publicly reported on a consistent basis. We believe it is more useful to measure a refiner's unit EBIT as opposed to absolute EBIT. Thus, we divide EBIT by the total throughput of all of its refineries (throughput is defined as crude and other feedstock volumes processed by the refineries over a one-year period), noting that EBIT contains earnings from all of the company's operations, not just refining. A unit measure results in greater comparability of one refiner to another by eliminating distortions created by differences in refining capacity. For example, one refiner may generate larger absolute EBIT than another, but when measured against throughput volume, it may actually be less profitable.

While unit gross margins and cash operating costs would also be very useful measures, companies often do not report this data publicly because of competitive concerns. When they do, the methods used to calculate refining and retail margins can vary, making comparisons difficult. For refiners that capitalize turnaround costs, we adjust EBIT in order to account for these costs as operating expenses. We also adjust EBIT for non-cash inventory gains/losses to account for swings in the value of crude and product inventories and other items per our standard adjustments.

EBIT / AVERAGE CAPITALIZATION:

We use the ratio of EBIT to average capitalization (EBIT/Average Capitalization), which is a measure of the consolidated return on all of a company's sources of capital.

EBIT is measured over a one-year period (we do not use refining only EBIT, which is not available in most cases). Average capitalization includes total debt plus book equity, minority interests and deferred taxes. Capitalization is an average of the current and prior year-end amounts to attempt to reflect flow items that change the balance sheet during the year.

Factor: Financial Policy (20% 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 structures.

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 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.

How we assess it for the scorecard

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

Management's appetite for M&A activity is assessed with a focus on the cost of the type of transactions and funding decisions. Frequency and materiality of acquisitions and previous financing choices are evaluated. A history of debt-financed or credit-transforming acquisitions generally results in a lower score for this factor.

We also consider a company 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.

We consider this factor in the context of the relatively high level of operating risk of the refining and marketing sector, including its inherent volatility and cyclicality and high working capital needs. Potential for parental or institutional financial support is a rating consideration that is factored into our rating analysis outside of the scorecard.

Factor: Leverage and Coverage (20% weight)

Why it matters

Leverage and coverage measures are indicators of a company's financial flexibility and long-term viability. Financial flexibility is critical to refining and marketing companies to be able to withstand industry troughs. For a refining and marketing company, an over-reliance on debt financing is detrimental to credit quality, given the sector's vulnerability to sudden declines in margins and cash flow combined with the extreme capital intensity of the business.

We thus seek to determine the extent to which a refiner's cash flow can service its debt through a refining cycle. Our analysis also considers working capital needs, dividends and capital spending programs. Refiners have limited ability to cut or defer scheduled maintenance and refinery turnarounds for more than a short period, as these are essential to reliable performance. Strategic capital for capacity expansions or de-bottlenecking projects is easier to pare back than mandatory capital spending for maintenance and environmental compliance. However, once an expansion project is underway, refiners have less flexibility to shut it down.

This factor is comprised of four sub-factors:

EBIT / Interest Expense

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

Debt / EBITDA

The ratio of total 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.

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.

Certain independent refiners do not pay regular dividends. However, for refiners that do pay dividends, we view these payments as fixed because of the highly volatile nature of refinery cash flows and the reluctance of most companies to cut their dividends except as a last resort, noting the highly volatile nature of refinery cash flows.

Debt / Book Capitalization

The ratio of total debt to book capitalization (Debt/Book Capitalization) is a measure of balance sheet leverage that indicates how much of a company's capital structure is composed of debt and debt-like obligations. Companies frequently use this ratio to set the range of leverage in which they choose to operate, so this ratio also provides an indication of management's risk tolerance and a reference point for comparing the capital structures of companies within the industry.

How we assess it for the scorecard

Our assessment of this factor is based on four sub-factors: EBIT/Interest Expense; Debt/EBITDA; Retained Cash Flow/Debt; and Debt/Book Capitalization.

Scoring for the Leverage and Coverage sub-factors cannot exceed the A category because of the inherent cyclicality and volatility, capital intensity, and environmental and legal risk of the refining and marketing sector.

In assessing the sub-factors, we use one-year ratios, which can be volatile depending on the stage of the refining cycle. The scorecard break-points are calibrated to mid-cycle conditions. We sensitize earnings and cash flows for different refining margin environments, including both a mid-cycle and trough year analysis. Our analysis considers whether companies can remain profitable at weak margin levels and what levels of cash flow they can be expected to generate, and whether they can reasonably cover debt service and dividends, as well as be able to reinvest sufficient capital to maintain sound refining operations and comply with environmental mandates.

EBIT / INTEREST EXPENSE:

The numerator is EBIT, and the denominator is interest expense.

DEBT / EBITDA:

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

RCF / DEBT:

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

DEBT / BOOK CAPITALIZATION:

The numerator is total debt, and the denominator is book capitalization.

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.

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.

Environmental, Social and Governance Considerations

Environmental, social and governance (ESG) considerations may affect the ratings of issuers in the refining and marketing sector. For information about our approach to assessing ESG issues, please see our methodology that describes our general principles for assessing these risks,[2] as well as the discussion of the Business Profile factor.

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.

Investment and Acquisition Strategy

In our credit assessment we may take into consideration management's investment strategy. Investment strategy is benchmarked with that of other companies in the rated universe to further verify its consistency. Acquisitions can strengthen a company's business. Our assessment of a company's tolerance for acquisitions at a given rating level typically takes into consideration (i) management's risk appetite, including the likelihood of further acquisitions over the medium term; (ii) share buy-back activity; (iii) the company's commitment to specific leverage targets; and (iv) the volatility of the underlying businesses, as well as that of the business acquired. Strategic fit, pro forma capitalization/leverage following an acquisition, and our level of confidence in pro forma credit metrics (e.g. where applicable, that metrics will be restored in a relatively short time frame) are typically also important considerations.

Financial Controls

We rely on the accuracy of audited financial statements to assign and monitor ratings. 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 consideration for all refining and marketing 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 non-investment grade refining and marketing companies where issuers typically have less operating and financial flexibility, and ratings can be heavily affected by extremely weak liquidity. Liquidity becomes very important during weak margin environments, which can limit a refiner's cash flow, and during periods of high or rapidly rising crude prices, which require high working capital investment. Non-investment grade refiners must often post letters of credit in support of crude purchases. We form an opinion on likely near-term liquidity requirements from both a cash source and cash use aspect and also factor in peak letter of credit needs at high crude oil pricing environments. We assess both internal and external liquidity, including the quality of committed bank credit facilities and degree of reliance on short-term debt financing and uncommitted credit lines. We may also monitor bank covenants and compliance cushion to assess whether the company is likely to require covenant relief in the event of even a modest industry downturn or an issuer-specific decline in performance. For more details on our approach, please see our liquidity cross-sector methodology.[3]

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 from an accident — can overwhelm even a stable, well-capitalized firm. Some other types of event risks include M&A, asset sales, spin-offs, capital restructuring programs, litigation, pandemics, significant cyber-crime events and shareholder distributions.

Parental Support

Ownership can provide ratings lift for a particular company in the refining and marketing industry if it is owned by a highly rated owner(s) and is viewed to be of strategic importance to the owner(s). In our analysis of parental support, we consider whether the parent has the financial capacity and strategic incentives to provide support to the issuer in times of stress or financial need (e.g., a major capital investment or advantaged crude supply agreement), 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.[4] 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.

Business Diversification

Issuers in the refining and marketing sector may benefit from diversification into other business lines. While not integrated companies, per se, the credit profiles of refiners with meaningful upstream or downstream investments can benefit from the earnings and cash flow diversification and modest integration.

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,[5] 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,[6] 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[7] 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

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 4
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	x ≥ 19.5

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 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.[8]

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.[9]

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.[10]

Key rating assumptions

For information about key rating assumptions that apply to methodologies generally, please see *Rating Symbols and Definitions*.[11]

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.[12] 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.

Authors

Gretchen French

Laura Barrientos

Endnotes

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

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

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

4 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.

5 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.

6 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.

7 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.

8 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.

9 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.

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

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

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

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

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

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

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

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

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

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

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

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

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

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

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

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

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

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.moodys.com for the most updated credit rating action information and rating history.

REPORT NUMBER 1277301

Analyst Contacts

Vikas Halan +65.6398.8337
Associate Managing Director
vikas.halan@moodys.com

Steven Wood +1.212.553.0591
MD-Corporate Finance
steven.wood@moodys.com

Matthias Hellstern +49.69.70730.745
MD-Corporate Finance
matthias.hellstern@moodys.com

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

Moody's
INVESTORS SERVICE