MOODY'S INVESTORS SERVICE

RATING METHODOLOGY
25 February 2022

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Rating Methodology

Diversified Technology

This rating methodology replaces the *Diversified Technology* methodology published in August 2018. We have reordered and have made editorial updates to various sections of the methodology, and we have changed the presentation of the scorecard. We have removed outdated information. These updates do not change our methodological approach.

Scope

This methodology applies to companies globally that are primarily* engaged in the design, manufacturing, and distribution of technology hardware and communication equipment products. The very broad diversified technology sector is highly fragmented and includes many sub-sectors such as personal computers, servers, storage and networking systems, smartphones and tablets and mailing and office equipment. Many companies rated using this methodology have diversified technology profiles, such that in addition to hardware, they generate revenue from software, services and captive finance operations.

Technology companies that focus primarily on semiconductors, distribution, manufacturing, software or services are rated using other rating methodologies.[1]

As we explain in the appendix, "Captive finance companies," some of the rated debt for the companies relates to the captive finance operations of these companies. These captives typically do not file separate financial statements with the level of detailed exposure typical of companies rated using our captive finance company rating methodology.[2] However, their consolidation with the industrial parent complicates analytical comparison with the diversified technology companies that do not have similar subsidiaries. We make quantitative adjustments to financial metrics for companies with captive finance operations as a means to create a common basis for peer comparison, while also considering the incremental credit impact of these captive finance operations on the companies' overall creditworthiness.

*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.

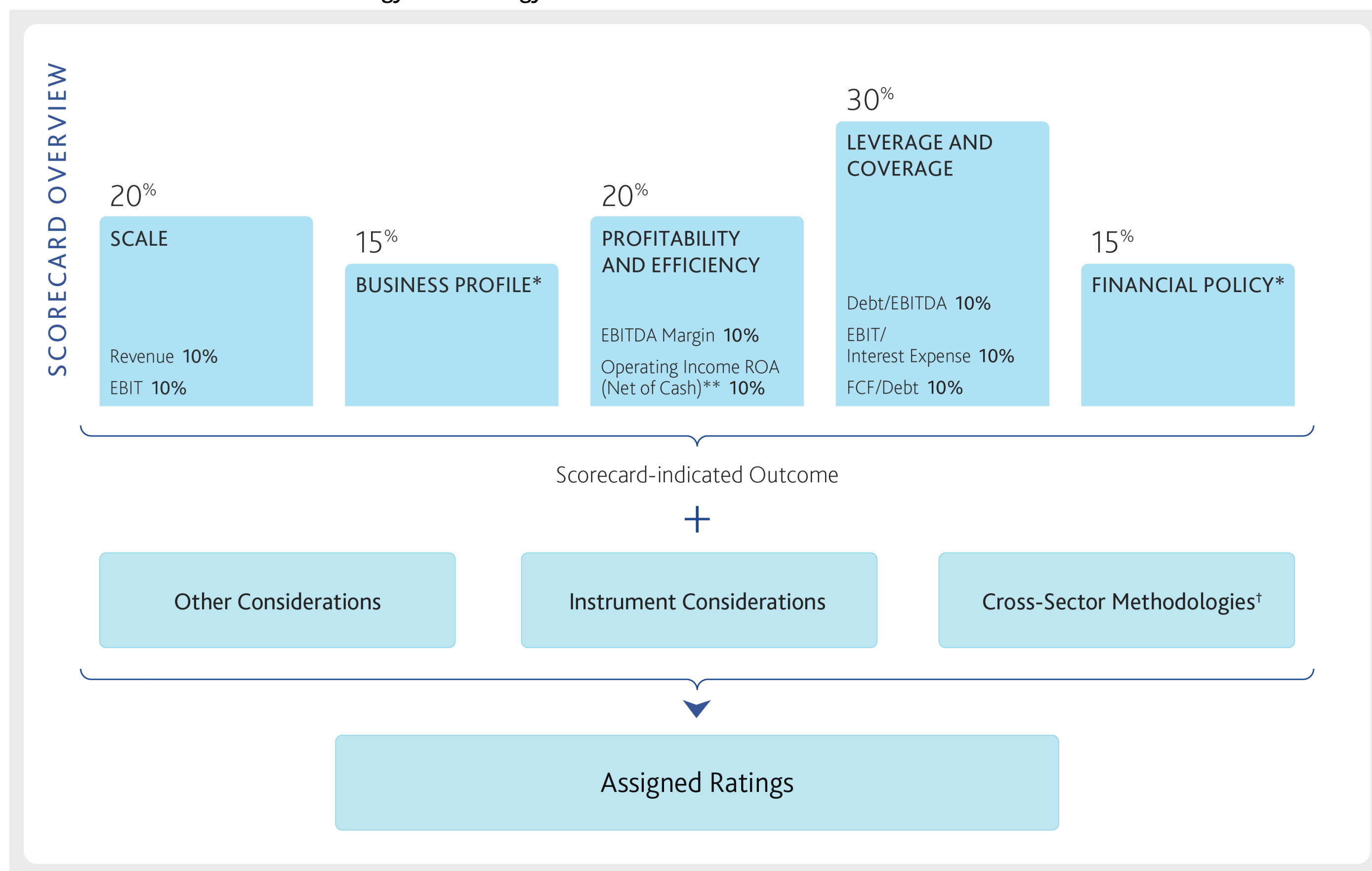
Rating approach

In this rating methodology, we explain our general approach to assessing credit risk of issuers in the diversified technology 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 diversified technology companies, 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 diversified technology methodology framework



* This factor has no sub-factors.

** Cash is defined as cash plus liquid short-term and long-term investments, which are typically marketable securities. Some companies report liquid investments under different names and we may make adjustments when calculating or estimating this ratio.

† 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

Diversified technology 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

Diversified technology scorecard

	SCALE (20%)		BUSINESS PROFILE (15%)	PROFITABILITY and EFFICIENCY (20%)		LEVERAGE and COVERAGE (30%)			FINANCIAL POLICY (15%)
	Revenue (USD Billion) (10%)	EBIT (USD Billion) (10%)	Business Profile (15%)	EBITDA Margin (10%)	Operating Income ROA (Net of Cash & Mkt Sec) (10%)	Debt / EBITDA[1] (10%)	EBIT / Interest Expense (10%)	FCF / Debt (10%)	Financial Policy (15%)
Aaa	≥ $60	≥ $6	Expected volatility in results is almost non-existent. Supported by a commanding market position, entrenched cost effectiveness, technology advantages, and a well balanced global reach	≥ 27%	≥ 20%	< 0.5x	≥ 16x	≥ 35%	Expected to have extremely conservative financial policies; very stable metrics; public commitment to very strong credit profile over the long term
Aa	$30 - $60	$2 - $6	Very low expected volatility in results. Supported by a deeply entrenched and leading market position that is highly defensible through cost effectiveness and technology leadership with global exposure	24% - 27%	15% - 20%	0.5x - 1x	12x - 16x	30% - 35%	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
A	$15 - $30	$1 - $2	Low expected volatility in results. Supported by a strong market position, sustainable competitive advantages and solid diversity characteristics	21% - 24%	12.5% - 15%	1x - 1.5x	8x - 12x	25% - 30%	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
Baa	$5 - $15	$0.5 - $1	Moderate expected volatility in results. Supported by a solid market position with modest product differentiation. Good diversity characteristics provide a buffer against sudden shifts in demand	18% - 21%	10% - 12.5%	1.5x - 2.5x	4x - 8x	20% - 25%	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
Ba	$2 - $5	$0.25 - $0.5	Products are largely undifferentiated and the marketplace highly price competitive, exposing the company to periods of heightened volatility. Such exposure is tempered by an established market position and a favorable cost structure and fair diversity characteristics	15% - 18%	5% - 10%	2.5x - 4x	2x - 4x	10% - 20%	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
B	$1 - $2	$0.01 - $0.25	Products are undifferentiated, competition is intense and customers price sensitive, making results highly volatile. Company does not have advantageous cost profile or other competitive advantage to mitigate	12% - 15%	2.5% - 5%	4x - 6x	1x - 2x	5% - 10%	Expected to have financial policies that favor shareholders over creditors; high financial risk resulting from shareholder distributions, acquisitions or other significant capital structure changes

	SCALE (20%)		BUSINESS PROFILE (15%)	PROFITABILITY and EFFICIENCY (20%)		LEVERAGE and COVERAGE (30%)			FINANCIAL POLICY (15%)
	Revenue (USD Billion) (10%)	EBIT (USD Billion) (10%)	Business Profile (15%)	EBITDA Margin (10%)	Operating Income ROA (Net of Cash & Mkt Sec) (10%)	Debt / EBITDA[1] (10%)	EBIT / Interest Expense (10%)	FCF / Debt (10%)	Financial Policy (15%)
Caa	$0.25 - $1	$0 - $0.01	Results are expected to be extremely volatile. Company has modest market presence, few competitive advantages or may have above average costs	5% - 12%	0% - 2.5%	6x - 8x	0x - 1x	0% - 5%	Expected to have financial policies that create elevated risk of debt restructuring in varied economic environments
Ca	< $0.25	< $0	Near term results are difficult to predict with any degree of confidence. No material competitive advantage	< 5%	< 0%	≥ 8x	< 0x	< 0%	Expected to have financial policies that create elevated risk of debt restructuring even in healthy economic environments

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

Sector overview

The highly competitive diversified technology sector includes companies that produce a wide range of products ranging from computers, servers, storage devices, communication equipment, hard disk drives, software, printers and copiers, consumer electronics, and services. Some companies also undertake consulting activities and finance operations. The sector includes large diversified competitors, as well as smaller, specialized companies. Many companies have diversified technology profiles, such that in addition to hardware, they generate revenue from software, services and captive finance operations.

Overall, the industry is characterized by uncertainties related to technology development; the pace of customer adoption of new products or services; periodic, intense pricing pressure; as well as ebbs and flows of the general economy. Companies with higher credit ratings tend to have diverse revenue streams or a high level of recurring revenue derived from services or supplies that follow an initial hardware sale.

Competition is also a defining feature for the industry. Throughout the various sub-sectors, competition generally evolves around technology, performance, price, quality, reliability, brand, distribution, customer service and support. Since product life cycles can be short, companies must continually invest in product enhancements as well as new products and services to remain competitive. Firms with strong balance sheets are able to continue investing during the down cycles. These firms are better positioned to address the sector's competitive demands and to gain market share through industry cycles.

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 (20% 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 cost increases. Larger scale can be an indicator of a company's ability to influence business trends and pricing within the industry and to support a stable or growing market position. Scale also can be an indicator of greater resilience to changes in product demand, geographic diversity, cost absorption, R&D capabilities and bargaining strength with customers and suppliers.

How we assess it for the scorecard

Scoring for this factor is based on two sub-factors: Revenue; and EBIT (earnings before interest and taxes).

REVENUE:

Scale is measured (or estimated in the case of forward-looking expectations) using total reported revenue in billions of US dollars.

EARNINGS BEFORE INTEREST AND TAXES (EBIT):

Scale is measured (or estimated in the case of forward-looking expectations) using total reported EBIT in billions of US dollars.

Factor: Business Profile (15% weight)

Why it matters

The business profile of a diversified technology company is important because it provides an indication of its ability to generate stable and sustainable cash flows. End-market diversification is viewed positively because it mitigates the risk that a change in any individual industry or vertical market will significantly impair profitability and cash flow. Market share is an important component of business profile as it can indicate the level of competitive success, the depth of customer relationships and likely prospects for future performance.

How we assess it for the scorecard

We assess the level of expected volatility in results and consider a company's market position and diversification. A company with both diversification and stability of market share typically receives a higher score for this factor. A strong position in one of these areas with weakness in the other is likely a limit to the long-term stability of cash flows.

Factor: Profitability and Efficiency (20% weight)

Why it matters

Profitability and efficiency are indicators of the level of control that a company has over its profit margins and management's effectiveness in using the levers available to it to preserve competitive profit margins in a way that creates strong and sustainable relationships with customers and consumers. In an industry where cost efficiency is crucial for cash generation, a track record of cost savings, without eroding growth prospects, product quality or levels of R&D, is a credit strength.

Operating income return on average assets (net of cash and liquid short-term and long-term investments) provides an indication of a company's ability to generate profits from its assets base. ROA provides insight into management's execution ability, by providing an indication of management's capacity to continue investing in assets to derive value from the business.

How we assess it for the scorecard

Scoring for this factor is based on two sub-factors: EBITDA Margin; and Operating Income Return on Assets (ROA).

EBITDA MARGIN:

The numerator is the earnings before interest, taxes, depreciation and amortization, and the denominator is revenue (EBITDA/revenue).

OPERATING INCOME ROA (NET OF CASH + LIQUID SHORT-TERM AND LONG-TERM INVESTMENTS):

The numerator is operating income, and the denominator is average assets (net of cash and liquid short-term and long-term investments). Average assets is calculated or estimated by taking the average of total assets minus the average of cash, cash equivalents and liquid short-term and long-term investments over the past two years.

Factor: Leverage and Coverage (30% weight)

Why it matters

Leverage and coverage measures provide important indications of how much financial risk a diversified technology company is willing to undertake. These metrics are also important indicators of a company's ability to sustain its competitive position, invest in growth opportunities and service debt.

The factor comprises three sub-factors:

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.

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.

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 compared with Debt/EBITDA, because it compares cash flow generation after working capital movements, capital expenditures and dividends to total debt.

How we assess it for the scorecard

Scoring for this factor is based on three sub-factors: Debt/EBITDA; EBIT/Interest Expense; and FCF/Debt.

DEBT / EBITDA:

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

EBIT / INTEREST EXPENSE:

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

FCF / DEBT:

The numerator is free cash flow, and the denominator is total debt.

Factor: Financial Policy (15% weight)

Why it matters

Management and board tolerance for financial risk is a 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 for 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, distribute cash to shareholders, or to execute a 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 pressures.

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 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 debt holders 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.

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 diversified technology sector. For information about our approach to assessing ESG issues, please see our methodology that describes our general principles for assessing these risks.[4]

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.

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.

Excess Cash Balances
Some companies in this sector may 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(s) 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, 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 (or gross) debt rather than net debt, we do consider excess cash holdings in our rating analysis, including 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.

Liquidity

Liquidity is an important rating consideration for all diversified technology 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 diversified technology companies where issuers typically have less operating and financial flexibility, and ratings can be heavily affected by extremely weak liquidity. 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.[5]

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 diversified technology sector 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 issuer in times of stress or financial need (e.g., a major capital investment or advantaged operating 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.[6] For example, price controls, onerous taxation and high distributions can have a negative effect on an issuer's underlying credit profile.

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,[7] 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,[8] 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[9] 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.[10]

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.[11]

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.[12]

Key rating assumptions

For information about key rating assumptions that apply to methodologies generally, please see *Rating Symbols and Definitions*.[13]

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.[14] 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.

Appendix: Captive finance companies

Finance operations are fundamentally different from non-finance operations in many respects, including margin structure, interest coverage, capital adequacy, returns on assets, and cash flow generation. We may account for these elements in our analysis of companies with material finance operations by adjusting their key financial metrics. Without these adjustments, peer comparisons of data and ratios are difficult because not all companies have finance operations. We typically use publicly available financial disclosure, and we rely on much of this information to adjust our key metrics (see below), we may also use insights derived from information obtained from other sources, such as discussions with management, our observations of other companies in the sector, and broad industry trends.

For each company with captive finance operations, we typically evaluate the finance business by considering profitability, returns, leverage, liquidity, asset quality and operational scale. In addition to these quantitative elements, we assess the strategic importance of the company's finance business to the parent's overall strategy. Our overall assessment of the impact of a finance business on a diversified technology company's credit profile is informed by quantitative and qualitative elements.

Credit Impact

Finance operations enable technology companies to provide financing options to customers and have been associated with companies in this sector that have had solid returns and consistent profitability. However, these operations also pose challenges for managing asset quality and liquidity. Finance operations are confidence sensitive due to their heavy reliance upon short-term financing. These operations reflect the usefulness of finance businesses in establishing and maintaining stronger customer relationships, particularly in the broader technology sector where financing can be an important part of an overall information technology solution for a customer.

Summary of Adjustments Analysts are Likely to Make for Diversified Technology Entities with Captive Finance Operations

We typically make adjustments for diversified technology companies with captive finance operations as follows:

» We adjust the balance sheet to eliminate our estimate of finance-related assets, debt and equity. We generally assume a seven times debt-to-equity ratio for net finance assets. Information for this adjustment is typically based on public disclosures regarding finance assets, which permit us to estimate the mix of debt and equity related to the finance business.

» We adjust the income statement to eliminate income that we estimate is attributable to finance operations.

» Using reported or estimated changes in finance receivables and in equipment on operating leases, as well as for estimated net income of captive finance operations, we adjust cash flow from operations by moving these changes to the investing section of the statement of cash flows.

» The specific adjustments discussed below are generally applied unless we have financial or other information regarding a particular company's finance operations that would cause us to believe that a different approach is more appropriate. Although there is variation in the composition of finance assets, liabilities and profitability across the sector, the typical adjustments discussed below provide a framework for comparing results across the sector.

Adjustments to Debt and Leverage

The capital structure of companies with captive finance operations, consistent with pure play finance companies, typically employs a higher mix of debt financing (relative to that used by non-finance operations) to support and fund finance assets. To adjust for finance operations as a means to normalize debt and equity levels we typically assume a seven times debt-to-equity level for finance assets.

In contrast to a manufacturer, debt supporting finance assets is repaid is by a reduction of the finance assets/receivables. Hence, to better evaluate and compare the non-finance business of these diversified technology companies to peer companies without financing operations, we remove the finance receivables from the balance sheet assets, as well as debt and equity that are allocated to the finance business.

Adjustments to the Income Statement

We adjust the income statement for income that we estimate is attributable to finance operations. We typically assume that the captive finance companies earn a four percent pretax return on average assets and multiply the average of beginning of period and end of period finance assets by four percent to derive an estimate for finance company pretax income. We reduce each company's quarterly and annual earnings by the respective amount of quarterly and annual finance pretax income by adjusting cost of goods sold.

Adjustments to Cash Flow

We adjust the statement of cash flows for changes in finance receivables and equipment on operating leases as well as for estimated net income of captive finance operations. We generally do not make any other adjustments for items such as deferred taxes attributed to finance operations.

Our approach considers that finance assets are an investment to generate profit, and not working capital that should be minimized for efficiency (as with a traditional manufacturer). We therefore move changes in finance receivables and equipment on operating leases from the operating section in the cash flow statement to the investing section. With this adjustment, increases in finance receivables (often a reflection of higher sales, which is generally favorable for credit quality, subject to asset quality) would not negatively affect core cash flow from operations. Decreases in finance receivables (often not favorable for credit quality in this sector as it may reflect weaker product competitiveness) would not positively affect core cash flow from operations. We also move the net income that we estimate is attributable to finance operations into the investing section of the statement of cash flows because the net income helps to support growth in finance operations.

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

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

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

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

6 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.

7 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.

8 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.

9 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.

10 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.

11 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.

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

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

14 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 1278817

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