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RATING
METHODOLOGY

# Distribution & Supply Chain Services Industry

This rating methodology replaces "Distribution & Supply Chain Services Industry", last revised on December 11, 2015. We have updated some outdated links and removed certain issuer-specific information

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## Summary

This rating methodology explains our approach to assessing credit risk for rated issuers in the distribution & supply chain services industry globally. This document provides general guidance that helps companies, investors, and other interested market participants understand how qualitative and quantitative risk characteristics are likely to affect rating outcomes for issuers in the distribution & supply chain services industry. This document does not include an exhaustive treatment of all factors that are reflected in our ratings but should enable the reader to understand the qualitative considerations and financial information and ratios that are usually most important for ratings in this sector.

This report includes a detailed scorecard. The scorecard is a reference tool that can be used to approximate credit profiles within the service sector in most cases. The scorecard provides summarized guidance for the factors that are generally most important in assigning ratings to companies in the service industry. However, the scorecard is a summary that does not include every rating consideration. The weights shown for each factor in the scorecard represent an approximation of their importance for rating decisions but actual importance may vary substantially. The scorecard-indicated outcome is not expected to match the actual rating of each company.

This methodology is no longer in effect. For information on rating methodologies currently in use by Moody's Investors Service, visit ratings.moodys.com/rating-methodologies

The scorecard contains five factors that are important in our assessments for ratings in the distribution & supply chain services sector:

1. Scale
2. Business Profile
3. Profitability & Efficiency
4. Leverage and Coverage
5. Financial Policy

Some of these factors also encompass a number of sub-factors. An issuer's scoring on a particular scorecard factor or sub-factor often will not match its overall rating.

This rating methodology is not intended to be an exhaustive discussion of all factors that our analysts consider in assigning ratings in this sector. We note that our analysis for ratings in this sector covers factors that are common across all industries such as ownership, management, liquidity, corporate legal structure, governance, and country related risks which are not explained in detail in this document, as well as factors that can be meaningful on a company-specific basis. Our ratings consider these and other qualitative considerations that do not lend themselves to a transparent presentation in a scorecard format. The scorecard used for this methodology reflects a decision to favor a relatively simple and transparent presentation rather than a more complex scorecard that would map scorecard-indicated outcomes more closely to actual ratings.

Highlights of this report include:

» An overview of the rated universe
» A summary of the rating methodology
» A description of factors that drive rating quality
» Comments on the rating methodology assumptions and limitations, including a discussion of rating considerations that are not included in the scorecard

The Appendices show the full scorecard (Appendix A). A brief industry overview is also provided (Appendix B).

This methodology describes the analytical framework used in determining credit ratings. In some instances, our analysis is also guided by additional publications which describe our approach for analytical considerations that are not specific to any single sector. Examples of such considerations include but are not limited to: the assignment of short-term ratings, the relative ranking of different classes of debt and hybrid securities, how sovereign credit quality affects non-sovereign issuers, and the assessment of credit support from other entities.[1]



## About the Rated Universe

This methodology is applicable to companies that derive the majority of their revenues from providing distribution and supply chain services to their customers. We rate distribution and supply chain service companies globally. The companies included in this methodology represent a diverse group of issuers

[1] The methodologies covering our approach to these cross-sector considerations can be found in the Related Publications section of this report.

differentiated by scale, strategic profile, geographic reach and industry focus. Some issuers provide distribution services to the healthcare industry (i.e., pharmaceuticals, medical products, laboratory supplies or pharmacy benefit management) while others provide distribution, value-added resale or manufacturing services for component manufacturers, original equipment manufacturers and software publishers in the technology, electronics or communications arenas. Many issuers focus on wholesale distribution services across consumer goods, electrical, energy or metals industries.

## About This Rating Methodology

This report explains the rating methodology for issuers in the distribution and supply chain services industry in six sections, which are summarized as follows:

### 1. Identification and Discussion of the Scorecard Factors

The scorecard in this rating methodology is comprised of five factors. Some of the five factors are comprised of sub-factors that provide further detail.

EXHIBIT 1
**Distribution and Supply Chain Services Industry Scorecard**

| Rating Factors | Factor Weighting | Sub-Factors | Sub-Factor Weighting |
|---|---|---|---|
| Scale | 20% | Revenue | 10% |
| | | EBITA | 10% |
| Business Profile | 15% | Business Profile | 15% |
| Profitability & Efficiency | 15% | Operating Margin | 10% |
| | | Return on Invested Capital | 5% |
| Leverage and Coverage | 35% | Debt/EBITDA | 10% |
| | | EBITA/Interest | 15% |
| | | RCF/Debt | 10% |
| Financial Policy | 15% | Financial Policy | 15% |
| Total | 100% | Total | 100% |

### 2. Measurement or Estimation of Factors in the Scorecard

We explain our general approach for scoring each scorecard factor and show the weights used in the scorecard. We also provide a rationale for why each of these scorecard components is meaningful as a credit indicator. The information used in assessing the sub-factors is generally found in or calculated from information in company financial statements, derived from other observations or estimated by our analysts.

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. We utilize historical data from recent twelve-month periods of reported results (the calendar period might not be the same for all companies) in the scorecard. 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 historic and expected future performance for periods of several years or more.

All of the quantitative credit metrics incorporate Moody's standard adjustments to income statement, cash flow statement and balance sheet amounts for restructuring, impairment, off-balance sheet accounts, receivable securitization programs, under-funded pension obligations, and recurring operating leases.[2] We may also make other analytical adjustments that are specific to a particular company.

## 3. Mapping Scorecard Factors to the Rating Categories

After estimating or calculating each sub-factor, the outcomes for each of the sub-factors are mapped to a broad Moody's rating category (Aaa, Aa, A, Baa, Ba, B, Caa, or Ca).

## 4. Assumptions, Limitations and Rating Considerations Not Included in the Scorecard

This section discusses limitations in the use of the scorecard to map against actual ratings, some of the additional factors that are not included in the scorecard but can be important in determining ratings, and limitations and assumptions that pertain to the overall rating methodology.

## 5. Determining the Overall Scorecard-Indicated Outcome[3]

To determine the overall scorecard-indicated outcome, we convert each of the sub-factor scores into a numeric value based upon the scale below.

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

The numerical score for each sub-factor is multiplied by the weight for that sub-factor with the results then summed to produce a composite weighted-factor score. The composite weighted factor score is then mapped back to an alphanumeric rating based on the ranges in the table below.

**Scorecard-Indicated Outcome**

| Scorecard-Indicated Outcome | Aggregate Weighted Total Factor Score |
|---|---|
| Aaa | $x < 1.5$ |
| Aa1 | $1.5 \le x < 2.5$ |
| Aa2 | $2.5 \le x < 3.5$ |
| Aa3 | $3.5 \le x < 4.5$ |
| A1 | $4.5 \le x < 5.5$ |
| A2 | $5.5 \le x < 6.5$ |
| A3 | $6.5 \le x < 7.5$ |
| Baa1 | $7.5 \le x < 8.5$ |
| Baa2 | $8.5 \le x < 9.5$ |
| Baa3 | $9.5 \le x < 10.5$ |



2 More information about our financial statement adjustments in the analysis of non-financial corporations can be accessed using the link in the Related Publications section of this report.

3 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 ratings uplift due to parental support, government ownership or other institutional support, the scorecard-indicated outcome is oriented to the baseline credit assessment. For an explanation of baseline credit assessment, please refer to our rating methodology on government-related issuers. Individual debt instrument ratings also factor in decisions on notching for seniority level and collateral. The documents that provide broad guidance for these notching decisions are our rating methodologies on loss given default for speculative grade non-financial companies and for aligning corporate instrument ratings based on differences in security and priority of claim. The link to these and other sector and cross-sector credit rating methodologies can be found in the Related Publications section of this report.

**Scorecard-Indicated Outcome**

| Scorecard-Indicated Outcome | Aggregate Weighted Total Factor Score |
|---|---|
| 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 |

For example, an issuer with a composite weighted factor score of 11.7 would have a Ba2 scorecard-indicated outcome.

## 6. Appendices

The Appendices provide the full scorecard and also provide additional commentary and insights on our view of credit risks in this industry.

## Factor 1: Scale (20% Weight)

### Why it Matters

Larger scale can be an indicator of a company's ability to influence business trends and pricing within its service segments and to support a stable or growing market position.  Scale also can be an indicator of greater resilience to changes in demand, geographic diversity, cost absorption, R&D capabilities and greater bargaining strength with customers, labor, and vendors.

### How We Assess it For the Scorecard

Scale is measured (estimated in the case of forward-looking expectations) using total reported revenue and adjusted earnings before interest, taxes and amortization (EBITA).  Many companies covered by this methodology play a key role in complementing and augmenting the vendors' sales channel and manufacturing output, and thus generate very high revenues, albeit at small operating margins.  Utilizing EBITA as a measurement of scale balances out the high revenue scores for the large, multinational supply chain companies.

FACTOR 1

**Scale (20%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| Revenue (USD Billion) | 10% | ≥ $160 | $85-$160 | $35-$85 | $15-$35 | $5-$15 | $2-$5 | $0.5-$2 | < $0.5 |
| EBITA (USD Billion) | 10% | ≥ $8 | $4-$8 | $2-$4 | $0.75-$2 | $0.4-$0.75 | $0.05-$0.4 | $0-$0.05 | < $0 |

## Factor 2: Business Profile (15% Weight)

### Why it Matters

The distribution & supply chain services industry is comprised of a vast array of business models encompassing distribution, logistics, manufacturing, sales and other value-added services to vendors and end customers worldwide. We think it is important to assess the underlying demand characteristics of a company's service offerings and its relative breadth, strength and endurance of demand. The evolution of distribution and supply chain companies follows the ever-changing dynamics of the served industries, as these companies need to constantly adapt to customer demands and vendors' product life cycles. Companies that have established a long history of strong demand for a diverse range of service offerings that are critical to customer needs and provide more customized services will generally entail lower risk compared to those which offer a single line of service or deal in commodity goods which may be easier to replicate by a competitor.

Customer and vendor concentration is generally high across the sector, and although customer relationships tend to be sticky, companies within the supply chain do not have significant negotiating leverage in pricing their service. Thus, the assessment of a company's competitive environment is qualitative and inherently subjective in nature. It takes into account the market dynamics, the degree of pricing pressure, competitive positioning, barriers to entry, regulatory and litigation risks, technology risk, product lifecycles and geographic diversification. Operations in multiple business segments, as well as diversity within the customer and geographic base, can indicate the ability to maintain a relatively strong competitive position over time.

We view geographic diversity as an important element of distribution and supply chain services because it helps indicate: (i) a company's regional proximity to suppliers and customers to facilitate timely delivery of products, which ultimately enhances the reliability and quality of its services; (ii) a company's vulnerability to the economic cyclicality of individual countries; (iii) the effect of country-specific regulatory, competitive, supplier/customer leverage and demographic issues; and (iv) the scope of operations and global footprint, which may help to moderate cash flow fluctuations across regions and end markets.

How well a company is able to effectively execute a business strategy that contends with the competitive environment, market structure and supplier/customer demands is critical for the distribution and supply chain services companies covered by this methodology.

### How We Assess it For the Scorecard

The scoring of this sub-factor is based on our qualitative assessment of the durability of demand and the company's ability to fulfill the need. A high score for this factor would reflect a market that has a very low threat of competitors with substitute products/services, a highly defensible market share with high barriers to entry, and an ability to manage relationships with key suppliers and customers resulting in relatively stable pricing. Companies with high scores on this factor could also operate in markets with very low regulatory risk or very low revenue concentration across business lines or geographic regions. Conversely, a low score on this factor would be characterized by low product differentiation resulting in a very high threat of competitors with substitute products/services, very low barriers to entry, and very strong bargaining power among suppliers or customers resulting in intense and/or aggressive pricing pressures. Issuers with low scores could also operate in markets with very high regulatory risk or very high revenue concentration across business lines or geographic regions.

We assess the importance of a supply chain provider to its vendors and customers and evaluate the degree to which demand for the service is likely to be maintained over time, considering the risk of technology or business changes that may affect demand. Lower risk is associated with services that are indispensable to the customer due to sales channel augmentation, the vendors' inability to insource production or move it to competitive providers, enduring business necessity or basic human needs. Impediments that discourage customers from taking on the task themselves are also considered.

We also consider a number of aspects within an issuer's competitive landscape with particular emphasis on diversity, the nature of competition, and market share. We assess the most prominent characteristics for each issuer, often by evaluating a company relative to its most direct competitors. Barriers to entry may include high customer switching costs and unique assets or proprietary technologies that reduce the threat of new entrants.

Large market share suggests a sustainable business position with greater ability to weather volatile market conditions. Market share that is protected by patent and unique licensing restrictions, technological advantages, or strong brands can underpin a strong competitive profile.

FACTOR 2

## Business Profile (15%)

| | Factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| Business Profile | 15% | Highly reliable and steady demand; impervious to product/industry cycles. Unique service lines with very well-established track record. Essential service offerings. Very strong supplier/ customer bargaining power. Multiple business segments and a wide range of services. End-market is well-diversified with no vendor/customer concentration. Strong barriers to entry eliminate possibility of new competitors. Dominant share of market. | Reliable and steady demand, although moderately exposed to product/industry cycles. Very high competitive differentiation and well-established track record for service lines. Nearly essential service offerings. Strong supplier/ customer bargaining power. Multiple business segments and a wide range of services in most segments. End-market is diversified with very limited vendor/customer concentration. New entrants are rare due to strong barriers to entry. Market share reflects oligopolistic industry profile. | Mostly steady demand, with moderate exposure to product/industry cycles. High differentiation of service lines and established track record. Very important service offerings. Business segments with broad service offerings. End-market is fairly well-diversified with minimal vendor/customer concentration. Barriers to entry provide sustainable protection of market share. Leading market share in an industry characterized by limited competition. | Steady demand expected over the medium term; moderate exposure to product/industry cycles. Significant service line differentiation and some track record. Important service offerings. Several business segments with broad service offerings in at least one key segment. Well-diversified in its major market; some vendor/ customer concentration. Barriers to entry or high switching costs limit new entrants. Among market share leaders. | Steady demand expected over the near term only; significant exposure to product/industry cycles. Some service line differentiation and recent track record. Service offerings perceived to be somewhat important. Operates in a few business segments, with a broad portfolio in at least one segment. Somewhat diversified in its major market; moderate vendor/customer concentration. Limited barriers to entry or low switching costs. Among top providers in key markets or a strong niche player. | Recent evidence of strong demand, but long-term stability cycle is less certain. Limited service line differentiation. Service offerings perceived to be of limited importance. Operates in a few business segments, although heavily reliant on one segment. High degree of vendor/customer concentration. Ineffective barriers to entry or absence of switching costs permit large number of new entrants. Local or niche player in key market or segment. | Very recent service offering with unknown demand trajectory with vendors and customers. Little service line differentiation. Service of little importance to customer. Operates in only one business segment with high vendor/customer concentration. No barriers to entry; service has commodity attributes. Small player compared to key competitors or somewhat fragmented market. | New service offering with unknown demand trajectory. No differentiation of service. Service not important to customer. Operates in only one business segment with very high vendor/customer concentration. No barriers to entry; service is a commodity. Very small player compared to key competitors or highly fragmented market. |

## Factor 3: Profitability & Efficiency (15% weight)

### Why it Matters

Profitable returns matter because they are necessary to maintain a business' competitive position, including sufficient reinvestment in operations, marketing, research, facilities, and human capital. Sustained high profitability is generally a strong indicator of substantial competitive advantages, particularly if combined with evidence of a stable or rising market share. For issuers in the supply chain sector, working capital management is extremely important, especially when considering the typically low operating margins that necessitate maintaining strong liquidity and low cash conversion cycles. For these reasons, we track return on invested capital to measure the operating efficiency of companies in the distribution & supply chain services industry.

### How We Assess it For The Scorecard

*Operating margin:*

Operating margin is measured or estimated as operating profit divided by revenues. Operating profit may be adjusted by us for standard adjustments as well as any elements that we view to be non-recurring or unusual.

*Return on Invested Capital:*

Return on invested capital (ROIC) is measured or estimated as after-tax operating profits divided by the sum of short term debt, long-term debt, and equity, less cash balances. This ratio provides an indication of the issuer's ability to profitably earn a return on capital.



FACTOR 3

**Profitability & Efficiency (15%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| Operating Margin | 10% | ≥ 40% | 30-40% | 20- 30% | 10-20% | 5-10% | 2-5% | 0.5-2% | <0.5% |
| Return on Invested Capital | 5% | ≥ 50% | 35-50% | 25- 35% | 15-25% | 7.5-15% | 2.5-7.5% | 1-2.5% | <1% |

## Factor 4: Leverage and Coverage (35% Weight)

### Why it Matters

Leverage and coverage measures are indicators of a company's financial flexibility and long-term viability, including their ability to adapt to changes in economic and business environment in the segments in which they operate.

The factor is comprised of three sub-factors:

*Leverage*

Debt to EBITDA is an indicator of debt serviceability and leverage and is commonly used in this sector as a proxy for comparative financial strength.

*Interest Coverage*

EBITA /Interest is used as an indicator of a company's ability to pay interest and other fixed charges from its operating performance.

*Cash Flow Coverage*

Retained Cash Flow (RCF) / Debt is an indicator of a company's ability to repay its debt. It is a measure or estimate of cash flow generation before working capital movements (funds from operations) and after dividends in relation to outstanding debt.

### How We Assess It For The Scorecard

**DEBT / EBITDA:**

This ratio is calculated as total debt divided by earnings before interest, taxes, depreciation and amortization (EBITDA).

**EBITA / INTEREST:**

This ratio is calculated as consolidated EBITA divided by consolidated interest expense.

**RCF / DEBT:**

This ratio is calculated as funds from operations less dividends divided by total debt.

FACTOR 4

**Leverage and Coverage (35%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| Debt / EBITDA | 10% | <0.5x | 0.5-1x | 1-2x | 2-3x | 3-4.5x | 4.5-6.5x | 6.5-9x | ≥9x |
| EBITA / Interest | 15% | ≥ 25x | 15-25x | 10-15x | 5-10x | 2.5-5x | 1.5-2.5x | 0.75-1.5x | <0.75x |
| RCF / Debt | 10% | ≥ 70% | 50-70% | 35-50% | 22.5-35% | 12.5-22.5% | 5-12.5% | 0-5% | <0% |

## Factor 5: Financial Policy (15% Weight)

### Why it Matters

Management and board tolerance for financial risk is a rating determinant as 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, 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.

Many distribution and supply chain services companies have historically used acquisitions to spur revenue growth, expand business lines, consolidate market positions, advance cost synergies or seek to access new technology. The impact of an acquisition on a rating will invariably depend on the company's existing capital structure and the degree to which it is changed by the acquisition.

### How We Assess it For The Scorecard

*Financial Policy*

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 and industry 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 debt holders' interests. A track record of favoring shareholder returns at the expense of debt holders is likely to be viewed negatively in scoring this factor.

FACTOR 5

**Financial Policy (15%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| Financial Policy | 15% | Expected to have extremely conservative financial policies; very stable metrics; public commitment to very strong credit profile over the long term | 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 | 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 | 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 | 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 | Expected to have financial policies that favor shareholders over creditors; high financial risk resulting from shareholder distributions, acquisitions or other significant capital structure changes | Expected to have financial policies that create elevated risk of debt restructuring in varied economic environments | Expected to have financial policies that create elevated risk of debt restructuring even in healthy economic environments |

## Assumptions, Limitations and Rating Considerations That Are Not Covered in the Scorecard

The scorecard in this rating methodology represents a decision to favor simplicity that enhances transparency and to avoid greater complexity that would enable the scorecard to map more closely to actual ratings. Accordingly, the five rating factors in the scorecard do not constitute an exhaustive treatment of all of the considerations that are important for ratings of companies in this sector. In addition, our ratings incorporate expectations for future performance, while the financial information that is used for mapping in the scorecard is mainly historical. In some cases, our expectations for future performance may be informed by confidential information that we cannot disclose. In other cases, we estimate future results based upon past performance, industry trends, competitor actions or other factors. In either case, predicting the future is subject to the risk of substantial inaccuracy.

Assumptions that may cause our forward-looking expectations to be incorrect include unanticipated changes in any of the following factors: the macroeconomic environment and general financial market conditions, industry competition, disruptive technology, regulatory and legal actions.

Key rating assumptions that apply in this sector include our view that sovereign credit risk is strongly correlated with that of other domestic issuers, that legal priority of claim affects average recovery on different classes of debt sufficiently to generally warrant differences in ratings for different debt classes of the same issuer, and the assumption that access to liquidity is a strong driver of credit risk.

In choosing metrics for this rating methodology scorecard, we did not explicitly include certain important factors that are common to all companies in any industry such as the quality and experience of management, assessments of corporate governance and the quality of financial reporting and information disclosure. Therefore, ranking these factors by rating category in a scorecard would in some cases suggest too much precision in the relative ranking of particular issuers against all other issuers that are rated in various industry sectors.

Ratings may include additional factors that are difficult to quantify or that have a meaningful effect in differentiating credit quality only in some cases, but not all. Such factors include financial controls, 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. While these are important considerations, it is not possible to precisely express these in the rating methodology scorecard without making the scorecard excessively complex and significantly less transparent. Ratings may also reflect circumstances in which the weighting of a particular factor will be substantially different from the weighting suggested by the scorecard.

This variation in weighting rating considerations can also apply to factors that we choose not to represent in the scorecard. For example, liquidity is a consideration frequently critical to ratings and which may not, in other circumstances, have a substantial impact in discriminating between two issuers with a similar credit profile. As an example of the limitations, ratings can be heavily affected by extremely weak liquidity that magnifies default risk. However, two identical companies might be rated the same if their only differentiating feature is that one has a good liquidity position while the other has an extremely good liquidity position, unless these are low rated companies for which liquidity can be a substantial differentiator for relative default risk.

## Other Rating Considerations

Ratings reflect a number of additional considerations. These include but are not limited to: our assessment of the quality of management, corporate governance, financial controls, liquidity management, event risk, and seasonality.

## 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. A record of consistency provides us with insight into management's likely future performance in stressed situations and can be an indicator of management's tendency to depart significantly from its stated plans and guidelines.

## Corporate Governance

Among the areas of focus in corporate governance 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 centralized operations and the proper tone at the top and consistency in accounting policies and procedures. Auditors' comments in financial reports and unusual financial statement restatements or delays in regulatory filings may indicate weaknesses in internal controls.

## Liquidity Management

Liquidity is an important rating consideration for all distribution and supply chain services companies. Liquidity can be particularly important for companies in highly seasonal operating environments where working capital needs must be considered. We form an opinion on likely near-term liquidity requirements from the perspective of both sources and uses of cash.

## Event Risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in an issuer's fundamental creditworthiness. Typical special events include mergers and acquisitions, asset sales, spin-offs, capital restructuring programs, litigation and shareholder distributions.

## Seasonality

Seasonality can be a concern for some distribution and supply chain services companies. Higher volatility creates less room for errors in product or operational execution.

## Appendix A: Distribution & Supply Chain Services Methodology Factor Scorecard

| | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| **Factor 1 Scale (20%)** | | | | | | | | | |
| Revenue (USD Billion) | 10% | ≥ $160 | $85-$160 | $35-$85 | $15-$35 | $5-$15 | $2-$5 | $0.5-$2 | < $0.5 |
| EBITA (USD Billion) | 10% | ≥ $8 | $4-$8 | $2-$4 | $0.75-$2 | $0.4-$0.75 | $0.05-$0.4 | $0-$0.05 | < $0 |
| **Factor 2 Business Profile (15%)** | | | | | | | | | |
| Business Profile | 15% | Highly reliable and steady demand; impervious to product/industry cycles. Unique service lines with very well-established track record. Essential service offerings. Very strong supplier/ customer bargaining power. Multiple business segments and a wide range of services. End market is well-diversified with no vendor/customer concentration. Strong barriers to entry eliminate possibility of new competitors. Dominant share of market. | Reliable and steady demand, although moderately exposed to product/industry cycles. Very high competitive differentiation and well-established track record for service lines. Nearly essential service offerings. Strong supplier/ customer bargaining power. Multiple business segments and a wide range of services in most segments. End market is diversified with very limited vendor/customer concentration. New entrants are rare due to strong barriers to entry. Market share reflects oligopolistic industry profile. | Mostly steady demand, with moderate exposure to product/industry cycles. High differentiation of service lines and established track record. Very important service offerings. Business segments with broad service offerings. End market is fairly well-diversified with minimal vendor/customer concentration. Barriers to entry provide sustainable protection of market share. Leading market share in an industry characterized by limited competition. | Steady demand expected over the medium term; moderate exposure to product/industry cycles. Significant service line differentiation and some track record. Important service offerings. Several business segments with broad service offerings in at least one key segment. Well-diversified in its major market; some vendor/ customer concentration. Barriers to entry or high switching costs limit new entrants. Among market share leaders. | Steady demand expected over the near term only; significant exposure to product/industry cycles. Some service line differentiation and recent track record. Service offerings perceived to be somewhat important. Operates in a few business segments, with a broad portfolio in at least one segment. Somewhat diversified in its major market; moderate vendor/customer concentration. Limited barriers to entry or low switching costs. Among top providers in key markets or a strong niche player. | Recent evidence of strong demand, but long-term stability cycle is less certain. Limited service line differentiation. Service offerings perceived to be of limited importance. Operates in a few business segments, although heavily reliant on one segment. High degree of vendor/customer concentration. Ineffective barriers to entry or absence of switching costs permit large number of new entrants. Local or niche player in key market or segment. | Very recent service offering with unknown demand trajectory with vendors and customers. Little service line differentiation. Service of little importance to customer. Operates in only one business segment with high vendor/customer concentration. No barriers to entry; service has commodity attributes. Small player compared to key competitors or somewhat fragmented market. | New service offering with unknown demand trajectory. No differentiation of service. Service not important to customer. Operates in only one business segment with very high vendor/customer concentration. No barriers to entry; service is a commodity. Very small player compared to key competitors or highly fragmented market. |

| | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| **Factor 3: Profitability & Efficiency (15%)** | | | | | | | | | |
| Operating Margin | 10% | ≥ 40% | 30-40% | 20- 30% | 10-20% | 5-10% | 2-5% | 0.5-2% | <0.5% |
| Return on Invested Capital | 5% | ≥ 50% | 35-50% | 25- 35% | 15-25% | 7.5-15% | 2.5-7.5% | 1-2.5% | <1% |
| **Factor 4: Leverage and Coverage (35%)** | | | | | | | | | |
| Debt / EBITDA | 10% | < 0.5x | 0.5-1x | 1-2x | 2-3x | 3-4.5x | 4.5-6.5x | 6.5-9x | ≥9x |
| EBITA/Interest | 15% | ≥ 25x | 15-25x | 10-15x | 5-10x | 2.5-5x | 1.5-2.5x | 0.75-1.5x | <0.75x |
| RCF / Debt | 10% | ≥ 70% | 50-70% | 35-50% | 22.5-35% | 12.5-22.5% | 5-12.5% | 0-5% | <0% |
| **Factor 5: Financial Policy (15%)** | | | | | | | | | |
| Financial Policy | 15% | Expected to have extremely conservative financial policies; very stable metrics; public commitment to very strong credit profile over the long term | 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 | 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 | 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 | 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 | Expected to have financial policies that favor shareholders over creditors; high financial risk resulting from shareholder distributions, acquisitions or other significant capital structure changes | Expected to have financial policies that create elevated risk of debt restructuring in varied economic environments | Expected to have financial policies that create elevated risk of debt restructuring even in healthy economic environments |

## Appendix B: Industry Overview

Distribution and supply chain firms are a particularly diverse group serving a variety of industries with a broad range of core competencies. However, the features that are common across all business models include: (i) the ability to reduce unit production costs by aggregating similar products or operations from various suppliers or customers to create scale economies and operational efficiencies; (ii) being a core component of the global product supply chain by facilitating timely delivery of products through the use of distribution centers or facilities located in close proximity to suppliers and/or customers; (iii) effectively deploying working capital and managing inventories to produce a sufficient return on assets given that profitability is primarily a function of selling prices (based on demand relative to supply) minus the cost of capital; and (iv) reliability and service quality.

### Healthcare Distribution

The rated universe of healthcare distributors is relatively broad, covering companies that offer pharmaceutical, medical products and laboratory supply chain services as well as prescription drug benefit management services. Most of the rated healthcare distributors are based in the US with revenue concentration in North America. Maintaining a sizable market position and significant scale are key success factors given relatively low margins for most distributors. The largest companies in this space are the drug distributors (which have the lowest margins among the healthcare distributors we rate) and a large independent pharmacy benefit management company. For these players, large customer and vendor concentration (e.g., large retail chains or health plan customers) provide risk of ongoing pricing pressure. Although customer relationships tend to be relatively sticky, large customers maintain significant negotiating leverage in contract renewals. In addition, because of significant partnering and consolidation taking place in the healthcare sector, there is increased risk of contract shifts.

For most companies in this space, revenues tend to be highly concentrated within one business line. To help offset margin compression in their core business, many of the large drug distributors continue to diversify into higher margin non-distribution businesses such as medical device manufacturing or retail pharmacies as well as higher margin distribution channels, including distribution of animal health drugs or home health care products. In addition, to help boost margins, each of the major drug distributors has aligned with retail pharmacies to leverage their ability to purchase generic drugs more cheaply. Medical-supply distribution will be affected by softer volume trends for hospitals and physician offices. Laboratory supply distribution will face ongoing uncertainty around levels of government funding for science research.

Unlike other types of distributors, healthcare distributors -- to varying extents -- will be subject to government regulation. Long-term care pharmacies, companies that provide diabetes testing and home care supplies, and certain distributors that operate outside the US will be directly affected by reimbursement or regulatory matters. Also, because all of these healthcare distributors interact with a wide range of healthcare providers (e.g., hospitals, nursing homes, physician offices) or manufacturers (e.g., drug and medical device) that can be affected, they will be indirectly subject to changes to the healthcare reimbursement and regulatory environment. This is particularly true in Europe, where government intervention will result in greater uncertainty in drug pricing and retail pharmacy fees.

### Information Technology Distribution

The information technology or IT distribution industry involves electronic component, computer, mobile and consumer electronics products distribution. IT distributors provide a valuable function in the technology supply chain, and their value is reflected by inventory price protection and stock rotation privileges they receive under authorized distributor agreements. This helps to offset the limited demand visibility and frequent volatility in IT supply and pricing cycles. Though highly diversified by customer and geographic reach, IT distributors are subject to supplier concentration and intense competition, which have historically exerted pressure on operating margins. To offset this, IT distributors maintain a flexible operating cost structure. They also make frequent small-to-medium sized acquisitions that grow revenue, afford cost synergies and scale economies, and provide new customer/vendor relationships.

The evolution of technology distribution follows the ever-changing dynamics of the technology industry, as distributors constantly adapt to customer demands and product life cycles. We have witnessed a transition of products away from traditional IT gear to new areas such as mobile devices, software, services, networking and security that cater to enterprise customers' evolving data center needs and increasing demand for bundled information technology solutions.

The IT distributors supply semiconductors and other integrated circuits, as well as high-end computing (e.g., servers and storage devices), software and networking equipment, mobile devices, desktop, laptop and notebook PCs, media tablets, flat panel displays, peripherals, and data networking device. Clients include original equipment manufacturers (OEMs), original design manufacturers (ODMs), electronics manufacturing services (EMS) firms, and small- and medium-sized industrial businesses (SMBs). The IT distributors focus on a much broader set of customers than the manufacturers can address directly. Given their significant scale, IT distributors can handle high-volume transactions and efficiently source hundreds of thousands of parts from component suppliers and repackage them to meet individualized customer needs at relatively low production costs. Many smaller customers are highly dependent on these distributors for timely delivery of a diverse set of components at competitive pricing that could not be achieved through direct purchases from the manufacturers.

### Electronics Manufacturing Services

Electronics manufacturing services or EMS companies serve a key role in the global electronics supply chain by providing comprehensive outsourced design and manufacturing of electronic equipment built to customer specifications that is eventually branded by the original equipment manufacturer (OEM). EMS providers are able to reduce unit production cost by aggregating similar manufacturing operations from various OEM customers into smaller production facilities, which create economies of scale and operational efficiencies. EMS companies tend to have well-diversified geographic footprints.

The value that a contract manufacturing firm provides to its customers is in capital asset savings, production agility, geographically dispersed platforms, and growing engineering acumen that is deeply ingrained with the OEMs during product development stages. These features offer the OEMs more flexible manufacturing platforms, especially during the introductory phases of a product's life. These trends should serve to minimize the enduring cyclical volatility in the EMS sector resulting from limited demand visibility, relatively high customer concentration and high fixed costs associated with maintaining manufacturing operations to serve customers across the globe.

However, given the volatile nature of IT products and the risk associated with rapid technology changes, the industry has a narrow window of demand visibility which can make forecasting difficult. Furthermore, EMS margins are low due to competitive pricing from low-cost Asian-based providers, a highly concentrated customer base that exerts pricing pressure, the large labor component in the EMS cost structure and significant working capital and inventory costs associated with sourcing tens of thousands of parts and components, as well as purchasing manufacturing equipment for customer programs. To offset this, EMS companies maintain a flexible operating cost structure with facilities in low-cost geographies. This is driven by the secular OEM outsourcing trend from both large technology firms and non-traditional customers (e.g., automotive, instrumentation, industrial, healthcare, defense/aerospace and clean technology) that historically manufactured products in-house. As electronic products become more complex and require more engineering, OEMs are increasingly eliminating their production facilities and outsourcing the manufacturing function to EMS firms so that they can focus on their core competencies, reduce fixed costs and improve their return on investment.

### Wholesale Distribution

The rated issuers in the wholesale distribution industry are diverse, providing distribution and value-added processing services across consumer goods, electrical, energy or metals industries. With numerous distribution centers located in various regions, wholesale distributors typically have broad geographic coverage thus reducing their reliance on a particular region. Companies operating in these industries are subject to extreme price volatility due to the changing supply and demand characteristics of underlying commodities, varying demand patterns of end market customers and competitor pricing actions. As such, key success factors for wholesale distributors include scale, regional proximity to suppliers and customers, effective branch office operations, reliable and high quality service, efficient inventory and working capital management, cost controls and sufficient liquidity.

## Moody's Related Publications

Credit ratings are primarily determined by 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. An index 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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