MOODY'S
INVESTORS SERVICE

RATING METHODOLOGY

# Construction Industry

This document updates the rating methodology "Construction Industry," last updated on November 26, 2014. We have updated some outdated links and removed certain issuer-specific information.

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Analyst Contacts:

NEW YORK +1.212.553.1653

Michael Corelli +1.212.553.1654
*Vice President - Senior Credit Officer*
michael.corelli@moodys.com

Brian Oak +1.212.553.2946
*Managing Director - Corporate Finance*
brian.oak@moodys.com

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## Summary

This rating methodology explains our approach to assessing credit risk for companies in the construction industry globally. This document is intended to provide 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 companies in the global construction 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, which is a reference tool that can be used to approximate credit profiles within the construction industry in most cases. The scorecard provides summarized guidance for the factors that are generally most important in assigning ratings to companies in the construction 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. In addition, the scorecard typically uses historical results while ratings are based on our forward-looking expectations. As a result, the scorecard-indicated outcome is not expected to match the actual rating of each company.

THIS RATING METHODOLOGY WAS UPDATED ON NOVEMBER 15, 2019. WE HAVE UPDATED SOME OUTDATED REFERENCES AND ALSO MADE SOME MINOR FORMATTING CHANGES.

The scorecard contains four factors that are important in our assessments for ratings in the global construction industry:

1. Scale
2. Business Profile
3. Leverage and Coverage
4. Financial Policy

Some of these factors also encompass a number of sub-factors.

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 other 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 might 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 the scorecard factors

» 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 overview of the construction industry (Appendix B), and a short discussion of Government-Related Issuers (GRIs) in the construction industry (Appendix C).

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]



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

## About the Rated Universe

Companies in the construction methodology include general contractors or subcontractors that generate their revenues or operating cash flows from construction or refurbishment of: (1) civil infrastructure (tunnels, roads, bridges, harbors) (2) industrial infrastructure (manufacturing plants, power generating plants, oil & gas processing facilities) and (3) buildings for commercial purposes (offices, warehouses) or public purposes (schools, hospitals, government buildings).

Our definition of the sector also includes companies that provide installation, repair and maintenance of electrical and mechanical systems, and power generation and telecommunications infrastructure. This methodology does not cover building materials companies, companies focused on homebuilding for private customers, real estate development companies, and companies focused on the production and installation of heavy equipment and machinery for industrial users and utilities.

## About This Rating Methodology

This report explains the rating methodology for the construction industry in six sections, which are summarized as follows:

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

The scorecard in this rating methodology focuses on four factors. The four factors are comprised of sub-factors that provide further detail.

EXHIBIT 1

**Construction Industry Scorecard**

| Factor | Factor Weighting | Sub-Factor | Sub-Factor Weighting |
|---|---|---|---|
| Scale | 25% | Revenue | 15% |
| | | EBITA | 10% |
| Business Profile | 25% | Diversity | 15% |
| | | Expected Revenue & Margin Stability | 10% |
| Leverage and Coverage | 30% | EBITA/Interest Expense | 10% |
| | | Debt/EBITDA | 10% |
| | | FFO/Debt | 10% |
| Financial Policy | 20% | Financial Policy | 20% |
| **Total** | **100%** | **Total** | **100%** |

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

We explain our general approach for scoring each 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 in a company's performance as well as for peer comparisons. In this case, we typically utilize historical data (in most cases, the last twelve months of reported results). All of the quantitative credit metrics incorporate Moody's standard adjustments to the 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] However, the factors in the scorecard can be assessed using various time periods. Rating committees typically assess both historical and expected future performance covering periods of several years.

## 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, also called alpha categories).

## 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 | $1.5 \leq x < 2.5$ |
| Aa2 | $2.5 \leq x < 3.5$ |
| Aa3 | $3.5 \leq x < 4.5$ |
| A1 | $4.5 \leq x < 5.5$ |
| A2 | $5.5 \leq x < 6.5$ |
| A3 | $6.5 \leq x < 7.5$ |
| Baa1 | $7.5 \leq x < 8.5$ |
| Baa2 | $8.5 \leq x < 9.5$ |
| Baa3 | $9.5 \leq x < 10.5$ |
| Ba1 | $10.5 \leq x < 11.5$ |

2 For more information, see our cross-sector methodology that describes our standard adjustments in the analysis of non-financial corporations. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

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 more information, see our cross-sector methodology for 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 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. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

**Scorecard-Indicated Outcome**

| Scorecard-Indicated Outcome | Aggregate Weighted Total Factor Score |
|---|---|
| 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 a detailed presentation of the scorecard and also provide additional commentary and insights on our view of credit risks in this industry.

## Discussion of the Scorecard Factors

The scorecard for the construction industry focuses on four broad factors:

» Scale

» Business Profile

» Leverage and Coverage

» Financial Policy

## Factor 1: Scale (25% Weight)

### Why it Matters

Scale is an indicator of a company's market strength, importance to markets served and ability to weather the vagaries of capital and economic cycles. Scale can also provide a broader platform for sustainable earnings and cash flow generation and typically enhances a construction company's operating and financial flexibility and its ability to bid, finance and profitably execute large, long-term and complex projects. Large construction companies can accommodate a broad range of construction needs since they typically maintain a sizeable network of subcontractors and obtain various sources of financing, including bonding lines, which are key competitive advantages in the industry. In addition, scale in the construction industry often has a bearing on other key considerations such as geographic and segment diversity.

### How We Assess it For the Scorecard

*Total Revenue*

Revenues as measured using total reported revenues on an annual basis in US dollars.

*EBITA*

EBITA (earnings before interest, taxes and amortization expense) on an annual basis in US dollars. Non-recurring or unusual charges, such as impairment or other write-down of asset values, can be excluded if the analyst considers the adjustment appropriate and is likely to produce an outcome that is more reflective of the company's underlying results. Typically, such adjustments are made only if they are sizeable, non-recurring and non-cash items. We think EBITA is a better measure of profitability than EBITDA since construction companies must continuously reinvest in property, plant and equipment in order to maintain their competitiveness. Therefore, profitability should take into account depreciation expense.

FACTOR 1

**Scale (25%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| Revenue (USD Billions) | 15% | ≥ $40 | $15 - $40 | $12 - $15 | $7 - $12 | $3.5 - $7 | $1 - $3.5 | $0.25 - $1 | < $0.25 |
| EBITA (USD Billions) | 10% | ≥ $4 | $2 - $4 | $1.5 - $2 | $0.75 - $1.5 | $0.25 - $0.75 | $0.125 - $0.25 | $.06 - $0.125 | < $0.06 |

## Factor 2: Business Profile (25% Weight)

### Why it Matters

Business profile captures key elements of diversification and near-to-medium term revenue and margin visibility. These factors influence a company's earnings volatility, which can be affected by cyclical swings, changing levels of competition and project performance. Diversity across several continents and/or economic regions and exposure to a number of uncorrelated segments can mitigate earnings volatility. A company's business profile is one of the most important indicators of its credit quality over time.

### How We Assess it For the Scorecard

The scorecard summarizes some of the more important attributes that are broadly associated with a construction company's diversity and expected revenue and margin stability. The analysis of this factor is based on a qualitative assessment of the business profile of the company including its operational and geographic diversity, technical capabilities, track record of project execution, and stability of revenues and margins. These factors can temper the impact of cyclicality and competition, and are typically associated with higher ratings under this factor.

*Diversity*

Geographic diversity is a positive factor because it (i) reduces a company's vulnerability to adverse economic shocks or cyclicality that may impact certain geographies, (ii) mitigates the impact of regional regulatory, environmental or safety issues and (iii) provides exposure to different demand trends that may persist for an intermediate period of time in various regions. Geographic diversity usually tempers volatility by balancing slower and higher growth markets, regional economic swings, and seasonal or weather-related fluctuations in cash flows.

Segment diversity mitigates the impact of demand fluctuations, price competition and technological trends that can occur in particular segments. The effectiveness of segment diversity is usually analyzed with regard to the correlation of individual segments. The definition of business segments may differ among companies, according to each company's strategic focus or construction services groupings. While the number of business segments discussed in annual reports usually serves as a good indicator of segment diversity, analysts may adjust these measures based on the estimated levels of correlation across the reported segments.

*Expected Revenue & Margin Stability*

A company's expected revenue and margin stability is based on its technical capabilities, its ability to create barriers to entry, and its track record of successful project execution. Revenue sustainability provides an assessment of how protected a company is from short-term economic disruptions and is an indicator of its future earnings potential. We examine each company's existing order backlog and the degree to which future orders are protected by competitive barriers. We recognize that many companies, particularly those serving utilities, have significant future revenue streams because of master service agreements. These future revenue streams are difficult to quantify and are usually not reported in backlog. Nonetheless, estimates of these revenues streams are often considered if sufficient information exists on which to base such estimates. Margin stability is arguably a strong indicator of the presence of sustainable competitive advantages (in particular if combined with evidence of stable market share). If a company is able to sustain a high level of profitability over a long period of time and no major competitors have emerged, that business is probably protected by significant barriers to entry that will help sustain high profitability in the future.

FACTOR 2

**Business Profile (25%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| Diversity | 15% | Extremely well diversified with several profitable global platforms that are market leaders in multiple continents. | Well diversified with several profitable global platforms and strong market positions in multiple continents. | A number of diversified segments, varying in size and profitability with just under half of revenues within one continent. | More than one balanced and profitable segments with the majority of revenues within one continent. | Heavily reliant on one segment with the significant majority of revenues within one continent, but diversified across several economic regions. | Heavily reliant on one segment with the significant majority of revenues within one continent and diversified across a few economic regions. | Heavily reliant on one segment and the significant majority of revenues expected to be within one economic region. | One segment generates all revenues and all sales expected to be within one small economic region. |
| Expected Revenue & Margin Stability | 10% | Superior revenue, margin and backlog sustainability and technical capabilities that create very strong barriers to entry. Superior track record of project execution within scheduled time frame and established budget. | Extremely high revenue, margin and backlog sustainability and technical capabilities that create very strong barriers to entry. Very strong track record of project execution within scheduled time frame and established budget. | Very high revenue, margin and backlog sustainability and technical capabilities that create strong barriers to entry. Strong track record of project execution within scheduled time frame and established budget. | High revenue, margin and backlog sustainability and technical capabilities that create strong barriers to entry. Solid track record of project execution within scheduled time frame and established budget. | Good revenue, margin and backlog sustainability and technical capabilities that create barriers to entry. Generally good track record of project execution within scheduled time frame and established budget. | Moderate revenue, margin and backlog sustainability and technical capabilities that create modest barriers to entry. Moderate track record of project execution. | Volatile revenues, margins and backlog. Modest technical capabilities and limited competitive differentiation. Weak track record of project execution. | Volatile and unpredictable revenues, margins and backlog with no competitive differentiation. Poor track record of project execution. |

## Factor 3: Leverage and Coverage (30% Weight)

### Why it Matters

Leverage and coverage measures are indicators of a company's financial flexibility and long-term viability. Strength in these measures is an indicator of a greater ability to make new investments, weather the vagaries of the business cycle and respond to unexpected challenges, which often occur in the construction industry given the periodic performance issues that arise.

The factor is comprised of three sub-factors:

*Interest Coverage*

Earnings before interest, taxes, and amortization (EBITA) / Interest Expense is used as an indicator of a company's ability to pay interest and other fixed charges from its operating earnings.

*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.

*Cash Flow*

Funds From Operations (FFO) / Debt is an indicator of a company's ability to repay principal on its outstanding debt. It is a measure or estimate for cash flow generation before working capital movements in relation to outstanding debt.

### How We Assess It For The Scorecard

*EBITA / Interest Expense:*

This ratio is calculated as EBITA divided by interest expense.

*Debt / EBITDA:*

This ratio is calculated as total debt divided by EBITDA.

*FFO / Debt:*

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

FACTOR 3

**Leverage and Coverage (30%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| EBITA/Interest | 10% | ≥20x | 15-20x | 10-15x | 5-10x | 2.25-5x | 1-2.25x | 0.5-1x | <0.5x |
| Debt/EBITDA | 10% | < 0.25x | 0.25-0.75x | 0.75-1.5x | 1.5-2.75x | 2.75-4.5x | 4.5-6.5x | 6.5-9x | ≥9x |
| FFO/Debt | 10% | ≥ 100% | 80-100% | 55-80% | 35-55% | 20-35% | 10-20% | 5-10% | <5% |

## Factor 4: Financial Policy (20% 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.

Construction companies have historically used acquisitions to spur revenue growth, expand business lines, consolidate market positions, advance cost synergies or seek to access new technologies or capabilities. The impact of an acquisition on a rating will invariably depend on the company's existing capital structure, the degree to which it is changed by the acquisition and its focus on returning its credit metrics to a level that is appropriate for its rating.

### 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 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 4

**Financial Policy (20%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| Financial Policy | 20% | 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 ratings migration. | 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 might enable the scorecard to map more closely to actual ratings. Accordingly, the four factors in the scorecard do not constitute an exhaustive treatment of all of the considerations that are important for ratings of companies in the global construction industry. In addition, our ratings incorporate expectations for future performance, while the financial information that is used 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. 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 risks 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 a 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.

## Other Rating Considerations

Ratings incorporate 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 construction companies. Liquidity can be particularly important for non-investment grade construction companies where issuers typically have less operating and financial flexibility. 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.

## Appendix A: Construction Methodology Factor Scorecard

| Factors and Sub-factors | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| **Factor 1 Scale (25%)** | | | | | | | | | |
| Total Revenue (USD Billion) | 15% | ≥ $40 | $15 - $40 | $12 - $15 | $7 - $12 | $3.5 - $7 | $1 - $3.5 | $0.25 - $1 | < $0.25 |
| EBITA (USD Billion) | 10% | ≥ $4 | $2 - $4 | $1.5 - $2 | $0.75 - $1.5 | $0.25 - $0.75 | $0.125 - $0.25 | $0.06 -$0.125 | < $0.06 |
| **Factor 2 Business Profile (25%)** | | | | | | | | | |
| Diversity | 15% | Extremely well diversified with several profitable global platforms that are market leaders in multiple continents. | Well diversified with several profitable global platforms and strong market positions in multiple continents. | A number of diversified segments, varying in size and profitability with just under half of revenues within one continent. | More than one balanced and profitable segment with the majority of revenues within one continent. | Heavily reliant on one segment with the significant majority of revenues within one continent, but diversified across several economic regions. | Heavily reliant on one segment with the significant majority of revenues within one continent and diversified across a few economic regions. | Heavily reliant on one segment and the significant majority of revenues expected to be within one economic region. | One segment generates all revenues and all sales expected to be within one small economic region. |
| Expected Revenue & Margin Stability | 10% | Superior revenue, margin and backlog sustainability and technical capabilities that create very strong barriers to entry. Superior track record of project execution within scheduled time frame and established budget. | Extremely high revenue, margin and backlog sustainability and technical capabilities that create very strong barriers to entry. Very strong track record of project execution within scheduled time frame and established budget. | Very high revenue, margin and backlog sustainability and technical capabilities that create strong barriers to entry. Strong track record of project execution within scheduled time frame and established budget. | High revenue, margin and backlog sustainability and technical capabilities that create strong barriers to entry. Solid track record of project execution within scheduled time frame and established budget. | Good revenue, margin and backlog sustainability and technical capabilities that create barriers to entry. Generally good track record of project execution within scheduled time frame and established budget. | Moderate revenue, margin and backlog sustainability and technical capabilities that create modest barriers to entry. Moderate track record of project execution. | Volatile revenues, margins and backlog. Modest technical capabilities and limited competitive differentiation. Weak track record of project execution. | Volatile and unpredictable revenues, margins and backlog with no competitive differentiation. Poor track record of project execution. |

| Factors and Sub-factors | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---|---|---|---|---|---|---|---|---|
| Factor 3: Leverage and Coverage (30%) | | | | | | | | | |
| EBITA / Interest Expense | 10% | ≥ 20x | 15x - 20x | 10x - 15x | 5x - 10x | 2.25x - 5x | 1x - 2.25x | 0.5x - 1x | < 0.5x |
| Debt / EBITDA | 10% | <0.25x | 0.25x - 0.75x | 0.75x - 1.5x | 1.5x - 2.75x | 2.75x - 4.5x | 4.5x - 6.5x | 6.5x - 9x | ≥ 9x |
| FFO / Debt | 10% | ≥ 100% | 80% - 100% | 55% - 80% | 35% - 55% | 20% - 35% | 10% - 20% | 5% - 10% | < 5% |
| Factor 4: Financial Policy (20%) | | | | | | | | | |
| Financial Policy | 20% | 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 ratings migration. | 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: Some General Characteristics of the Global Construction Industry

### Cyclicality

The pattern of general economic cycles is a significant driver of demand for construction and refurbishment activity. Exposure to certain geographical areas, customers and end-markets determines the correlation of a company's operating performance with the cycles of specific economies. From a broader customer segmentation perspective, private customers and public customers exhibit different contracting behavior through the cycle. Private sector customers, whose contracts are normally of higher profitability, may delay or cancel new projects when the economy slows, but could shift towards demand for refurbishment projects depending on their specific financial condition and investment policies. Public sector contracts, which are typically less profitable, are highly correlated to a government's fiscal policy or spending plans, which are not necessarily linked to the stage of an economic cycle in a specific country. Public sector spending could even show anti-cyclical spending patterns, supported by efforts to stimulate the economy through the construction sector.

### Relatively low margins and volatile earnings

Low industry profitability levels are often a result of extensive levels of subcontracting, which reduce the value added revenues and hence profitability for a company but substantially increase the level of operating flexibility through the cycle. In order to offer a complete solution package, many construction companies act as "general contractors" and coordinate resources from various "subcontractors" to execute the work on a project, while retaining the responsibility for project completion. Subcontracting allows them to have a more flexible cost structure, but leads to substantially reduced profitability. Since the general contractor bills the whole project, the general contractor will recognize the full revenues but pass on part of the profit to the subcontractors.

Another determining factor of profitability and earnings volatility is the type of construction contracts. Fixed-price contracts typically offer high margin potential, but the risk of cost overruns on complex projects or those with a long project duration is more severe than for cost-plus contracts or fee for service contracts. These contracts do not expose contractors to the risk of cost overruns. Therefore, these cost-plus type contracts offer a higher level of earnings stability but provide lower margin potential.

Profitability levels in the industry are also burdened by time-consuming competitive tender procedures for order awards, leading to aggressive bidding by construction companies. In highly competitive markets or in cyclical downturns, companies may relax margin standards in order to win tenders and fill capacity with the knowledge that variable costs (but not all fixed costs) will be covered. This behavior can lead to operating losses and cash flow deficits. Public contracts in particular are normally secured through these tender procedures and are generally linked to greater risk and reduced margins given the focus on price compared to more profitable referral work from private customers.

### Effective risk management is essential to project profitability

One of the key drivers of a project's profitability is the bidding process. The competitive nature of the bidding process can drive companies to be aggressive and expose them to the risks of adverse surprises.

Project construction risks include (1) cost overruns above an initial construction budget, which are a greater threat in the case of fixed-price contracts, and (2) time overruns in the case of delayed completion, which could be a result of an unreasonable construction schedule or a project's complexity. Project construction risks depend on the experience/track record of the contractor with the particular type of project being undertaken, and the degree to which local economic conditions around the project site will affect the cost and the availability of labor and materials over the construction period. Large projects could be exposed to regulatory or political risks in countries whose political, economic and legal systems are less predictable or are potentially unfavorable for companies in this sector.

### Substantial working capital needs require financial flexibility

It is often necessary for construction companies to maintain financial flexibility. The construction industry sees large working capital swings not only due to payments received upon completion of major milestones for long-term projects, but also due to the utilization of a complex array of advance payments made by the customer. Certain customers and/or projects typically include payments in advance of services rendered or for the procurement of equipment and materials. A normal trend for these projects is to have higher cash balances during the initial phases of execution which then level out toward the end of the construction phase. As a result, a company's cash position is reduced as customer advances are worked off, unless they are replaced by advances on other projects. However, some customers and project types do not involve advance payments and require significant working capital investments early in the project life cycle. In addition, contractors can be subject to major demands on cash for working capital because of delayed payments from customers or due to sudden, large changes in project schedules. It is sometimes difficult to assess the underlying cash flows of construction companies since their operating results may not be an accurate indicator of their cash flows due to the use of percentage of completion accounting. When changes in project estimates occur, then the estimated impact on the entire project is recognized in the period in which they are determined. For example, if a project estimate is revised and the project is expected to result in a loss for the company, then the full amount of the loss is recognized in the period when they are discovered. Therefore, the percentage of completion method will often result in periods when reported revenues and operating earnings are poor predictors of the company's cash flows.

## Appendix C: Government-Related Issuers

Some companies in the construction industry are partially owned by governments. Ratings for those companies[4] are assigned using our government-related issuers (GRI) rating methodology in addition to our construction industry rating methodology.

Ratings of construction companies that utilize our GRI rating methodology typically consider the following components, as well as other considerations:

1. the GRI's standalone or Baseline Credit Assessment (BCA),
2. the supporting government's rating,
3. an estimate of the default correlation between the two entities (dependence), and
4. an estimate of the likelihood of extraordinary government support (support).

The scorecard-indicated outcome from the scorecard (in Appendix A) is compared to the BCA, rather than the senior unsecured rating. The senior unsecured rating could reflect some uplift from the BCA because of the ownership position of the government, which provides the basis to anticipate support under extraordinary conditions. Hence, the BCA can be used to compare these GRI companies with other companies before considering the rating impact of government ownership.

4 Government ownership by itself does not always result in GRI classification, as is explained in our government-related issuers (GRI) rating methodology. When a construction company is classified as a GRI, it is typically rated using our GRI methodology along with our construction industry rating methodology. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

## 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.  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.

» contacts continued from page 1


**Analyst Contacts:**

| HONG KONG | +852.3758.1300 |
|---|---|
| Chenyi Lu<br>*Vice President - Senior Analyst*<br>chenyi.lu@moodys.com | +852.3758.1353 |

| SAO PAULO | +55.11.3043.7300 |
|---|---|
| Marcos Schmidt<br>*Vice President – Senior Analyst*<br>Marcos.schmidt@moodys.com | +55.113.043.7310 |

| FRANKFURT | +49.6.707.30.700 |
|---|---|
| Matthias Heck<br>*Vice President – Senior Analyst*<br>matthias.heck@moodys.com | +49.697.073.0720 |

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Author
Michael Corelli

Senior Production Associate
Amanda Kissoon