

Criteria | Corporates | Request for Comment: Request For Comment: Global Project Finance Methodology--Construction Phase

Publication date: 28-Jan-2013 14:26:33 EST

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PROJECT FINANCE METHODOLOGY--CONSTRUCTION PHASE CREDIT PROFILE RATINGS FRAMEWORK

1. Standard & Poor's Ratings Services is requesting comments on our proposed changes to our methodology and assumptions for assessing Project Finance Construction Phase risks.
2. The proposed criteria are intended to enhance the comparability of ratings on project finance issues with ratings in other sectors (see "[Understanding Standard & Poor's Rating Definitions](#)", published June 3, 2009) and improve transparency about how we assign ratings. The proposed criteria would constitute specific methodologies and assumptions under our "[Principles Of Credit Ratings](#)," published on Feb. 16, 2011.
3. If adopted, the proposed criteria would supersede our currently applicable criteria for assessing construction phase risks in project financings as described in "[Updated Project Finance Summary Debt Rating Criteria](#)," published on Sept. 18, 2007.

I. SCOPE OF THE PROPOSAL

4. These criteria are applied to all new and existing project finance debt issues.

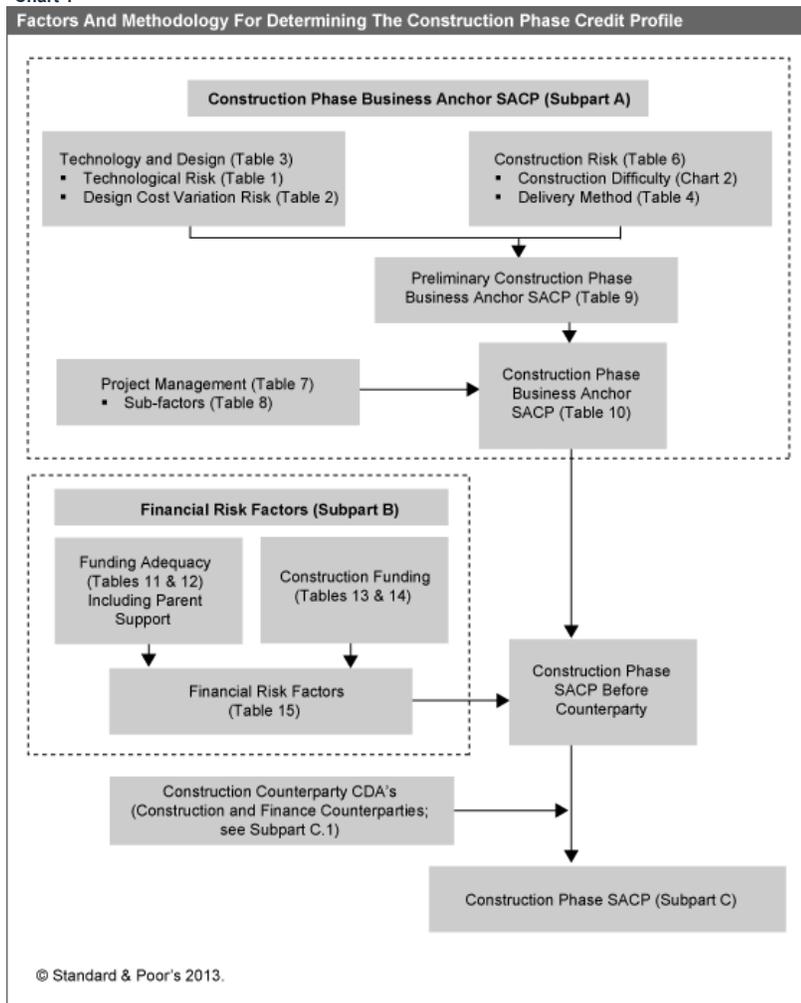
II. SUMMARY OF THE PROPOSAL

5. The proposed Construction Phase Credit Profile Ratings methodology assesses and scores the likelihood that a project will be adequately funded in order for it to be built and completed on time and to budget, and that a project will be capable of operating as designed and as expected. The construction and funding assessment is critical to ensure not only that a project will be built and completed with sufficient committed funding in place, but also to ensure that a project meets its operational and contractual deadlines in a timely manner (i.e., before any potential contractual termination events) to produce sufficient net cash flows to meet debt scheduled service and any other financing commitments.
6. As the amount of financing available to fund a project's construction is typically limited to a committed value or level, we assess to what extent such funding or support is adequate to complete a project so that it is ready to begin operations even if there is a cost overrun or a delay in commissioning. A shortfall in the amount of funds or support available is most commonly due to cost underestimation, design changes, permit conditions, adverse weather, or force majeure events. In addition, for projects in difficulty, a source of funds that is not committed or underwritten may not be available in a timely manner when needed.
7. The construction phase covers the period from financial close (see Glossary) through to when operations commence. This period typically includes: construction performance testing and any plant commissioning, rectification of any defects; and final acceptance of construction--the point at which construction is generally considered complete. Construction warranties and defects resolution are typically applicable during an agreed and contracted "defect liability" period into the operations phase, but may limit any upgrade until the risk is de minimus.
8. The criteria set out a multistep framework (see chart 1) to assess a project's overall Construction Phase Credit Profile. The following is a summary of the methodology:
 - Assessing the Construction Phase Business Anchor SACP. This involves: Scoring the Technology and Design (table 3) and Construction Risk (table 6). The resultant Technology and Design and Construction Risk scores are combined to derive a Preliminary Construction Phase Business Anchor Stand Alone Credit Profile (SACP; see table 9); modifying the Preliminary Construction Phase Business Anchor SACP by evaluating the Project Management (tables 7 and 8) to determine the Construction Phase Business Anchor SACP (paragraph 45).
 - Modifying the Construction Phase Business Anchor SACP by the Financial Risk Factors (table 15) to derive the Construction

Phase SACP before Counterparty Adjustment. The Financial Risk Factors score a project's funding adequacy (tables 11 and 12) and Construction Funding Sources (tables 13 and 14). These scores incorporate any contracted third-party support, including sponsor or parent support and the transaction structure analysis).

- Adjusting the Construction Phase SACP for construction and finance counterparties risk (see "[Project Finance Construction And Operations Counterparty Methodology](#)," published Dec. 20, 2011 and "[Counterparty Risk Framework Methodology And Assumptions](#)," published Nov. 29, 2012).
9. This methodology is an overarching framework and when implemented will be expanded further through Key Credit Factors (KCF) commentaries that we will publish for major sectors such as power, toll roads, real estate/private-public partnerships and oil and gas/liquefied natural gas). The KCFs will elaborate further our methodology for assessing construction risk in key project finance sectors.
10. Under the criteria, a project's technological and design risk and construction risk can be fully transferred to a contractor or equipment supplier under a turnkey contract (see table 5). If the risk is wholly transferred to the technology supplier and designer, this will weak-link the Construction Phase Credit Profile to the Counterparty Dependency Assessments (CDA) of that counterparty (see paragraph 60).

Chart 1



III. SPECIFIC QUESTIONS FOR WHICH WE ARE SEEKING A RESPONSE

11. Standard & Poor's is seeking market feedback on its proposed methodology and responses to the following questions:
- Does this methodology incorporate the key factors affecting a project during the construction phase?
 - Do you believe the scoring methodology and distribution of scores (weighting) appropriately consider and measure the assessment of a project's Construction Phase Credit Profile?
 - Should the ratings of banks and insurance providers that provide support to a project be at the same or a higher rating level

than the project?

IV. RESPONSE DEADLINE

12. We encourage all market participants to submit written comments on the proposed criteria by March 28, 2013. Please send your written comments to criteriacomments@standardandpoors.com. Once the comment review period is over, we will review the comments and publish the updated criteria.

V. IMPACT ON OUTSTANDING RATINGS

13. We expect that changes to existing project finance ratings would be relatively small in both number and magnitude.

VI. METHODOLOGY

14. Section A explains the proposed methodology for assessing a project's technology and design, construction risk, and project management to derive the Construction Phase Business Anchor SACP. Section B explains the criteria to assess financial risk factors; and section C explains how the Construction Phase Business Anchor SACP is adjusted for financial risk factors and the criteria to account for construction and finance counterparties risk.

A. Construction Phase Business Anchor SACP

15. Under the proposal, to assess the Construction Phase Business Anchor SACP, three main analytical factors are assessed:

- "Technology and Design," which scores the risk that costs may underestimate the final need or that design changes and technology enhancements may require additional funds to rectify a problem;
- "Construction Risk," which scores the ability of the construction contractor based on the contractual risk transfer to deliver the project as designed; and
- "Project Management," which scores the ability of the project management to manage the risks they are responsible for.

16. We assign the scores for Construction Risk and Technology and Design as if the project is at financial close and they are not positively changed during construction despite design being completed. As the contracts and funding are established based on the design risk as at financial close and cost-variation risk is usually greatest at the end of construction these scores are rarely improved during construction. The size of funding is established at financial close and normally any overrun and or delay is not evident until near the end of construction. In addition, a number of costs during construction are often subject to market variations and the level of independent review after financial close is not as detailed about the cost to compete and risk analysis.

17. An exception occurs when a long construction task involves the building of a series of largely repetitive projects. Once a track-record is established and can be demonstrated, some scoring could be revised. An example is a project to build multiple military barracks that are similar in design and once one is complete the design is proven.

1. Technology and Design

18. Under the proposal, the Technology and Design scores the likelihood that when the project is built it will perform as expected and will cost no more than estimated. The scores quantify how well the choice of technology and design is likely to result in a project that performs as predicted and in accordance with the requirements of any revenue-producing contracts. The Technology and Design score is a combination of:

- The Technological Risk of the solution used by the project (see table 1). We assess the likelihood that the technology selected will perform under project operating conditions as measured against contractual requirements.
- The Design Cost Variation risk (see table 2). This scores the risk that the final cost may be different to the estimated cost at financial close.

a) Technological Risk

19. Under the proposal, the Technological Risk score reflects the assessment of the technology track record in circumstances similar to the project's application relative to contractual conditions. The analysis compares the likely performance of the technology at site conditions. The technology risk score range from 'Very Strong' to 'Very Weak' and is determined by the combination of "Technology Track Record in Application" and "Technology performance match to contract requirements and expectations" (see table 1).

Table 1

Technological Risk Score

Technology track record in this application (see ¶20)	Technology performance match to contract requirements and expectations (see ¶22)			
	Exceeds	Matches all	Falls short of minor	Falls short of material
Commercially proven	Very strong	Strong	Weak	Very weak

Proven	Strong	Adequate	Weak	Very weak
Proven but not in this application or arrangement	Adequate	Weak	Very weak	*
New or unproven technology	Weak	Very weak	*	*

*Construction Phase Business Anchor SACP generally not rated higher than 'b-' unless mitigated by recourse to compensating third-party financial support otherwise more typical of full recourse financings (see ¶64). Note--All scores are residual risk to the project after mitigants and after allowing for any conditions attaching to mitigants.

Technology track record in application

20. We propose to score "Technology Track Record in Application" into four different categories by assessing the degree of reliability and predictability favoring proven technology over newer, even if more efficient, technology. The score ranges from "commercially proven" to "new technology or unproven," as follows:

- "Commercially proven" technology is one that is "off the shelf," prefabricated, or is widely commercialized technology. Furthermore, it must have been used for a time period that allows for accurate predictions of its performance over the technology's lifecycle. Commercially proven would not include technology that may have a long history, but in another application, or operating environment, or at a different scale.
- "Proven" technology is one that has a satisfactory operating record relative to the project and technology life in a similar application, but the operating period does not cover a period long enough to provide a reliable cost and performance estimates of lifecycle expenditure. Technology with minor modifications on "commercially proven" is classified in this category.
- "Proven but not in this application or arrangement" technology has been used in a similar application, but at a different scale, under different operating conditions, or in a different configuration, but there is a reasonable expectation that it will perform as expected in this application. The application of the chosen technologies in different configurations or for different purposes to that of the project introduces additional performance and interface risks. Furthermore, the impact of the choice of materials or equipment on the replacement cycle and operations and maintenance costs is assessed. Pilot-scale testing and at-scale testing of components under actual operating conditions provide performance information that reduces the uncertainty of an untried configuration.
- A "new technology or unproven" score is assigned to technologies that have not been demonstrated at even pilot scale, or the major components have not been tested in an operational environment similar to the project.

21. Although almost all projects have some novel or new combinations of technology, this does not preclude a higher score provided all interfaces were adequately tested under operating conditions and all technologies are at the same level of development. The score will be linked to the weakest technology or interface essential to the project's operation. For example, a train system may have operational difficulties where the train's motors interfere with the signaling system.

Technology performance match to contract requirements and expectations

22. We propose to score "Technology performance match to contract requirements and expectations" by comparing the expected performance of the technology against the project performance set out in the project's contracts. In the most circumstances we will score this "matches all," however, this score may be revised during surveillance if it is determined that the design did not "match all" as expected. The score ranges from "exceeds" to "falls short of contract or performance expectations" as follows:

- In rare circumstances the score of "Exceeds" will be assigned where in our opinion the technology's expected performance exceeds industry norms and local permitting requirements even under extreme conditions. For example, a prison was built with triple security redundancy even though the typical requirements call for less.
- "Matches all" matches or exceeds the range of conditions expected if a plant operates as designed under the range of expected conditions.
- "Falls short of minor" means normal operations, but may fall short of some minor conditions that are not expected to have a material effect.
- The "Falls short of material" score is where the technology falls short of some material contract or performance expectation.

b) Design Cost Variation Risk

23. Under the proposal, the "Design Variation Risk" score reflects the assessment of the risk that the final project cost of construction (the actual cost to build) may materially exceed "the project budget." We define "the project budget" as the base cost estimate to build plus a contingency to cover risk uncertainty around the base estimate and, an escalation factor to cover the increases in costs during the construction period, such as inflation and other market-related cost changes. The variability between actual and estimated costs can occur through variations in such items as level of design completion, errors or omissions in the estimating process, quantity and cost of materials, labor productivity and cost, and weather. Recognizing that a project's budget changes over time as the design is completed and contracts are executed and, as such, the score measures the expected status at financial close. Also affecting the final cost are contingent risks (not accounted for by the project budget), that are not certain, but may occur, such as severe weather events, or industrial actions.

24. The proposed scores for design cost variation risk range from 'Very Low' to 'High' and are determined by the variability and the risk of

exceeding the project budget as a function of potential changes to the "degree of design completion and costing" and the "design complexity" (see table 2). For example, we believe that estimates based on projects that use a proven design that has been built many times with minor modification present a low risk that the project's final cost will materially exceed the project's budget. Conversely, first-of-a-kind projects or those using new technology have a greater risk of exceeding the project budget and by a greater amount.

Table 2
Design Cost Variation Risk Score

Degree of design completion and costing (see ¶25)	Design complexity (see ¶26)				
	Proven design	Modified proven design	Established design modified for site conditions	Simple first of a kind	Complex first of a kind
Very advanced	Very low	Low	Modest	Moderate	High
Advanced	Very low	Modest	Moderate	High	High
Moderate	Low	Moderate	High	High	*
Preliminary	Moderate	High	*	*	*

*Construction Phase Business Anchor SACP generally not rated higher than 'b-' unless mitigated by recourse to compensating third-party financial support otherwise more typical of full recourse financings (see ¶64). We assign "brownfield" sites the next weakest score than a similar "greenfield" site if the degree of risk the site presents is higher due to difficult or unknown ground conditions, or where activity is constrained by the presence of other infrastructure activity at or around a project site. Rehabilitated "Brownfield" sites, or where, in the case of a concession, the grantor assumes the risk, are treated the same as Greenfield sites. All scores are residual risk to the project after mitigants and after allowing for any conditions attaching to mitigants.

Degree of design completion and costing

25. Under the proposal the "Degree of Design Completion and Costing" is scored from "Very Advanced" to "Preliminary" as follows:

- "Very advanced" is characterized by the completion of the majority of detailed design. The detail should be backed by executed or firm orders placed for major equipment and major works that provide a high degree of certainty about price and which party bears the cost of variations in exchange rate and other variables as at financial close. The project contingency and escalation factors are appropriate for the project.
- "Advanced" reflects substantial completion of detailed design backed by executable contracts for major equipment and major works. The contingency and escalation factors are assessed as appropriate for the project and the remaining design risk is just minor detail refinement. For example, substantial completion would usually include completion of at least 50% of the detailed design work for the asset with complex work.
- "Moderate" has a percentage of detailed design completion between preliminary and advanced, backed by firm quotes for major equipment and major works. This also includes fast-track construction processes used where completion of detailed design runs in parallel with construction. The contingency and escalation factors are appropriate for the project level of design.
- The level of design completion must have a confidence, based on previous similar designs, that the design can be built to specification with the risk of delay limited to construction problems. Costs risk must be based on firm quotes for major work packages from a reputable contractor who intends to undertake the work, for example the package of civil engineering works. Military barracks or school projects at a preliminary stage of design at financial close would be scored "preliminary" provide they use a "proven" design or "modified proven" design. Projects with a higher level of complexity such as heavy engineering, industrial tasks, or complex building projects, if only at a preliminary stage at financial close, would be generally not rated higher than 'b-' unless mitigated by recourse to compensating third party financial support otherwise more typical of full recourse financings (see paragraph 64).

Design Complexity

26. "Design Complexity" captures to what extent the design of the project system used can result in unexpected variations during the construction and operations phases. Design Complexity score ranges from "proven" to "complex first of a kind" under the proposal as follows:

- A "proven" design has been built a number of times largely in the configuration proposed. The project is a repeat project, with good historical costs and performance data to support the estimate.
- A "modified proven" design complexity is largely an extension of a design that has been used elsewhere, but has been modified for siting, permitting, or other reasons.
- An "established design modified for site conditions" is a project based on a design that has only been built once or a small number of times before or has had a greater degree of modification on a proven design for the site or permit conditions. This score is also assigned to a proven design that has a portion of risk associated with poorly defined site or permit conditions, such as ground conditions, foundations, latent defects, archeological findings, and contamination or access constraints.
- A "simple first of a kind" design is a new design, but with a simple configuration.
- "Complex first of a kind" is more risky than any of the above.

Technology and Design Risk

27. As proposed the combination of our assessment on Technological Risk and Design Cost Variation Risk determines Technology and Design Risk scored on a 1 to 5 scale, with 1 being the strongest (lowest risk) (see table 3).

Table 3**Technology And Design Risk Score**

Design cost variation risk (table 2)	Technological risk (table 1)				
	Very strong	Strong	Adequate	Weak	Very weak
Very low	1	2	3	4	5
Low	2	2	3	4	5
Modest	2	3	4	5	5
Moderate	3	4	5	*	*
High	4	5	*	*	*

*Construction Phase Business Anchor SACP generally not rated higher than 'b-' unless mitigated by recourse to compensating third-party financial support otherwise more typical of full recourse financings (see ¶64). All scores are residual risk to the project after mitigants and after allowing for any conditions attaching to mitigants.

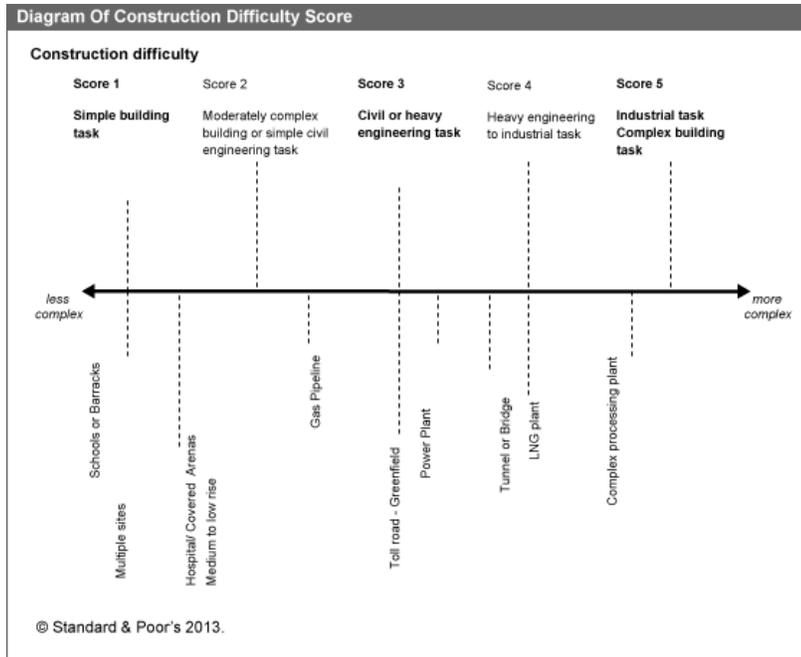
2. Construction Risk

28. Under the proposal, the construction risk score reflects the assessment of the extent to which "Construction Difficulty" (see chart 2) and the "Delivery Method" (see table 4) used can impair the project's expected completion date and target budget. The project's completion date or "sunset" date (see Glossary) is compared with the schedule in the relevant contracts (mainly revenue and funding contracts) and the ability to generate the cash flow required to meet the first debt-service payment.

a) Construction Difficulty

29. As proposed, "Construction Difficulty" (see chart 2) scores the difficulty in building the relevant average type of project. The score recognizes that construction difficulty even for a specific type of project is a continuum with the score determined by rounding to the nearest score or in borderline cases to the next weaker score. For example, a simple civil project such as a flat-surface, greenfield toll road is differentiated from a more complex bridge-building task. Similarly, complex hospitals or covered stadiums would be scored 2 because an average hospital is midway between 1 and 2.
30. Standard & Poor's observations are that more difficult construction tasks are more likely to lead to delays and cost overruns than simple construction. Simple construction tasks (buildings and real estate) typically have lower risk of completion compared with civil or heavy engineering work. In addition, proven construction techniques can simplify the construction tasks. Broad definitions reflect standard industry classifications as follows:
- Civil engineering construction work includes railways, roads, and highways.
 - Heavy engineering includes large machines and equipment such as power plants, pipelines, and bridges.
 - Industrial construction includes projects such as refineries and mining plants.
31. If there is significant risk that a task can be made challenging due to programming of construction activities, the construction difficulty score will be negatively changed, reflecting the risk notwithstanding a simple design or construction task. For example, a simple road construction is made more challenging by building the road or upgrading a road next to an operating existing road. This is an execution risk of what may otherwise be a simple design that is not captured by the Brownfield adjustment (see paragraph 26).

Chart 2



b) Delivery Method

32. As proposed, the "Delivery Method" score ranges from 'Very Strong' to 'Very Weak' and is derived from the analysis of the "contractor experience" and the "contract risk transfer" (see table 5). A material task on the project's critical path (see Glossary) is the reference point for scoring.

Table 4

Delivery Method

Contractor experience (see ¶33-36)	Contract risk transfer (table 5)				
	High	High to moderate	Moderate	Moderate to low	Low
Very experienced	Very strong	Strong	Adequate	Weak	Very weak
Experienced	Strong	Adequate	Weak	Very weak	Very weak
Experienced but not in local conditions or project type	Adequate	Weak	Very weak	*	*
Inexperienced	§	Very weak	*	*	*

*Construction Phase Business Anchor SACP generally not rated higher than 'b-' unless mitigated by recourse to compensating third party financial support otherwise more typical of full recourse financings (see ¶64). §Not applicable--Turnkey contracts are used mainly in major plant requiring special expertise normally restricted to a small group of high level of contractors for the sector. All scores are residual risk to the project after mitigants and after allowing for any conditions attaching to mitigants.

Contractor experience

33. We propose to score the ability and experience of contractors to deliver the project on time (including time buffers) as "very experienced" to "inexperienced" based on a combination of their relevant expertise with the project's type, scale, and location, the experience of each contractor's project director and team, their risk-management and quality-control systems, their labor-relations record, and how well they select subcontractors and manage interfaces. The contractor's technical capacity and experience can be a significant risk mitigant in completing the project as expected.
34. If a contractor does not meet all of the characteristics for a category, it will be assigned the next weakest score. The score is a best fit for the arrangements--company staff, arrangements with subcontractors, and joint ventures with other contractors who mitigate a particular weakness. The score also incorporates interface issues between various prime or subcontractors because they can result in mismatches and disputed responsibilities.
35. We define the "Contractor Experience" categories as follows:
- A "very experienced" contractor, also considered top-tier (see "Project Finance Construction And Operations Counterparty Methodology," published Dec. 20, 2011), is generally recognized in the context of the sector and/or project location as having a consistent record of delivering similar projects on time in accordance with design and to budget. The project team includes an experienced project director who has a track record of delivering similar projects to target budget and schedule under the

type of contract used. The contractor has a proven record of selecting and managing subcontractors to ensure they have the capacity to deliver by not overcommitting to a range of projects and by similarly having experienced staff. To be considered "very experienced" for projects that extend from civil engineering through industrial (see chart 2), the contractor is benchmarked against global contractors for that type of project; for example the construction of liquefied natural gas plants. To compensate for lack of local expertise the contractor may be a "best of breed" global contractor who supplements their global expertise with a strong local partner for a specific project.

- An "experienced contractor" score does not meet the requirements of very experienced and is characterized by a high-quality, second-tier construction contractor or multiple contractors with an experienced project director and well-defined contractor interface issues.
- An "experienced but not in local conditions or project type" score is assigned to otherwise experienced contractors who are branching out into a new market either geographically or style of project. They possess the general characteristics of the above categories except for the relevant experience, which is usually mitigated by hiring experienced staff or partnering with a local firm.
- A contractor that is "inexperienced" in both a sector and geography does not normally have the skills required to adequately mitigate risk in project finance structures. Therefore, contractors that do not mitigate their lack of experience, say by hiring local project staff, are not considered suitably qualified to take "turnkey" contract risk (see table 5) and the contractor experience is scored in this category.

36. Multiple contractors/contracts. When a project uses multiple contractors, the definition of responsibilities should be clear and allow for an integrated delivery to be scored as experienced overall. In this context, the score depends on the arrangements among counterparties, and it generally reflects:

- The strength of the strongest party within "joint and several arrangements" (see "Project Finance Construction And Operations Counterparty Methodology," published Dec. 21, 2011);
- The weakest link among "several" arrangements with a focus on the materiality of the task carried out by each party; and
- An "inexperienced" score if responsibilities are vaguely defined.

Contract risk transfer and effectiveness

37. The effectiveness of the construction contract is measured by assessing how well the risks of cost and time overruns and project performance are transferred to the builder, and how much risk the project retains. This is a function of the type of contract, as well as the pricing, the contractor incentives, and the alignment with project's goals. The proposed scoring uses the terminology and guidance established in Table 5. Because of the possible permutations of contracts, the assessment is made on a "best-fit" basis.

38. Standard and Poor's looks beyond the contract types to reflect the degree of risk-sharing as contract types vary, and are often interpreted differently. The prime difference between the contracts, and therefore the score, is which party takes the risk of cost overruns, project delays, and who keeps any savings (see table 5). Although some contracts may be cheaper, this is usually because the project accepts a greater risk share.

Table 5
Degree Of Contract Risk Transfer

Typical contract name	Guidance	Score
Turnkey contract	<p>--The contractor agrees to complete the project to a fixed price and certain date and has a very high incentive to perform to a fixed schedule aligned to the project goals.</p> <p>--The contractor guarantees "fit for purpose" backed by compensation for the project for the present value of any underperformance against a completion test.* (*). Fit for purpose will be determined contractually by a performance test. For the test to be effective, it should be conducted under normal operating conditions at full capacity for a period long enough to be representative of normal operating performance.</p> <p>--There is limited relief for unexpected events, and modifications can only be requested under a strict regime; these factors reduce the risk of any price increases or delays.</p>	High
Engineering, procurement, and construction (EPC) contract	<p>--Engineering, design, procurement of materials, construction, and management are risks borne by the contractor either through its own labor or subcontractors based on an agreed scope and specifications with little project involvement.</p> <p>--The contract is for a fixed price and schedule with a limited risk of variations (change orders) to affect a project's costs and time of completion.</p> <p>--A major contractor coordinates all construction activities and has moderate to high alignment with project goals.</p> <p>--The contract has a high incentive to perform.</p>	High to moderate
Engineering, procurement, construction management (EPCM) contract	<p>--This contract is similar to an EPC contract with greater sharing of management risk with the project's management.</p>	Moderate

	--The project's management takes greater risk in managing the variety of procurement and contract interfaces and the consequences of any failure.	
	--The project's management takes a greater risk on price and time to delivery without the buffer of a major contractor coordinating all activities.	
Construct contract	--The contractor agrees to build to a design supplied by the project or its agent and limits its responsibility to quality of workmanship and does not warrant failure of the design to meet project objectives. --There is a greater risk of change orders or variations (see Glossary).	Moderate to low
	--Incentives are limited to liquidated damages and warranties on workmanship.	
Cost plus price	--Contractor paid on cost per volume or unit of work such as in earthworks or rail track laying. --Low incentives and alignment with project goals. --This contract only provides the requisite certainty when used for simple linear construction tasks where the length is known with a high degree of certainty such as pipelines, or railway tracks across flat predictable terrain	Low

*If the project is reliant on this compensation for underperformance against design, the CDA is directly weak-linked to the contractor. Note--¶39-40 describe in greater detail the characteristics that support the scoring decision process.

39. The contract price is examined--if possible in consultation with the Independent Expert (see Glossary)--to ascertain if the contract was fairly priced and if there is adequate contingency to cover any potential cost overruns and variations. Deliberately low-priced or poorly priced contracts indicate an aggressive pricing strategy or inexperience for the task, and may be a precursor to variations in the design that will add to the project's cost and weak incentive. This is identified by the contracting culture in the country, the form of the contract, and comparison with any other known comparable costs. Where the contracting culture is to bid low and rely on change orders to achieve a profit under the contract, the contract score and other analysis will assume that the contract is one type lower--for example, a construct contract (moderate to low) will be treated as a cost-plus contract (low) unless the contractor can demonstrate they understand the contract type and have adequately priced the work. We analyze to what extent the contract incentives match the project's goals. For instance, the bonus-penalty regime backed by amounts that make performance attractive provides a strong alignment of the type of contract's cash management, penalties, and incentives with the project's goals. Therefore, it is examined with a stronger score, reflecting a strong match between contract incentives with the project's goals.

40. Characteristics of high incentives include a combination of some of the following:

- The contract is a competitive, but fairly priced contract (see paragraph 39).
- The liability cap is not less than the sum of possible cost and time overruns as measured by their consequences.
- Liquidated damages are assessed relative to the project costs incurred or other contract costs from an extended delay (for example, late delivery penalties under revenue offtake contracts).
- The defect liability period and warranties to protect the project against construction defects are reasonable for the technology and market practice.
- The level of credit enhancement (letters of credit, performance bonds, and surety instruments) exceeds 10% of the contract cost and does not reduce (step down) toward the end of construction. This is in addition to any replacement credit enhancement (see "Project Finance Construction and Operations Counterparty Methodology," published Dec. 20, 2011).
- The payment profile matches the work completed and is not front-loaded.
- A contractor has equity in the project. This gives incentive to perform, but may also obviate a replaceable conclusion (see "Project Finance Construction and Operations Counterparty Methodology," published Dec. 20, 2011) if their role permits them an effective veto on replacement or may delay a decision. If there is veto right, the contractor will be considered irreplaceable.

Construction Risk Score

41. As proposed the combination of our assessment on Construction Difficulty and Delivery Method determines the Construction Risk scored on a 1 to 5 scale, with 1 being the strongest (lowest risk) (see table 6).

Table 6
Construction Risk Score

Delivery method (table 4)	Construction difficulty (chart 2)				
	Simple building task	Moderately complex building or simple civil engineering task	Civil or heavy engineering task	Heavy engineering-to-industrial task	Industrial task Complex building task
Very strong	1	1	2	3	4
Strong	1	2	3	4	5
Adequate	2	3	4	5	*
Weak	4	4	5	*	*
Very weak	5	5	*	*	*

*Construction Phase Business Anchor SACP generally not rated higher than 'b-' unless mitigated by recourse to compensating third-party financial support otherwise more typical of full recourse financings (see ¶64). Note--All scores are residual risk to the project after mitigants and after allowing for any conditions attaching to mitigants.

3. Project Management

42. Under the proposal, the analysis of the construction phase project management scores the project management of risks that the project retains responsibility for. We assess seven components, which we score as positive, negative, or very negative (see table 7):
- Construction cash management. This focuses on the release of cash to pay for construction, the effectiveness of budgeting to ensure costs are contained, and that cash is deposited in controlled accounts. It is analyzed with reference to those conditions precedent to drawdown (Glossary), and representations and warranties that may result in a temporary or permanent stop to drawings.
 - Design approval. It focuses to what extent the design may be subject to variations that can result in the need for additional funds or delays not covered by the construction contractor or a third party.
 - Permits and acquisition of right of way. This assesses the likelihood of all permits being issued and all right-of-way arrangements being completed.
 - Project management expertise.
 - Planning and budgeting execution risk. We focus on those activities that are on the critical path of the project's plan. A delay in any critical path activities will lead to a delay in the project, as well as possible increased costs.
 - Sunset Date. This allows the project a buffer to complete construction. We evaluate if the date of the first scheduled debt service and the amount of buffer are sufficient to cover delays. A project may have a number of sunset dates built into the construction contract, the project agreements or concession, and supporting contracts such as fuel supply. Implicitly, the scheduled debt service may also create a sunset date that requires operations to be started to meet scheduled debt service.
 - Dispute resolution.

Table 7
Summary Of Proposed Scoring Rules For Project Management Subfactors

	Positive	Negative	Very negative
Construction cash management	Cash management includes a range of measures that manage the payment of construction costs and look forward to provide early warning of cost overruns, such as cost to complete tests; milestone payments; and preservation of interest payments. Cash controls is also enhanced by independent oversight and/or certification of work completed.	Cash management is basic and lacks a forward looking review, and/or lacks independent oversight.	Cash management lacks adequate controls on payments/disbursement of funds or permits payments ahead of completion of work package
Design approval	Operator and user or off-taker have provided a detailed project scope and have approved design, accounting for ease of operation and maintenance. All parties have sufficient resources to approve design in a timely manner.	Operator and user or off-taker have had limited input or review to the project scope and have not formally approved the design as the project is the only partly involved. The scope is not well defined, or some parties are poorly resourced to review designs.	Operator and user or off-taker have not been involved in design or approval. No review of the design relative to contract requirements has been undertaken.
Permits and acquisition of right of way	All right of ways and material permits that can be issued at financial close are issued and the remainder are known and quantified with very low risk of unexpected conditions.	Permits are not issued or potential site conditions have material consent conditions or have not been quantified (such as contamination or archeology), design variations may be required that potentially increases project risk. The assessment of the risk increase considers such factors as transparency, precedent, and the legislative environment. Right of way not fully acquired but viable alternate routes available.	Design risks due to archeological, environmental, or endangered species cannot be quantified or where the permitting process is opaque Right of way at risk of being substantially delayed.
Project management expertise	Sponsor has strong project management skills and a previous track record of delivering similar projects on time and budget.	Sponsor's project management track record is limited and risk of contractor-introduced change is higher.	Not applicable.*
Planning and budgeting execution risk	Critical-path items present limited risk to achieving schedule and budget.	Schedule and budget is tight, with a number of items or a material item on the critical path subject to uncertain factors (long-lead time, weather, access, etc.).	Schedule and budget are very tight, with items or a material item on the critical path that may create a delay beyond the project sunset date if missed.
Sunset date	Sunset date and date of first debt service allows adequate time, in addition to the expected construction schedule, to cover the period required to replace a contractor and to complete works following an unexpected delay.	Sunset date and date of first debt service allows adequate time to replace a contractor, but is tight for additional delays.	No time buffer to allow for delays during construction ahead of first debt service from operations threatening the viability of the project if underlying contracts terminate.

Dispute resolution	The method resolves disputes quickly through strong working relationships between project, constructor and off-taker and the project documents are easy to navigate and readily facilitate the ability to solve problems.	Complex process or poor working relationships that may prolong dispute resolution.	The process is reliant on prolonged legal processes.
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*While the management track record is limited we would expect this to be supplemented by external hires with skills necessary to deliver the project and a skilled and experienced operator who is capable of managing the project. As such there is no "Very negative" score

43. Standard & Poor's uses the following scale to score the project's construction management: (1) strong, (2) satisfactory, (3) fair, and (4) weak (see table 8).

Table 8
Use Of Subfactors Scores For Determining The Overall Score For Project Management (refer table 7)

Strong	All of the subfactors are positive.
Satisfactory	The majority of subfactors are positive, with some negative scores.
Fair	The majority of subfactors are negative, or we view key aspects of project management as potentially harmful to the company's risk profile.
Weak	Any score is very negative.

4. Construction Phase Business Anchor SACP

44. The combined scoring of "Technology and Design" (table 3) and "Construction Risk" factors (table 6) determines the Preliminary Construction Business Phase Anchor SACP under the proposal (see table 9).

Table 9
Preliminary Construction Phase Business Anchor SACP

Technology and design (table 3)	Construction risk (table 6)				
	1	2	3	4	5
1	a+	a	a-	bbb+	bbb-
2	a	a-	bbb+	bbb	bb+
3	a-	bbb+	bbb	bbb-	bb
4	bbb+	bbb	bbb-	bb+	bb-
5	bbb-	bb+	bb	bb-	b+

Table 10
Construction Phase Business Anchor SACP

Project management Score	Impact on preliminary construction phase business anchor SACP.
Strong	Plus 1 notch
Satisfactory	No change
Fair	Minus 2 notches
Weak	Not generally rated higher than 'b-'

45. The Preliminary Construction Phase Business Anchor SACP is adjusted to account for the project management score to establish the Construction Phase Business Anchor SACP. The effect of the project management score on the construction phase business profile can be positive, neutral, or negative (see table 10). The effect is greater in high-risk projects, where a skilled and well-run project management can significantly affect outcomes compared with a project developed under a low-difficulty form of construction where an experienced contractor assumes a large portion of the cost and schedule risk of delivery.

B. Construction Financial Profile

46. The construction financial profile assesses whether the project has enough funding (use of funds) to cover the costs of construction and ensuring the project ready for operations even under a downside scenario. This is evaluated against the certainty of the sources of finance that will be needed to meet funding requirements.
47. As proposed, the scoring of a project's construction phase financial profile is based on the analysis of sources and uses of funds. "Funding Adequacy" (uses of funds, tables 11 and 12), and "Construction Funding" (sources of funds; tables 13 and 14) are scored relative to the financing required to complete construction and capitalize the project ready for operations. The financial risk is measured relative to the cost and timing of construction, as determined by the business profile risks and arrangements, and the establishment of a capital structure ready for starting the operating phase, including debt service.

1. Funding Adequacy

48. Under the proposal, Funding Adequacy compares the amount and certainty of available funds against all expected uses, particularly those in the downside scenarios due to the fixed nature of funding and the need to begin operations as expected. Uses of funds include (see tables 11 and 12):

- Construction costs and other start-up project costs. These extend beyond the contract costs and incorporate allowances for variable construction costs, such as schedule of rates works, and for costs not covered by the builder under the construction contract (such as variances, escalations, latent defects [see Glossary], and movements in exchange rates). The project, rather than the contractor, may also bear the cost of time-related costs, such as preliminaries (see Glossary), force majeure events, or delays not attributable to the builder (such as permit delays).
- Funding of working capital. This is the initial amount needed for operations to begin satisfactorily. Typical working capital needs for the proposed operations include the project's first spares and first fill (see Glossary).
- Establishment of reserve accounts. The operating phase relies on having fully funded reserve accounts at the start of operations. Therefore, funding is considered adequate when the reserve accounts are fully funded before the operating phase starts. Reserve accounts would be required earlier when cash payments during construction for debt service are required. This is mitigated where debt service is prefunded or specifically sized in the project funding after allowing for other uses.
- Interest payable during construction. This may be in the form of cash payments or an amount to be capitalized. Even if interest is capitalized, the debt limits must include an amount equal to the capitalized amount, otherwise the loan will be in default. Interest is a time-based cost and, as such, the amount required increases with project delays. Total interest payable to a project during construction can vary as a result of any project delays that could place pressure on available funds.

Table 11

Standard & Poor's Assessment Of Construction Funding Adequacy (Uses Of Funds)

	Downside need	Base need
Construction costs and other project start-up costs	Funding meets or exceeds construction costs under Standard & Poor's downside scenario (see Appendix) or funding covers any early completion bonus payment under a fast-track scenario.	Funding exceeds construction costs for base case scenario, but not that of the downside scenario (see Appendix).
Interest payable during construction (see Appendix)	Interest payments cover the downside case need.	Interest payments funded until operations commence to cover interest under base case.
Working capital	Initial working capital fully funded.	
Reserve accounts	Fully funded.	

49. Our scoring recognizes that while funding is normally fungible, some expenses, such as construction costs, are normally paid progressively, whereas reserves are usually established at the end of construction and after paying for any cost overruns. Adequacy is tested against the downside funding, including any increased interest costs resulting from any project delays.
50. The assessment of the funding adequacy can be either neutral or negative to the financial risk profile--it cannot, in itself, raise the score (see table 12). The scoring effectively is a summation of all the components and is biased toward covering the downside need.

Table 12

Use Of Subfactors Scores For Determining The Impact Of Funding Adequacy (Use Of Funds, See Table 11)

Neutral	Funding is available for all costs under the downside scenario.
Marginally negative	Funds cover construction costs, but are less than sufficient to meet the combination of other uses such as reserves funding adequacy. Reserve accounts can be less than Downside Need but not less than Base Need.
Negative	A combination of the marginally negative conditions above plus any material conditions under the transaction documentation which are assumed as having the potential to inhibit the timely drawing of a letter of credit (or similar instrument) used to support a reserve account in all downside requirements.

2. Construction Funding (Sources of Funds)

51. Construction funding may come from many sources that may vary by degrees of certainty, conditionality, and timeliness. Due to the normally tight financing schedule, a funding source that is late or uncertain may result in a default, particularly if interest is payable and not paid when due.
52. Under the proposal, the assessment of Construction funding is based on the analysis of the following six funding and liquidity sources:
- Debt funding certainty. We assess to what extent funds not contributed at financial close can be drawn down during construction subject to meeting the conditions precedent (CP) established in the loan documentation. If debt is a mix of bank debt subject to progressive draws and bond funding that is fully paid, the bond holders are disadvantaged if the banks can withhold funding. A failure to meet any CP may prevent drawdown and the more extensive the CP the greater the drawdown risk. For example, this could mean that the failure to provide a report on time may link through the project documents to the CP, and, as such, may be grounds to prevent a drawdown. If there are significant concerns about the project's ability to meet the CP in order to drawdown, this factor would be scored as uncertain.
 - Equity certainty. We assess how certain equity that has been deferred and not fully invested before debt is drawn will be contributed at the end of construction.
 - Interest income during construction. We assess the availability of interest earned during construction. This may be less if the project is built faster than expected or unexpected costs require its early expenditure it is not a reliable source of financing. The amount earned is subject to the market's short-term at-call deposit rates and the amount of cash on deposit at any time.

- Revenue from operations during construction. We assess operating cash inflows (such as those coming from operating an existing hospital while a replacement one is built next door) during construction using the operations phase credit profile analysis for a start-up project downside case. The cash is based on the excess available after all operating costs. Operating surplus cash inflow is often vulnerable to delays or unforeseen costs due to the difficulties in establishing an operation on a new site and conducting that operation adjacent to or on the same site as construction.
 - Third-party support, including grants from government or third-party or parent support. The assessment of the effectiveness of these additional sources of cash inflows used to finance construction, in addition to timing, is performed on economic and legal grounds. For example, the economic incentive of a government or local authority to provide a grant, the authority's creditworthiness, and the authority's legal ability to provide the grant are important factors.
 - Contractor support. Contractors' liquidated damages (payable by the contractor on certain events) are usually paid after arbitration and, at times, after legal action. Therefore, we do not consider liquidated damages a funding source, unless backed by performance bonds, letters of credit, retentions, or similar mechanisms (see "Financial Enhancement Ratings," published Dec. 10, 2004 and "Credit Enhancements (Liquidity Support) In Project Finance and PPP Transactions Reviewed," published March 30, 2007). The amount of liquidated damages that require coverage also involves some uncertainty because they will be based on specific performance at certain times during construction. Retentions and third-party liquidity support can ensure that payments to support construction continue while any disputes related to liquidated damages are settled.
53. The certainty and availability of each funding source is analyzed relative to the timing of its use, including any conditionality established in the financing documentation, counterparty risk, and willingness (including incentives) to contribute under our downside scenarios. We score each of the components as highly certain, certain, or uncertain (see table 13). The highly certain score is based on debt and equity financing that is contributed at or before financial close and deposited in a restricted account (usually controlled by the trustee).
54. Standard & Poor's measures liquidity on a net basis after allowing for credit enhancement for contractor replacement, specifically assessed as a CDA (see Project Finance Construction And Operations Counterparty Methodology) for builder replacement. As such, we do not include the builder credit enhancement as general liquidity.

Table 13

Standard & Poor's Assessment Of Construction Funding Sources

Highly certain	Certain	Uncertain*
Debt funding certainty		
--Risk of debt being unavailable when required is remote.	--Risk of debt being unavailable when required is low.	--Potential for delayed debt drawdown when required to make a payment, or, would create an insolvency of the project.
--The debt is either contributed in full or unconditionally and irrevocably underwritten from a financial institution (counterparty risk would apply) at financial close.	--The CP for drawings are innocuous, narrowly defined and only subject to "fatal" conditions that are highly likely to result in debt not being service or lead to project termination for projects with a Construction Phase Business Anchor SACP below 'a'.	--Onerous, more extensive or administratively cumbersome CP present decreasing the level of certainty also depending on the degree of administrative or other loose requirements included.
--The CP for drawings are innocuous, narrowly defined and only subject to "fatal" conditions that are highly likely to result in debt not being serviced or lead to project termination for projects with a Construction Phase Business Anchor SACP above 'a' due to the low risk to covenants		--Debt funds from financial institutions that appear no longer committed to the project and are actively seeking methods to stop draw downs. Evidence of this: formal notices from lenders or other communication referencing such as a board that is concerned about ongoing solvency.
Equity certainty		
--Deferred equity in projects with a Construction Phase Business Anchor SACP above 'bb+' must be backed by a financial instrument such as an unconditional and irrevocable letter of credit (LOC), from a bank (for counterparty impact see ¶63). The instrument must be unconditional and irrevocable and payable by a fixed date or earlier if the finance documents trigger an early call.	--Deferred equity in projects with a Construction Phase Business Anchor SACP 'bb+' or below is backed by a financial instrument such as an unconditional and irrevocable LOC from a bank (for counterparty impact see ¶63). The instrument must be unconditional and irrevocable and payable by a fixed date or earlier if the finance documents trigger an early call.	--Some risk that equity will not be contributed when required.
	--The guarantee is provided by stronger publically rated parents provided the guarantee is effectively ranking with senior unsecured debt and a failure to pay would be considered a default of the parent (see Standard & Poor's guarantee criteria listed in the "Related Criteria And Research" section below) for projects with a Construction Phase Business Anchor	

SACP above 'bb+'.

Interest income

--The construction drawdown is very predictable and cannot exceed a fixed schedule of drawings under the transaction documentation for projects with a Construction Phase Business Anchor SACP above 'a-'. The amount of interest income paid on a project's conservative cash balances held with highly rated banks at locked-in deposit rates is included.

--Construction drawdown is very predictable and cannot exceed a fixed schedule of drawings. If hedged, interest income is based on conservative balances with rated banks or governments rated at the same or higher level than the project at established deposit rates. Where unhedged, we include an amount of interest income no greater than 75% of the predicted income after costs by a generally available on call deposit less 1%.

--Interest income not resulting from deposit with a highly rated bank.

Revenues from operations during construction

--Excess proceeds from operations are highly certain under all reasonable conditions.

--Excess proceeds from operations are slightly vulnerable to underperformance.

--Operating cash inflow income from untested or uncontracted operations that are vulnerable to interruption or delay.

--Excess proceeds come from a downside scenario of an availability based project that has at least an 'a' for the Construction Phase Business Anchor SACP and is not viewed as weaker than that in operations phase.

--Operating surplus income from operations that have at least five years of operations history, but limited to a downside scenario.

--The surplus funds are based on a downside scenario for a project in which the operations risk from which funds are provided is no higher than the Construction Phase Business Anchor SACP (see ¶145).

Third-party support***

--Third party support is available on demand when required.

--Risk of third-party support not being available when required is low.

--Third-party support is highly conditional or may not be contributed in time to prevent a default.

--Explicit third-party financing support (typically supplied through grants, contingent capital, and guarantees) is expected to be contributed ahead of the time required even if the project is facing difficulty (see ¶63 and refer to Standard & Poor's guarantee criteria listed in the "Related Criteria And Research" section below).

--Funds are expected to be contributed before a default is triggered, but the conditionality may limit its timely contribution

Contractor support

--Contractor's funds are either cash deposits, retentions, or unconditional and irrevocable instruments.

--Contractor's support is unconditional and irrevocable, but there are restrictions under the construction contract that may restrict the ability to draw under the instrument such as liquidated damages must be payable.

--Liquidated damages are not backed by an unconditional irrevocable LOC.

--On-demand instruments are more certain than those that may be payable after a certain time period or have some conditionality.

--The instrument should not have any restrictions on drawing under the construction contract. Furthermore, the amount is limited to no more than 10% of funding.

*No funds from uncertain sources are included in the analysis. **By "fatal" conditions we refer to the reasonable decision by lenders to prevent a drawdown when the project is on the brink of failing and has little prospect of recovery and being completed. ***If the quality of any third party support is very weak or not backed by an appropriate credit quality (see ¶164) rather than score it uncertain we do not include any value in the analysis.

- 55. The assessment of construction funding can be either neutral, marginally negative, negative, or uncertain to the financial risk profile--it cannot, in itself, raise the score (see table 14). The construction funding is scored against the benchmark of having all funds contributed at financial close and recognizes that debt and equity contribute the majority of all funding.

Table 14

Use Of Subfactors Scores For Determining The Impact Of Construction Funding (Source Of Funds) (see Table 13)

Neutral	Highly certain sources are sufficient to meet 110% of all the downside scenario (see Appendix) needs.
Marginally negative	Sources are sufficient to meet 110% of the downside scenario needs. With debt funding being certain and all other sources scored as highly certain.
Negative	Sources are sufficient to meet 110% of the downside scenario needs.
Uncertain	Sources are not sufficient to meet 110% of the downside scenario. The rating for uncertain is generally not higher than 'b-'.

Note--Sources that have conditions on their use are only included where the conditionality means they can be used to complete construction.

C. Determining The Construction Phase Stand-Alone Credit Profile

- 56. As proposed, the assessment of the construction phase financial risk profile can be either neutral or negative to the Construction

Phase Business Anchor SACP--it cannot, in itself, raise the score (see Table 15). Project financings are traditionally capitalized to cover the cost of construction, including the expected downside expenditure. This is supplemented at times by limited recourse to funding from the parent or another interested third party. Ordinary parent support under these criteria is specifically provided by the contracts that make up the project. As such, the financial agreements define ordinary support from a parent.

Table 15**Construction Phase Financial Risk Factors**

Rating factor	How we express our analytical opinion (rankings and qualifiers)	Impact on the anchor SACP by a maximum *
Funding adequacy (use of funds) (see table 12)	Neutral	No change
	Marginally negative	-1 notch
	Negative	-2 to -3 notches**
	Insufficient	Not generally rated higher than 'b-'
Construction Funding (Source of Funds) (see table 14)	Neutral	No change
	Marginally negative	-1 notch
	Negative	-2 to -3 notches**
	Uncertain	Not generally rated higher than 'b-'

*The total impact on the Construction Phase Business Anchor SACP is the sum of the Funding Adequacy and Construction Funding impacts.

**Three notches are applied where the total funding or financing is closer to the base case than downside case. In contrast two notches would mean the funding and financing are less than the total downside but not significantly below that scenario. Note: Not generally rated higher than 'b-' then 'CCC' criteria applies (see "Criteria For Assigning 'CCC+', 'CCC', 'CCC-', And 'CC' Ratings," published Oct. 1, 2012).

57. Standard & Poor's then confirms or adjusts the "Construction Phase Business Anchor SACP" (see paragraph 45) weaker according to the "Financial Risk Factors" (see table 15) to determine the "Construction Phase SACP Before Counterparty Adjustment." Failure to achieve a minimum standard--where in our analysis one or more features cause the financing to be highly vulnerable to default in the very near to near term-- may result in a rating no greater than 'b-'.

Operating activities during the construction phase

58. Operating activities undertaken during construction are assessed using the operations phase credit profile analysis to determine any business or financial impact on the construction phase. This impact is primarily based on constraints on construction activities next to an operating site and the contribution to construction cash flows coming from operating activities.

1. Construction Phase Counterparty Adjustment

59. Under the proposal, the Construction Phase SACP Profile Before Counterparty Adjustment may be weak-linked to construction, equipment, or financial counterparties relating to construction phase contracts.
60. The construction contractor's CDA (see "**Project Finance Construction And Operations Counterparty Methodology**," published Dec. 20, 2011) is applied as a weak-link to the Construction Phase Credit Profile. If the technology and design risk is partly or wholly transferred to the technology supplier and designer, this will weak-link or partially de-link the Construction Phase SACP to the CDA of that counterparty. Warranties and other performance measures provided by a creditworthy counterparty can support our view that risk has been adequately transferred to the technology supplier or designer. For replaceable construction counterparties, as the CDA assumes the counterparty can be replaced if it becomes insolvent, the CDA is determined at the time of the initial rating and then again only at any replacement of that counterparty.
61. For multiple contracts covering supply of equipment and with a second contract covering installation and construction of the building the CDA reflects the weaker of the supplier CDA and constructor CDA. For example, the counterparty CDA of the contract to build a stadium and install equipment is assessed as a construction activity, whereas the counterparty CDA of the contract to supply furniture, fixtures, and equipment is assessed as an equipment supplier activity. Similarly, for a power station, the turbine manufacturer is a supplier and the building and associated balance of plant is civil, mechanical, and electrical engineering.
62. We assess the 'high' risk transfer to be of limited benefit where the contractor is irreplaceable (according to our criteria) and of weak credit quality, which renders the contractor unlikely to fulfill its obligations. Such a circumstance would effectively lead to a lower contract risk transfer score being assigned with the resultant analysis of other risk transfer, financial analysis and counterparty CDA (see "**Project Finance Construction And Operations Counterparty Methodology**," Dec. 20, 2011), reflecting this lower score. In the case where a replaceable contractor with weak credit quality enters into a "turnkey contract," the scoring will be the better of either:
- A "high" score as if all risks are transferred to such a contractor, thus linking the project's credit quality to the contractor CDA; or
 - Scoring the contract as "high to moderate" (like an engineering, procurement, and construction contract) assuming the contractor is a replaceable contractor. We will include design risk transfer and consider in the financial analysis that the

contractor is unlikely to deliver on the credit positives associated with a turnkey contract, and would need to be replaced.

63. For financial counterparties--including bank accounts, liquidity or credit support facilities, interest rate swaps, and currency swaps--and how they may affect a project rating refer to "[Counterparty Risk Framework Methodology And Assumptions](#)," published Nov. 29, 2012.

D. Other Factors

64. Under the proposal, we consider a third party to act as a form of credit substitution to the extent of their credit quality if they guarantee performance, including timely funding of any shortfall, and principal repayment if the project is not completed. Completion guarantees that do not guarantee performance to specification and compensate the project for weaker performance would not meet this standard.

Scope of project finance construction

65. The fixed funding and finite timeframe together with the limited/nonrecourse nature of project financings require a degree of predictability in the construction arrangements for the purposes of limited recourse financing.
66. Construction tasks that do not sufficiently exhibit this predictability are more characteristic of full recourse financings typically attributed to corporate and government financings. Such situations are identified with asterisks (*) in tables 1 to 6. If structured as a project financing, there is a high likelihood that the funding may be insufficient as assessed under this criteria. As such for these financings the Construction Phase Business Anchor SACP is generally not rated higher than 'b' unless otherwise mitigated; or otherwise are more appropriately evaluated under corporate or other criteria.

Event risk during construction

67. The construction analysis includes event risks that are considered probable during the construction period. The risks are assessed in the technology and design and construction risk scoring. The scoring assumes the risks materialize in the downside case scenario (see Appendix). A tight construction timeframe tends to magnify the effect of events and can result in delays or higher construction costs for the project. This can in turn lead to a failure to meet contractual deadlines. Events that are probable vary from a fire through to mechanical failure and human error that are considered normal at any rating level. An event is probable if the region is known for those events--for example, natural events such as earthquakes, volcanism, floods, cyclones, etc. and non-natural events such as litigation and environmental clean-up.

Insurance

68. Insurance from a provider with a rating the same or higher than the project (see "[Counterparty Risk Framework Methodology And Assumptions](#)," published Nov. 29, 2012) is a mitigant for some risks, such as fire, subject to the payout amounts, which are reduced by the deductibles for time and cost and for the likely time lag between the occurrence and receipt of insurance payout. Because of the single site nature of most project financings some low probability risks can have a high impact. Therefore, the project Construction Phase Business Anchor SACP is weak-linked to the rating of the rating of the insurance provider. Uninsured risks are included in the downside scenario (see Appendix).

Change of law

69. The analysis factors in the risks involving changes to regulation (particularly tariff setting) and permit conditions or project specific legislation expected at the time of issuance. The analysis does not factor in general change-in-law risk, for example introduction of a new carbon pricing mechanism.

VII. APPENDIX

Construction base case scenario

70. The construction base case projections reflect Standard & Poor's expected case scenario. The base case scenario is developed based on the expected cash flows of the project over the project's construction phase given the various contract and financing document conditions, the expected macroeconomic and microeconomic conditions and project-specific conditions. The base case includes total costs to meet the project's expected completion date to the start of operations and comfortably meet first debt service. Sector Key Credit Factor articles will expand on the relevant costs for a particular sector. The costs include:
- Direct costs, indirect costs, and margins related to the construction contracts including allowances for weather, industrial action, and protests.
 - Expected delays such as delay in obtaining necessary permits, especially if not all permits can be obtained by financial close; and delay risk of third-party tasks, such as service connection or relocation;
 - Expected risks for tasks that are potentially affected by unknown or little-known conditions, such as ground conditions, foundations, latent defects, archeological findings, and contamination;
 - A project's direct costs that are in addition to the contract costs and stem from the project sponsors or parents, such as project staff, and any project services provided by the parent or sponsor;

- Escalation for economic and industry factors for the expected construction period consistent with Standard & Poor's expectations for macro-economic conditions ;
- Costs payable under project agreements including early contracted completion bonus payments and other costs if the project is completed ahead of time;
- Interest payable (including capitalized interest see paragraph 48);
- Establishment of a project's initial working capital needs;
- Establishment of project liquidity measures, including reserve accounts;
- Costs of performance testing, including materials;
- Working capital is fully funded at completion. Unfunded working capital will be factored into the operating phase analysis as a significant weakness.
- The debt service reserve account is funded at completion. Such an account, funded through operating cash flows, but backed by a letter of credit at completion, is considered as fully funded; and although a project can start operations without funded reserve accounts this will be reflected in the operations phase scoring.

71. We apply an escalation factor to each year's cash flows to adjust for higher costs due to inflation and other market factors from the time when the estimate was completed until construction is finished. Because inflation is cumulative, so too is the escalation factor and where often the market price rises more in good times. Therefore, long-term contracts will have a greater escalation risk than short-term contracts.

72. The Independent Expert's report is used to guide the selection of Standard & Poor's base case. The project and Independent Expert's assumptions are adjusted for Standard & Poor's experience with similar projects, our view of economic conditions affecting the project, and experience from other rated projects.

Construction downside scenario

73. The construction downside scenario envisions that the project is successfully completed by the sunset date (see paragraph 42) and takes into consideration the cost of delays and cost overruns, including any allowance of costs resulting from a delayed start-up and the commencement of scheduled debt service. Where relevant, a downside scenario analysis of an early completion scenario may be created, taking into account early completion bonus payments, early payment of construction expenses, and any restrictions on the start of revenue generating activities.

74. The downside scenario is the base case adjusted for the cost and delay impacts. Sector Key Credit Factor articles will expand on the relevant costs for a particular sector. Issues we typically consider include:

- Allowances for extreme weather events, industrial action, and protests;
- Maximum delay for tasks such as obtaining necessary permits;
- Allowance for replacement of a replaceable builder;
- Impact of missed time-critical construction windows, particularly for third-party tasks, such as service connection or relocation; and critical path items such as completing offshore tasks during calm periods;
- Long lead time items, including an assessment of manufacturing and delivery risks (shipping);
- Maximum delay caused by risks associated with uncertain or little-known conditions, such as ground conditions, foundations, latent defects, archeological findings, and contamination;
- Construction delays due to access constraints due to limitations on working hours or as a result of project's proximity to adjacent existing operating sites;
- Increased costs through short-term movements in key assumptions (including adverse movements in macroeconomic conditions or exchange rates) when the costs of key materials are not locked in (exposure to market price increases). For example, assumptions are made on increasing steel prices, based on historical movements in that market. These assumptions are aligned to Standard & Poor's view of the short-term stress that is equivalent to the business profile credit quality (see paragraph 47); and
- The amount of interest is increased if penalty interest is charged.

GLOSSARY

Brownfield project--A project that is being developed on an existing site and thus benefits from existing infrastructure.

Conditions precedent to drawdown (CP)--A set of conditions that must be completed before a drawing can be made under a bank loan.

Commissioning--The act of starting up a completed program to long-term operational condition.

Cost-to-complete test--A calculation to determine if the project can be completed, within budget and on time. Such a test usually triggers the release of construction support and the loan becomes typically fully nonrecourse. Test can set terms of offtake and

payment to builder.

Completion test--The testing scheme defined in construction contracts that is used to determine if the project meets required operational performance.

Contingency--Liquidity that is kept in reserve to help cover unexpected construction or operating costs. Contingency is often included in construction contracts and within the project budget and is typically in the form of cash or a letter of credit.

Critical path--The sequence of construction activities that must be completed to achieve substantial completion on schedule. A delay in completion of a critical path item will lead to an equal delay in substantial completion. A project may have more than one critical path.

Defects liability--The liability taken by the construction contractor for construction defects.

EPC--Engineering, procurement, and construction. A type of construction contract.

EPCM - Engineering, procurement construction management--A type of construction contract.

D&C--Design and construct contract--A type of construction contract.

Financial close--The date at which the project's financing documents are executed and CP's have been satisfied or waived for the initial drawdown.

First fill--The supply of materials sufficient to fill the plant for a full run.

Fit for purpose - a contract by which the contractor agrees that the design will meet the employer's demands

Force majeure--A set of conditions under which a party to a contract is excused from meeting its obligations under the contract. These conditions are usually events beyond the party's control, are difficult to predict, and can disrupt a project's operations and devastate its cash flow. Typical conditions include acts of God such as defined in each document (Fire, floods, earthquakes, and freezing weather; civil disturbances such as strikes; and government actions such as change of law.) In addition, catastrophic mechanical failure due to human error or material failure can be a form of force majeure that may excuse a project from its contractual obligations.

Greenfield project--A project that is being developed on a site where no existing operations or prior operations have been conducted.

Independent expert--An expert that is independent of the sponsors and reports to debt investors on their review of the accuracy and viability of the sponsor's plans and projections.

Joint and several obligation--An obligation of two or more parties for which each party is equally liable for payment or performance.

Latent defects--As used in a construction contract, this normally means a potential risk (e.g., contamination) that may already be present but has not been identified. The cost of rectifying latent defects often is a project cost rather than constructor cost.

Liability cap--Maximum liability for nonperformance established under a contract.

LOC--Letter of credit.

Milestone--A set of dates or events that mark the progress of construction and are normally related to payments.

Performance bonding--Third-party support supplied to a project from a contractor in case of nonperformance or insolvency to cover cash costs while other remedies are pursued. The project may also be required to supply performance bonds to its suppliers or offtakers.

Preliminaries--Construction costs related to time such as craneage, offices, fencing, etc. These costs increase if there is a delay and are often owner costs.

Retentions--Amounts held back under a construction contract from amounts payable, and which are used in lieu of providing credit enhancement in some circumstances.

Several obligation--An obligation of two or more parties for which each party is only liable for its respective share of payment or performance.

Sunset date (also known as long stop date)--The date on which a contract can be terminated if contractual obligations have not been met.

Top tier (also "very experienced")--Generally recognized by their industry or project location.

Variation (also known as change order)--A change to the design or component leading to a payment claim by the construction contractor for additional funds to cover the cost of the change.

RELATED CRITERIA AND RESEARCH

Watch the related CreditMatters TV segment titled, "Standard & Poor's Request For Comment On Project Finance Methodology For The Construction Phase," dated Jan. 28, 2012.

Guarantee criteria articles

- [Rating Sovereign-Guaranteed Debt](#), April 6, 2009
- [European Legal Criteria For Structured Finance Transactions](#), Aug. 28, 2008
- [Overview Of Legal Criteria For U.S. Structured Finance Transactions](#), Oct. 1, 2006
- [Standard & Poor's Guarantee Criteria As Applied To Lloyd's Corporate Capital Providers](#), Dec. 13, 2004
- [Utility Ratings Criteria For Guarantees and Support Agreements](#), Jan. 13, 1999

Other criteria articles

- [Criteria For Assigning 'CCC+', 'CCC', 'CCC-', And 'CC' Ratings](#), Oct. 1, 2012
- [Counterparty Risk Framework Methodology And Assumptions](#), Nov. 29, 2012
- [Standard & Poor's Ratings Definitions](#), June 22, 2012
- [Project Finance Construction And Operations Counterparty Methodology](#), Dec. 20, 2011
- [Advance Notice Of Proposed Criteria Change--Project Finance Rating Methodology And Assumptions](#), Aug. 16, 2011
- [Principles Of Credit Ratings](#), Feb. 16, 2011
- [Updated Project Finance Summary Debt Rating Criteria](#), Sept. 18, 2007

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