

Insights:

No rating?

No problem.

Use a Synthetic
Rating instead.



The main idea

The **Synthetic Rating** provides a relatively straight-forward measure to model and assess the credit quality of a project sponsor before and after the implementation of a project.

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The problem

No credit rating

What we have found with our projects in frontier and emerging markets, is that when doing credit analysis for a project loan, it is unlikely that we will have a credit rating on the project's sponsor. Even less so is the chance that the project – which may be relatively large to the sponsor – will itself be rated.

One can do the financial modeling, but, when done, what do you use to evaluate the baseline to determine if the project is a “good risk” versus a bad one?

That is where the Synthetic Rating comes into play.

What is a Synthetic Rating?

In the 1990's, Aswath Damoradan, Professor of Finance at New York University, developed the synthetic rating as part of a process to model the cost of debt in the weighted average cost of capital used in firm valuation.

Simply, the synthetic rating is an estimated credit rating based on a comparison of earnings before interest and taxes (EBIT) versus interest charges to determine an Interest Coverage Ratio. From the position of this ratio in a range, a familiar letter-based (e.g., A₃/A-) credit rating may be assigned.

The process

How to estimate the Synthetic Rating

The process is relatively simple: 1. Calculate your Interest Coverage Ratio (EBIT / Interest Expense) for the period, and then 2. determine into which range your Interest Coverage Ratio falls:

Interest Coverage Ratio and Synthetic Ratings for smaller / riskier organizations		
Interest Coverage Ratio	Moody's Rating	S&P Rating
12.50x and up	Aaa	AAA
9.50x – 12.50x	Aa2	AA
7.50x – 9.50x	A1	A+
6.00x – 7.50x	A2	A
4.50x – 6.00x	A3	A-
4.00x – 4.50x	Baa2	BBB
3.50x – 4.00x	Ba1	BB+
3.00x – 3.50x	Ba2	BB
2.50x – 3.00x	B1	B+
2.00x – 2.50x	B2	B
1.50x – 2.00x	B3	B-
1.25x – 1.50x	Caa2	CCC
0.80x – 1.25x	Ca2	CC
0.50x – 0.80x	C2	C
0.50x and lower	D2	D

Source: *Aswath Damoradan, New York University*

How and why do they work?

Synthetic Ratings work by asking two key questions:

1) what is the basic measure of debt repayment capacity?

and

2) what are the ratings characteristics of firms that exhibit this capacity?

The answer to the first question is the Interest Coverage Ratio: EBIT versus Interest Expense. In other words, how much in pre-tax earnings (interest is usually a tax-deductible expense) are available to cover interest payments.

The second was answered by Prof. Damoradan who took a listing of all U.S. firms with a bond rating and sorted them by the rating while noting the firms' corresponding Interest Coverage Ratios. He then eliminated outliers and overlaps to establish cutoffs and a range for each rating level. For example, he observed that firms with an A3/A-minus bond rating had Interest Coverage Ratios between 4.5x and 6.0x.

To summarize, what he did was use real-world observations to work backward to map what the fully-researched credit agency rating should be.

Some modification needed

While the base method works for U.S. companies in markets similar to the U.S., modifications need to be made for project finance and/or in emerging markets.

When working an analysis, we usually do the following:

1. Work on a cash basis (usually IPSAS). Many sponsors will use a cash basis for entity accounting. (This to a large extent is better, as debt can only be paid back with real cash, not accruals!) As such, instead of comparing versus EBIT, compare versus Operating Cash Flows.

2. Adjust the Interest Coverage Ratio table to reflect the local market risk. The original Synthetic Rating model was based on U.S. non-financial firms and ratings, and, as such, they are based on a U.S. interest regime. If the local market has interest rates which are significantly higher than that of the U.S., then relative coverage ratios need to reflect this by being adjusted upward by the ratio of the local long-term risk-free rate versus the U.S. treasury bond rate.

3. Add in principal repayments. The original model is based on nonfinancial firms and the assumption for them is that debt is a permanent part of the balance sheet; it is never really fully paid back, but always refinanced. For a project loan, this is a bad assumption as the vast majority of multilateral development bank (MDB) project loans are amortized (i.e., the loan principal is paid down over time). So, reflect the same and use principal and interest (P&I), instead of just interest.

4. Be careful with currencies. Loans, and thus interest and principal payments, are usually in foreign currencies (e.g., USD, EUR, JPY, RMB) but project and sponsor cash flows are in local currency. This creates a mismatch that can turn disastrous if the value of the local currency declines while foreign currency payments are fixed.

Some modification needed (continued)

5. To model even more conservatively, subtract Growth Capital Expenditures (Growth Capex) from the Operating Cash Flows. To avoid the risk that the addition of the project and its loan endangers the sponsor’s ability to stay on mission and expand, subtract planned growth-related capex (i.e., capital improvements) from operating cash flows before comparing them to P&I payments.

6. Calculate the synthetic rating for the duration of the loan. Interest coverage ratios may vary greatly over time due to front-loaded project costs coupled with delayed project cash inflows. As such, net cash flows (and interest coverage ratios) may be strained at the beginning of the project. Somewhat mitigating this, MDB loans usually have a grace period where only interest payments are due; only later full P&I must be repaid.

Applying the process

From here, the process is straight-forward:

- 1. Establish a baseline rating.** For your forecast period, determine the year-by-year synthetic ratings for the project sponsor independent of the project. This provides a base estimate of the entity as a going-concern.
- 2. Figure out incremental project cash flows.** Model the project’s cash flows. If there are multiple scenarios (e.g., from alternative project structures, on-lending rates, etc.), then create separate estimates for each one.
- 3. Model financing costs.** Depending on the entity and accounting method, either calculate interest expenses and other financing expenses, or, principal, interest, and other financing costs.
- 4. Incorporate the incremental cash flows.** From here, determine the synthetic rating for the proforma project sponsor entity including the incremental project cash flows.

What is a “good” rating?

The minimum rating you should have on your project will depend on the risk tolerance of the project sponsor and financiers. That said, **generally for projects, the minimum level should be an investment grade-level rating (i.e., better than Baa/BBB).**

Why? Moody’s Investors Service has studied average cumulative default rates, i.e., the total percentage of bond issues that default over a given time period. They found a large difference in default rates between investment grade and non-investment grade debt, especially over long periods.

Based on average cumulative global default rates 1920-2021, the percentage of issuers defaulting by...				
	Year 5	Year 10	Year 15	Year 20
Investment Grade (Baa/BBB and better)	<2.2%	<5.1%	<8.0%	<10.4%
Non-investment grade (Ba/BB and worse)	>8.0%	>15.8%	>22.1%	>26.7%
Non-IG debt defaults vs IG debt defaults	3.6x	3.1x	2.8x	2.6x

Source: *Moody’s Investors Service (register/login)*

What is a “good” rating? (continued)

Assuming you are analyzing a typical MDB loan, the term will likely be medium to long maturity. Across all maturity periods, non-investment grade ratings produce defaults at a rate of at least 2½ times the rate of investment grade rated debt. This is significant.

More importantly, seeing one quarter of non-investment grade debt default by year 20 should give pause.

Need more information?

If you are interested in finding out more, or, would like assistance on your project’s financial evaluation, please feel free to contact us at clientservice@praxcore.com.

The problem



Praxcore is an international financial advisory firm. We provide data, research, and analysis to our clients on their projects and operations, primarily in emerging, frontier, and under-served markets.

Founded in 2016, we are based out of Toronto, Canada and operate globally.

For more information, please visit **praxcore.com** or call us at +1 416 619 7668.