

Factors in Credit Scoring for PJM Markets

I. Introduction

Converting PJM’s current credit assessment process, which is a one-size-for-all quantitative financial ratio score, to a more effective methodology involves (a) tailoring quantitative metrics to industry sectors and (b) adding qualitative or judgmental factors to account for risks and strengths to credit that are not captured in the quantitative metrics. The new process would more closely resemble that used by credit rating agencies, lenders, bond investors, and trade counterparties. The credit assessment process envisioned applies to both direct participants in PJM markets and to parent or supporting organizations of those participants, where relevant.

II. Quantitative Metrics

Ultimately, an organization’s obligations are met by cash generated either from current business profits, retained historical profits, borrowed funds, or from infusions by owners or sponsors. The quantitative metrics outlined in this document measure an organization’s capacity to meet cash obligations based on historical ratios.

The quantitative metrics to be employed are shown in Tables 1-4, setting out a framework for scoring organizations on capital and leverage, cash flow coverage of fixed obligations, liquidity, and profitability. The particular metrics and scoring rules differ according to the participant’s sector in order to account for varying sources of risk across industries. The formulation of each metric is consistent across industries with slight variations based on differences in reporting standards and data availability.

Both primary and secondary metrics are shown for each industry sector. The primary metrics are those most commonly used, and secondary metrics are used either as “tie-breakers” where the primary metrics aren’t clear, or, as alternative metrics in cases where data limitations may prohibit calculation of the primary metrics.

The usefulness of quantitative metrics vary significantly from sector to sector, as do the actual results, based on fundamental differences between the sectors. Heavily regulated industries like utilities and banking operate with relatively higher debt, are more easily able to raise funds when needed, and exhibit more stable earnings over time than do other industries. The exhibit below shows just how different financial ratio results can be for companies that are relatively of the same level of overall credit strength.

<u>Sample Company</u>	<u>Sector</u>	<u>Moody’s Rating</u>	<u>Debt / Total Capitalization</u>
Company A	Co-operative Utilities	A2	83%
Company B	Financial Institutions	A3	70%
Company C	Investor-Owned Utilities	A2	52%
Company D	Merchant Power	Baa1 (e)	39%
Company E	Exploration & Production	A3	31%
Company F	Commodity Trading	A2	31%

(e) = Estimated Moody’s equivalent to S&P Global rating of BBB+

A. Leverage & Capital Structure Metrics

Metrics on leverage and capital structure (Table 1) measure how an organization is funded: to what extent does it have obligations to repay lenders and other credit providers, and what is the timing for those obligations to be repaid. Most of the ratios used measure the amount of debt relative to earnings, cash flow, and the overall size of the balance sheet. Financial and other regulated entities can withstand generally higher levels of leverage than other organizations, because they enjoy protections that are discussed later under “Qualitative Factors”. Capital-intensive industries such as utilities and oil and gas require heavier debt loads and display higher leverage. Among the sample companies, Company C’s debt is four times its earnings and Company E is at about two times, while Company F’s ratio is 0.9.

Table 1. Quantitative Metrics by Sector: Leverage and Capital Structure	Investor-Owned Utilities	Municipal Utilities	Co-Operative Utilities	Power Transmission	Merchant Power	Project Developers	Exploration & Production	Financial Institutions	Commodity Trading	Private Equity
Debt / Total Capitalization (%)										
FFO / Debt (%)										
Debt / EBITDA (x)										
Debt / Property, Plant & Equipment (%)										
Retained Earnings / Total Assets (%)										
Debt / Avg Daily Production or kWh (\$)										
Tangible Net Worth (\$)										
Core Capital / Total Assets (%)										
Risk-Based Capital / RWA (%)										
Tier 1 Capital / RWA (%)										
Equity / Investments (%)										
Debt / Investments (%)										

primary metric

secondary metric

FFO=Funds From Operations RWA=Risk-Weighted Assets

B. Fixed Charge Coverage and Funding Metrics

Metrics for fixed charge coverage and funding (Table 2) look at the sufficiency of an organization’s earnings and cash flow to support its fixed obligations. While leverage metrics focus on a firm’s overall level of debt, these metrics focus on ongoing debt service. Financial institutions can more easily “turn on the spigot” to generate cash when needed by lowering their pricing or underwriting standards, so for these firms the focus is on the quality of cash generation more so than the amount or relative level of cash available. Although in a capital-intensive industry, Company E is not as debt-laden as the utilities among the sample group, and its earnings cover its interest expenses by more than 12 times, while Company C’s ratio is 4.8 and Company A is at 1.2 times.

Table 2. Quantitative Metrics by Sector: Fixed Charge Coverage and Funding	Investor-Owned Utilities	Municipal Utilities	Co-Operative Utilities	Power Transmission	Merchant Power	Project Developers	Exploration & Production	Financial Institutions	Commodity Trading	Private Equity
EBIT / Interest Expense (x)										
EBITDA / Interest Expense (x)										
EBITDA / [Interest Exp + CPLTD] (x)										
[FFO + Interest Exp] / Interest Exp (x)										
Loans / Total Deposits (%)										
NPL / Gross Loans (%)										
NPL / [Net Worth + LLR] (%)										
Market Funding / Tangible Bank Assets (%)										

primary metric	secondary metric	CPLTD=Current Portion of Long-Term Debt	EBIT=Earnings Bef. Interest & Taxes	EBITDA=Earnings Bef. Interest, Taxes, Deprec. & Amortiz.	LLR=Loan Loss Reserves	NPL=Non-Performing Loans
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C. Liquidity Metrics

Liquidity is an organization’s ability to generate cash. Quantitative metrics (shown in Table 3) provide a snapshot of an organization’s cash position, but do not provide a forecast of future cash needs, nor do they account for sources of emergency cash that a firm may have, such as supportive affiliates or lines of credit from lenders. Qualitative factors include consideration of these alternative cash sources.

A well-managed firm maintains enough cash to meet ongoing obligations without needing to liquidate fixed assets it needs to operate. Financial firms generally have greater ability to generate cash quickly than do non-financial firms, but their liquidity needs can be much less predictable, especially during times of economic stress. The ratio of current assets to current liabilities is a rough measure of a firm’s liquidity: the utilities tend to operate at a ratio of less than 100%, while Company D is at 120% and Company E is at more than 2.5 times.

Table 3. Quantitative Metrics by Sector: Liquidity	Investor-Owned Utilities	Municipal Utilities	Co-Operative Utilities	Power Transmission	Merchant Power	Project Developers	Exploration & Production	Financial Institutions	Commodity Trading	Private Equity
CFFO / Total Debt (x)										
Current Assets / Current Liabilities (x)										
Liquid Assets / Tangible Bank Assets (%)										
Sources / Uses of Funds (x)										
Weighted Avg Maturity of Debt (yrs)										
Floating Rate Debt / Total Debt (%)										

primary metric	secondary metric
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CFFO=Cash Flow From Operations

D. Profitability Metrics

Generating profit is the most reliable way for an organization to create cash to meet future obligations and to attract future capital (see Table 4 for metrics). Regulated utilities operate with constraints on profitability which provide both a support for earnings (although not a guarantee of profits) and an upper limit above which would have to be returned to ratepayers. Firms in less-regulated or unregulated industry sectors experience wider variations in earnings over time, influenced by many factors including the sector’s capital intensity, competition levels, and other aspects of business risk. During economic recessions over the last 60 years, the average “peak-to-trough” decline in profit margins for metals and mining companies was 30%, 15% for oil and gas companies, and 5% for regulated utilities¹.

Lower return-on-asset ratios are seen in asset-driven industries like utilities and banking: Company C reported 3.4% and Company B 1.0% for 2018. High profits are not necessarily indicative of superior credit quality, however, and as with all quantitative metrics, these should be considered in the context of the nature and sustainability of the source of earnings, and the appropriateness of the organization’s level of risk-taking.

¹ S&P Global Ratings, 2013, *General Criteria: Methodology: Industry Risk*.

Table 4. Quantitative Metrics by Sector: Profitability	Investor-Owned Utilities	Municipal Utilities	Co-Operative Utilities	Power Transmission	Merchant Power	Project Developers	Exploration & Production	Financial Institutions	Commodity Trading	Private Equity
Return on Assets (%)										
Return on Equity (%)										
Profit Volatility (%)										
Return on Revenue (%)										
Net Income / Tangible Assets (%)										
Net Profit (\$)										
Net Income / Dividends (x)										

primary metric	secondary metric
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III. Qualitative Factors

Quantitative metrics are only partly useful in projecting future credit quality, even when tailored by industry sector as described above. They can provide a point-in-time characterization of an organization’s financial health, but getting closer to an accurate assessment of its ability to fulfill future obligations requires the addition of judgement and qualitative analysis.

Qualitative analysis may be less precise than quantitative analysis, but still should be done in a structured way to assure consistency across credits and over time. All qualitative analysis can be and should be supported by observation of objective, measurable information which informs judgement.

The recommended approach for assessment of qualitative factors is to categorize them into three levels: industry (Table 5), organization (Table 6), and parent/sponsor (Table 7). This paper does not include specific weights or scoring rules for qualitative factors, but indicates which factors that would likely be most important for each industry sector. In general, an extreme score on one or a few qualitative factors could have the effect of dominating the overall analysis. For example, a company could achieve a high quantitative score by having sufficient resources to meet expected obligations but could be owned by a rapacious parent organization that could strip out its resources with little warning. The opposite could also be true. A fiscally weak subsidiary could benefit from a strong ability and willingness of an owner or regulator to provide ongoing financial support.

A recommended method for combining quantitative and qualitative scores into an overall credit assessment is beyond the scope of this paper.

A. Industry Level Qualitative Factors

Industry sectors display markedly different characteristics that apply to virtually all organizations within them. The recommended approach is to modify the results from the quantitative review to account for these differences, which can generally be classified as new entrant risk, internal competition and growth

risk, substitution risk, and regulatory risk for the industries relevant to PJM markets. The word “risk” as used here may apply to either a downside risk or an upside opportunity. For example, “regulatory risk” for an energy company could be the threat of imposition of new taxes or compliance costs, or it could be a supportive rate-setting environment.

Table 5 shows illustrative industry risk assessments for each market sector. Each firm’s quantitative risk score would be adjusted upward or downward depending on its industry risk score. The industry risk score would be the same for all corresponding companies that operate across the country. Industry risk scores for those whose operations are confined to a specific geographic area (such as most utilities) would vary depending on the state’s regulatory and economic environment.

Table 5. Qualitative Factors: Industry Level ⁽¹⁾	Investor-Owned Utilities	Municipal Utilities	Co-Operative Utilities	Power Transmission	Merchant Power	Project Developers	Exploration & Production	Financial Institutions	Commodity Trading	Private Equity
Risk of New Entrants	Low	Low	Low	Low	Med	High	Med	High	High	High
Internal Competition & Risks to Growth	Low ⁽²⁾	Low ⁽²⁾	Low ⁽²⁾	Low	High	High	Med	Med	High	Med
Substitution Risk	Low	Low	Low	Low	Low	Med	Low	Low	High	3
Regulatory Posture: Threat, Neutral, or Supportive	S ⁽²⁾	S ⁽²⁾	N	S	N	N	N	N	N	N

⁽¹⁾ Source of risk scores: S&P Global Ratings "Key Credit Factors" or industry analyst opinions.

⁽²⁾ Varies based on state or local economic or regulatory conditions.

B. Organization Level Qualitative Factors

Assessing qualitative factors at the organization level provides context for the quantitative analysis and a place to interject sources of risk and benefit that are not adequately captured numerically nor by the application of generalized industry risk factors. The recommended approach is to re-assess the factors covered at the industry level – new entrant risk, competition and growth, substitution, and regulatory effects – at the firm level. This involves assessing the firms’ particular competitive advantages and disadvantages, its operating efficiency, its scale and diversification, the quality of its products and services, and the effectiveness of its management and governance. While these are all subjective factors, their evaluation should include observable metrics such as operating expense ratios, market

share, customer service survey scores, scores by independent evaluators of governance quality, and a review of management biographies. Where relevant the analysis should include the company's history of outcomes in regulatory or legal actions.

C. Parent/Sponsor Level Qualitative Factors

PJM Market Participants include individual operating entities as well as multi-line parent or holding companies, as well as entities that rely on support from affiliates. It is essential to gain an understanding of affiliate relationships and to form judgments on the ability and willingness of affiliates to support, or the likelihood that affiliates could reduce financial resources of a Market Participant. The components of parent/sponsor level qualitative factors are:

1. the parent's ability to provide support or likelihood to need support, which is based mainly on a separate credit review of the parent,
2. the parent's willingness to provide support or likelihood to need support, which may be based on an evaluation of:
 - a) *the historical relationship between parent and subsidiary,*
 - b) *the historical relationships between the parent and other subsidiaries,*
 - c) *the linkage between parent and subsidiary in terms of the similarity of business, customers and suppliers, and common management,*
3. Consideration of contractual arrangements between affiliates which could provide financial support or obligation.
4. Consideration of the organization's financial flexibility, i.e., its ability to acquire cash from other sources, which may include an evaluation of its bank and investor relationships.