Rating Methodology

Key Financial Ratios and Adjustments for Corporate Issuers

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OVERVIEW AND SCOPE OF THE CRITERIA

This paper sets forth the key financial ratios and the definitions of some key financial terms used in TRIS Rating's credit analyses for corporate issuers. The paper also explains the adjustments TRIS Rating makes to some of the accounting items reported in the financial statements of corporate issuers.

The financial ratios and accounting adjustments described in this paper are applicable to most corporate issuers, except for issuers in some specific industries. The adjustments are not applicable to financial institutions, non-bank lending institutions, project finance companies, or special purpose vehicles. This paper supersedes the "Key Financial Ratios and Adjustments" published by TRIS Rating on 5 September 2018.

METHODOLOGY

We adjust the financial results reported by corporate issuers to improve the comparability and to ensure the consistency of financial ratios across companies. The adjustments cover significant items that affect the key financial ratios, as shown below.

I. KEY FINANCIAL RATIOS

The key financial ratios that TRIS Rating uses in the rating process can be classified into three groups: profitability, leverage, and efficiency.

1. **Profitability ratios**: The key profitability ratios include earnings before interest and tax margin (EBIT margin), earnings before interest, tax, depreciation, and amortization margin (EBITDA margin), operating income margin, and pretax return on permanent capital. Supplemental ratios include gross profit margin, operating profit margin, net profit margin, return on assets, and return on equity.
2. **Leverage ratios**: The key ratios include debt to capitalization, funds from operations (FFO) to debt, and debt to EBITDA. We also focus on interest coverage ratios like EBIT interest coverage and EBITDA interest coverage. Supplemental ratios include cash flow from operations (CFO) to debt, free operating cash flow (FOCF) to debt, and discretionary cash flow (DCF) to debt.
3. **Efficiency ratios**: The key ratios include days receivables, days inventory, days payables, and cash cycle days. Supplemental ratios include current ratio, quick ratio, total asset turnover, and fixed asset turnover.

(The formulae of the key financial ratios are in the Appendix.)

II. FINANCIAL TERMS

TRIS Rating has specific definitions for some of the financial terms used frequently when calculating key financial ratios. Our definitions may be different from the definitions set by others.

Adjusted debt: TRIS Rating uses the financial debts as reported on an issuer's balance sheet. In addition, we include in the debt calculations some debt-like financing or financial obligations that may or may not appear on the balance sheet. The sum of these is then netted with excess cash to arrive at the adjusted debt value. TRIS Rating uses adjusted debt to calculate the leverage ratios.

Adjusted equity: We adjust the value of equity reported on the balance sheet to reflect the equity content of hybrid securities, preferred shares, or convertible debentures.

Capitalization: TRIS Rating defines capitalization as the sum of adjusted debt and adjusted equity.

Excess cash: Excess cash includes cash and cash equivalents, and short-term investments. For short-term investments, TRIS Rating applies a minimum haircut rate of 25%. We apply a haircut because we believe there could be a time lag or some limitations that could prevent an issuer from obtaining the full amount of the proceeds if the short-term investments must be liquidated at a time of need. We exclude from excess cash any short-term investments in equity securities.

Permanent capital: TRIS Rating defines permanent capital as the sum of adjusted equity and adjusted debt before deducting excess cash.

Operating profit: Operating profit is equal to total operating revenues minus total operating expenses minus selling, general, and administrative (SG&A) expenses.

Operating income: Operating income is equal to operating profit with depreciation and amortization expenses added back.

Earnings before interest and taxes (EBIT): EBIT is defined as operating profit plus or minus other recurring income (expenses) and all applicable adjustments. Some examples of recurring income (expenses) are interest income, dividend income, any share of the profit (loss) from investments accounted for using the equity method, and foreign exchange gains (losses) from operations, among others.

Earnings before interest, taxes, depreciation, and amortization (EBITDA): EBITDA is equal to EBIT plus depreciation and amortization (D&A) expenses, minus the share of any profit (loss) from investments accounted for using the equity method, plus cash dividends received from investments accounted for under the equity method, plus or minus all other applicable adjustments (if any).

Adjusted interest expense: TRIS Rating includes several costs related to liabilities, either on-balance sheet or off-balance sheet, as part of interest expense. The items may include, but are not limited to, amortization of debt issuance costs, capitalized interest, the portion of interest expense in the rental payment of an operating lease contract, the portion of interest expense in hybrid securities, convertible debentures, preferred shares (if applicable), and interest cost in the asset retirement obligations and post-retirement benefit obligations.

Funds from operations (FFO): FFO is EBITDA minus adjusted interest expense, minus current tax expenses (previously, we also deducted deferred tax expense).

Cash flow from operations (CFO): CFO is the reported cash flow from operating activities, adjusted for dividends received and interest paid or received, whether a company reports these items as investing cash flows or financing cash flows.

Free operating cash flow (FOCF): FOCF is CFO minus capital expenditures on fixed assets and intangibles.

Discretionary cash flow (DCF): DCF is FOCF minus cash dividends paid on common shares, preferred shares, and hybrid securities.

III. STANDARD ADJUSTMENTS

In general, TRIS Rating will make standard adjustments to the financial data of all entities. Some examples of the adjustments that we make include, but are not limited to:

- **Operating leases**: We consider the financial obligations under operating leases to be part of debt. Prior to the adoption of TFRS16, we made the adjustment by adding the present value of the minimum lease commitments to the adjusted debt calculation. We also reallocated the lease payment which was reported as expense into interest expense and depreciation expense, for the purpose of computing various financial ratios related to EBIT, EBITDA, and FFO. With the adoption of TFRS16, we mainly rely on lease liability as reported in the financial statements, even though its calculation may differ from our approach in the past and may vary from one company to another.

  There may be some operating lease obligations, disclosed in the note to financial statements, that are not included in the calculation of lease liability as reported under TFRS16. In such cases, we might consider adding the present value of those operating lease obligations, using a discount rate of 7%, to our calculation of adjusted debt. When we do that, we will also reallocate the annual lease payment which is reported as expense into interest expense and depreciation. Interest expense is calculated by using the 7% discount rate times the average net present value (NPV) of the lease payments for the current year and the previous year. Depreciation expense is the amount remaining after deducting the computed interest expense from the annual lease payment. In effect, when calculating EBIT, we add back the interest expense portion of the annual lease payment. When calculating FFO, we add back the depreciation portion of the annual lease payment. When calculating EBITDA, we add back the entire annual lease payment.

- **Guarantees**: For an issuer that provides a financial guarantee to a separate entity, we may include the guaranteed debt as part of the issuer's total debt if the debt has not been consolidated onto the financial statements of the issuer. However, we do not include the interest expense on the guaranteed debt in the adjusted interest expense of the issuer.

- **Non-recourse debt of affiliates/joint ventures:** Generally, in a non-recourse structure, a company has no legal obligation to bail out its ailing affiliates or joint ventures (JVs). In accounting practice, the debt of an affiliate or JV is usually not consolidated with the debt of the company. However, if we believe that the company has the potential to provide financial support to an ailing affiliate or JV due to the reputational risk to the company, we will include the debts of the affiliate or JV as part of the debts of the company, based on the percentage of shareholding in the affiliate or JV. Conservatively, if we believe that other shareholders of the affiliate or other JV partner(s) may not be able to service their portions of the debt, we will include all of the debt owed by the affiliate or JV as part of the company's debt.

- **Hybrid securities**: Based on accounting standards, hybrid securities are regarded as equity. However, from our perspective, hybrid securities have characteristics of both debt and common equity. Thus, the treatment of hybrid securities will be based on the equity content we assign to the securities. Under TRIS Rating's criteria, the equity content is categorized in one of the three levels: "high", "intermediate", or "minimal".

  Hybrid securities with "high" equity content (100% equity credit) will be treated as equity, with coupon payments treated as dividends. For hybrid securities with "intermediate" equity content (50% equity credit), TRIS Rating treats 50% of the face value of the hybrid securities as equity and the other 50% as debt. Half of the coupon payment will be treated as dividends, the other half as interest expense. For hybrid securities with "minimal" equity content (0% equity credit), we treat all of the hybrid securities as debt; all of the coupon payments are considered interest expense. However, the maximum equity credit given to all outstanding hybrid securities will be limited to one-third of the company's total equity before including the equity content from any outstanding hybrid securities.

- **Accrued interest on debt and accrued dividends on hybrid securities**: Accrued interest payable on debt and accrued dividends on hybrid securities are added to total debt.

- **Preferred shares**: Preferred shares are classified as hybrid securities and are treated as debt or equity based on the assigned equity content.

- **Net asset retirement obligations**: In some industries, like the oil & gas industry and power industry, a company is liable for the restoration costs or removal costs for dismantling or decommissioning operating assets after a concession ends. The costs are recorded as liabilities on a pretax basis as the costs are not related to the production of oil and gas or related to the cash flows generated from the use of the assets. TRIS Rating adjusts the item by adding the obligations (net of any tax benefits and funds reserved for the obligations) to the total debt of the issuer. As the obligations increase over time, the incremental change should reflect the time value of money.

- **Post-retirement employee benefits**: TRIS Rating reclassifies post-retirement employee benefits as financial obligations that must be paid over time. Thus, when calculating debt-related ratios, we include these obligations as debt, net of any prefunded amount. For employee benefit expenses recorded on the income statement, only the service cost will be treated as an operating expense item; the interest cost is treated as interest expense.
- **Impairment costs on the diminution in value of current assets**: TRIS Rating treats as operating expenses the impairment loss or mark-to-market loss on obsolete inventory and provisions for bad debt or bad account receivables. Conversely, any reversals are deducted from operating expenses.
- **Capitalized interest**: A company may capitalize a portion of interest expense by recognizing the amount on the balance sheet instead of booking all of the interests paid on the income statement. Such treatment reduces the actual amount of interest incurred during the period. Thus, we add to interest expense (on the income statement) the interest payment capitalized in the period when we calculate adjusted interest expense. For some industries like homebuilders and real estate developers, we may use interest paid in the cash flow statement as a proxy for interest incurred during the period.
- **Foreign currency exchange gains (losses):** Foreign exchange gains (losses) that are related to operations would be included in the calculation of EBIT, EBITDA, and FFO. In contrast, currency gains (losses) that result from borrowing or lending in a foreign currency may be excluded when calculating normal operating performance ratios. However, companies may not report foreign exchange gains (losses) separately for operating and non-operating transactions. Therefore, we may not make adjustments if the data are not available, or the amount is immaterial.
- **Extraordinary items**: Unusual and non-recurring items are classified as extraordinary items and are not included when calculating financial ratios used to measure the financial profile of the issuer. Examples of these items are:
    - Gains (losses) on disposals of fixed assets, intangible assets, and other assets. For most companies, the disposals of fixed assets are non-recurring and are treated as extraordinary items. However, for property-related businesses, net gains (losses) from selling assets to a property fund, a real estate investment trust (REIT), or an infrastructure fund may be included in the calculation of EBIT, EBITDA, and FFO.
    - Gains (losses) on fair value adjustments of investments or investment properties
    - Reversal of impairment (impairment loss) of fixed assets, intangibles, or goodwill
    - Discontinued operations

IV. INDUSTRY SPECIFIC/NON-STANDARD ADJUSTMENTS

In addition to the standard adjustments, TRIS Rating may apply specific adjustments to the financial statements of some industries and/or companies if we believe the adjustments are needed in order to make a more accurate credit analysis. Examples of industry-specific adjustments are shown below.

- **Capitalized interest charged to cost of goods sold:** For homebuilders, a significant amount of interest expense is usually capitalized as part of real estate inventory. Thus, a portion of capitalized interest will be charged to cost of goods sold in the following periods when the company transfers the completed housing units to the customers. Since the capitalized interest charged to cost of goods sold has already been included in adjusted interest expense in the prior periods, we add back the amount of capitalized interest (which had been charged to the cost of goods sold) in the calculation of EBIT, EBITDA, and FFO.

- **Debt of affiliates or JVs:** It is quite common for homebuilders to develop projects jointly with partners. Under the current accounting treatment, these affiliates are generally accounted for using the equity method if the shareholding of the company in the JV is less than or equal to 50%. Thus, the debt of a JV is not consolidated with the debt of the company. However, if we believe the inclusion of the debt of a JV better reflects the status of the company, we will include the debt of the JV as a part of adjusted debt.

  Generally, the amount of debt added is based on the proportion of the JV owned by the company. We also adjust the income statement to reflect pro rata earnings and interest expense. However, if the company develops projects through several JVs, we may use the share of profit (loss) from investments in affiliates/JVs as a proxy for the earnings of the JVs. In this case, we include in EBITDA the share of profit (loss) from investments in affiliates/JVs, instead of dividends received from affiliates/JVs, when calculating financial ratios.

- **Program development and acquisition costs:** For companies in the media and entertainment industry, we classify the amount of cash paid for program development and acquisition as an operating cash flow. The normal accounting treatment in this industry may show these expenditures as an investing cash flow on the statement of cash flows. We also treat the amortization of these assets as an operating cost and do not add back the amortized amount in the calculations of EBTIDA and FFO.

In addition, TRIS Rating may make non-standard adjustments to the financial statements of some companies. These adjustments are not made to many companies. The non-standard adjustments are subject to the decision of the rating committee.

Appendix – Key Financial Ratios

Profitability	Formulae
EBIT margin (%)	(Operating profit + recurring, non-operating income (expenses))/Total operating revenue
EBITDA margin (%)	(EBIT + D&A expenses - the share of profit (loss) from investments accounted for using the equity method + dividends received from investments accounted for under the equity method)/Total operating revenues
Gross profit margin (%)	Gross profit/Total operating revenues
Net profit margin (%)	Net profit/Total operating revenues
Operating profit margin (%)	Operating profit/Total operating revenues
Operating income as % of total operating revenues (%)	(Operating profit + D&A expenses)/Total operating revenues
Pretax return on permanent capital (%)	EBIT/Average permanent capital
Return on assets (%)	Net profit/Average assets
Return on equity (%)	Net profit/Average adjusted equity
Leverage	**Formulae**
Debt to capitalization (%)	Adjusted debt/Capitalization
EBIT interest coverage (times)	EBIT/Adjusted interest expense
EBITDA interest coverage (times)	EBITDA/Adjusted interest expense
Debt to EBITDA (times)	Adjusted debt /EBITDA
Funds from operations to debt (%)	Funds from operations/Adjusted debt
Cash flow from operations to debt (%)	Cash flow from operations/Adjusted debt
Free operating cash flow to debt (%)	(Cash flow from operations – capital expenditures – investment in/loans to affiliates)/Adjusted debt
Discretionary cash flow to debt (%)	(Free operating cash flow – dividends paid on common shares and preferred shares)/Adjusted debt

Efficiency	Formulae
Days receivables (days)	Trade account receivables x 365/Total operating revenues
Days inventory (days)	Inventory x 365/Cost of goods sold
Days payables (days)	Trade account payables X 365/Cost of goods sold
Cash cycle (days)	Days receivables + Days inventory – Days payables
Current ratio (times)	Current assets/Current liabilities
Quick ratio (times)	(Cash + Short-term investments + Account receivables)/Current liabilities
Fixed asset turnover (times)	Total operating revenues/Average fixed assets
Total asset turnover (times)	Total operating revenues/Average total assets

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