

Background

Financial ratios are used by CareEdge Africa (CRAF) to make a holistic assessment of financial performance of the entity, and also help in evaluating the entity's performance vis-à-vis its peers within the industry. Financial ratios are not an 'end' by themselves but a 'means' to understanding the fundamentals of an entity. This document gives a general list of the ratios used by CRAF in its credit risk assessment for manufacturing and services sector entities. These ratios are applied on the past financial statements of an entity as well as for the future projections. In addition to the ratios mentioned in this document, various other sector-specific ratios are used, or certain adjustments are made to financial ratios of entities belonging to certain sectors like real estate, construction, infrastructure companies, etc., for evaluating entities in that sector. Sector-specific rating methodologies for these sectors are available on CRAF website (www.careratingsafrica.com).

The common ratios used by CRAF can be categorised into the following five types:

- Growth ratios
- Profitability ratios
- Leverage and Coverage ratios
- Turnover ratios
- Liquidity ratios

These are given in detail below:

A. Growth ratios

Trends in the growth rates in income and profitability of an entity vis-à-vis the industry reflect the entity's ability to sustain its market share, profitability and operating efficiency. In this regard, focus is drawn to growth in income, Profit Before Interest, Lease rentals, Depreciation and Taxation (PBILDT) and Profit After Taxation (PAT). The growth ratios considered by CRAF include the following ('t' refers to the current period while 't-1' refers to the immediately preceding period):

Growth in Net Sales	$\frac{[(\text{Net Sales}_t \times 12 / \text{No. of Months}) - (\text{Net Sales}_{t-1} \times 12 / \text{No. of Months})] \times 100}{[\text{Net Sales}_{t-1} \times 12 / \text{No. of Months}]}$
Growth in Total Operating Income	$\frac{[(\text{TOI}_t \times 12 / \text{No. of Months}) - (\text{TOI}_{t-1} \times 12 / \text{No. of Months})] \times 100}{[\text{TOI}_{t-1} \times 12 / \text{No. of Months}]}$ TOI = Total Operating Income

Growth in PBILDT	$\frac{[(PBILDT_t \times 12 / \text{No. of Months}) - (PBILDT_{t-1} \times 12 / \text{No. of Months})] \times 100}{[PBILDT_{t-1} \times 12 / \text{No. of Months}]}$
Growth in PAT	$\frac{[(PAT_t \times 12 / \text{No. of Months}) - (PAT_{t-1} \times 12 / \text{No. of Months})] \times 100}{[PAT_{t-1} \times 12 / \text{No. of Months}]}$

- **Total Operating Income-** In computing the Total Operating Income (TOI), CRAF considers **all operating income** of the entity. For arriving at the core sales figure, the indirect taxes incurred by the entity (like Goods & Services Tax [GST], excise duty, sales tax, service tax, etc.) are netted off against the gross sales. CRAF also includes some **other income related to the core operations** like income derived from job work done by the entity, any royalty/ technical knowhow/ commission received in relation to the core operations, refund of indirect taxes, sale of scrap, cash discounts received, duty drawback and other export incentives received by the entity and exchange rate gains (not related to debt).

Apart from the income from core operations, CRAF also includes non-core income items in the computation of the TOI if the same are **recurring in nature**, i.e., there is a consistent trend in the entity deriving income from these sources. Examples include interest income, dividend income, rental income, etc.

- **PBILDT-** To arrive at the PBILDT, all operating expenses are deducted from TOI. Operating expenses include raw material cost, stores & spares, power and fuel, employee costs, selling and distribution expenses and administrative and general expenses, and include royalty/ technical knowhow/ commission incurred, insurance cost, directors' fees, exchange rate loss (not related to debt), bad debts, etc.
- **PAT-** PAT is arrived at by deducting (-) /adding (+) the following from PBILDT:
 - (-) interest and finance charges net of interest cost which has been capitalized- This includes all finance charges incurred by the entity including interest on term loans, interest on working capital borrowings, interest on unsecured loans from the promoters, interest on lease liability, premium on redemption of bonds, exchange rate profit/loss on debt, etc.
 - (-) depreciation/amortization on assets including depreciation on right-to-use asset
 - (+/-) non-operating income/expense (including profit/loss on sale of assets and investments)
 - (+/-) prior period items
 - (-) tax expense
- **Gross Cash Accruals (GCA)-** GCA is computed by adding all non-cash expenditure (like depreciation excluding depreciation on the right-to-use asset created, provision for deferred tax, write-offs, etc.) to PAT.

B. Profitability and Return Ratios

Capability of an entity to earn profits determines its position in the value chain. Profitability reflects the final result of business operations. Important measures of profitability are PBILDT margin, PAT margin, ROCE and

RONW. Profitability ratios are not regarded in isolation but are seen in conjunction with the peers and the industry segments in which the entity operates. The profitability ratios considered by CRAF include:

Ratio	Formula		Significance in analysis
PBILDT Margin	$\frac{\text{PBILDT}}{\text{TOI}}$	× 100	A key indicator of operating efficiency in any manufacturing/service activity without considering the financing mix and the tax expenditure of the entity.
PAT Margin	$\frac{\text{PAT}}{\text{TOI}}$	× 100	Considers both business risk and the financial risk. This is the margin available to service the equity shareholders.
ROCE	$\frac{[\text{PBIT} + \text{Non-Operating Income} +/\text{- Extraordinary Income/Expenses}] +/\text{- Other Comprehensive Income} \times [12 / \text{No. of Months}]}{\text{Avg. (TCE}_t, \text{TCE}_{t-1})}$ TCE = Total Capital Employed = Networth + Total debt (OR) Net fixed assets + Net Working Capital	× 100	ROCE reflects the earnings capacity of the assets deployed, ignoring taxation and financing mix. It is a powerful tool for comparison of performance of companies within an industry.
RONW	$\frac{\text{PAT} +/\text{- Other Comprehensive Income} \times [12 / \text{No. of Months}]}{\text{Avg. (Tangible Networth}_t, \text{Tangible Networth}_{t-1})}$	× 100	RONW reflects the return to equity shareholders.

- **Tangible Networth** of the entity includes the equity share capital, all reserves and surplus (excluding revaluation reserve), unsecured loans from the promoters which are subordinated to the outside loans, equity share warrants, share application money, ESOPs outstanding, minority interest (in case of consolidated financials). Other considerations while calculating network are highlighted below:
 - Miscellaneous expenditure not written off and Accumulated Losses- Both Miscellaneous expenditure not written off and Accumulated Losses are deducted from the above to arrive at the tangible network.
 - Revaluation Reserves- Revaluation reserves arising out of revaluation of fixed assets are not treated as a part of the tangible network of the entity.
 - Treatment of intangible assets- An intangible asset is an asset which is not physical in nature. Examples of intangible assets include computer software, patents, copyrights, licenses, intellectual property, trademark (including brands and publishing titles), customer lists, mortgage servicing rights, import quotas, franchises, customer or supplier relationships, customer loyalty, market share, marketing rights, goodwill, etc.

Generally, intangible assets are excluded from the tangible network of the entity (e.g., software, internally generated goodwill, goodwill on consolidation). However, in case the intangible asset is critical to the core operations of the entity, CRAF considers the same as a part of the tangible network of the entity. Examples include:

- Telecom license fees paid by the telecom operators to the Government
- Surface rights paid by the miners to undertake mining activity
- Media rights like movie rights, audio rights, video rights, broadcasting rights, television rights, theatrical rights, satellite rights, music rights, digital rights, overseas rights, copyrights, etc.

- Intellectual Property Rights (IPRs) - Intellectual Property is a non-physical property created by the intellect of the human mind. Examples of Intellectual Property include patents, copyrights, trademarks, designs, etc. IPRs are generally seen in the IT and pharmaceutical sectors.

C. Leverage and Coverage Ratios

Financial leverage refers to the use of debt finance. While leverage ratios help in assessing the risk arising from the use of debt capital, coverage ratios show the relationship between debt servicing commitments and the cash flow sources available for meeting these obligations. CRAF uses ratios like Debt-Equity Ratio, Overall gearing ratio, Total Outside Liabilities to Network, Interest Coverage, Debt as a proportion of cash accruals, PBILDT and cash flow from operations and Debt Service Coverage Ratio to measure the degree of leverage used vis-à-vis level of coverage available with the entity for debt servicing. Ratios considered by CRAF include:

Ratio	Formula	Significance in analysis
Debt Equity Ratio	Total Long-term Debt (including current portion of debt) Tangible Network	- Debt equity, Overall Gearing and Total Outside Liabilities to network ratios indicate the extent of financial leverage in an entity and are a measure of financial risk. Though higher leverage would indicate higher returns to equity shareholders, the degree of risk increases for debt holders in case of uncertainty or volatility of earnings. - While calculating the debt equity ratio, only the long-term debt (including the current portion of the long-term debt) is considered. - Both debt equity and overall gearing ratios are adjusted for the exposure to the group companies and analysis is done in conjunction with the performance of the respective group companies. - CRAF also considers the impact of the non-fund-based working capital limits (availed by the entity) on the leverage levels of the entity. - Total Outside Liabilities include Total debt, Other long-term liabilities and provisions, net of deferred tax liability.
Overall Gearing (Including Acceptances / Creditors on LC)	Total Debt (including Acceptances/Creditors on LC) Tangible Network	
Total Outside Liabilities to Network	Total Outside Liabilities Network	
Interest Coverage	PBILDT Total Interest & Finance Charges – Amortization of Premium on Debentures (if any) – Interest Capitalized	It indicates extent of cover available to meet interest payments. It is a simple indicator of profitability and cushion available to secured creditors.
Term Debt / Gross Cash Accruals	Total Long-term Debt (including current portion of debt) Gross Cash Accruals	- Term debt/ GCA and total debt/ GCA indicate the number of years that would be required for repayment of the long-term debt and the entire debt, respectively, considering current levels of GCA. - Term debt/PBILDT and total debt/PBILDT indicate the number of years that would be required to repay long-term and total debt considering current levels of operating profit.
Total Debt / Gross Cash Accruals	Total Debt (including Acceptances/Creditors on LC) Gross Cash Accruals (GCA)	
Term Debt/PBILDT	Total long-term Debt (including current portion of long-term debt) PBILDT	

Total Debt/PBILDT	Total Debt (including Acceptances/Creditors on LC) PBILDT	Total debt/CFO indicates the number of years that would be required to repay total debt considering current levels of CFO. CFO is cash generated from operations after adjusting for working capital changes.
Total Debt /CFO	Total Debt (including Acceptances/Creditors on LC) Cash flow from operations (CFO)	
Debt Service Coverage ratio (DSCR)	GCA+ Interest and finance charges- Internal accruals committed for capex or investment Gross Long-term loan repayable in the year+ Standalone CP + Short-term debt repayments + Interest and finance charges	DSCR indicates adequacy of cash accruals to meet debt obligations. This ratio is seen in conjunction with the cumulative DSCR (given below) which incorporates prior period cash accruals. Though DSCR is an important indicator of an entity's repayment capacity, CRAF also takes into account financial flexibility or refinancing ability of an entity considering factors like group strength or liquidity.
Cash DSCR	(GCA+ Interest and finance charges- Internal accruals committed for capex or investment)- 25% increase in the working capital Gross Long-term loan repayable in the year + Standalone CP + Short-term debt repayments + Interest and finance charges	Cash DSCR is computed by deducting the margin money for the working capital (25% of incremental working capital) from the funds available for debt servicing on the assumption that it will be met out of the GCA and hence will not be available for debt servicing. The balance 75% of the incremental working capital is assumed to be met through working capital borrowings.
Cumulative/ Average DSCR		It indicates running position of average DSCR every year. Cumulative DSCR for the last year of projections would be equivalent to the average DSCR for the tenure of the instrument.

- Total debt-** In total debt, CRAF considers all forms of short-term and long-term debt, including redeemable preference share capital, optionally convertible debentures, interest free loans, foreign currency loans, vehicle loans, fixed deposits, unsecured loans, commercial paper, inter-corporate borrowings, borrowings from promoters, associates, other group companies and bills discounted. Apart from these, CRAF also considers acceptances/ creditors on LC, lease liability and mobilization advances (in case of Construction entities) as a part of the total debt of the entity. Any corporate guarantee given to subsidiaries or other companies is also added to debt to calculate adjusted leverage ratios.

However, if any part of the borrowings from the promoters/related parties are subordinated to the loans from outsiders that are being rated, the same is treated as a part of network. Nevertheless, the interest expense on the subordinated debt is treated as a normal interest expenditure of the entity.

If the debt is fully backed by a dedicated/ lien-marked Fixed Deposits/ cash margin, CRAF excludes the same from the total debt.

- **Treatment of Hybrid instruments-** Hybrid instruments are instruments which have the characteristics of both debt and equity. Examples include Redeemable Preference Shares, Compulsorily Convertible instruments, Optionally Convertible instruments, including Foreign Currency Convertible Bonds (FCCBs), Perpetual Debt, etc. These instruments normally carry a fixed rate of coupon/ dividend. At times, the coupon/ dividend may be deferrable, thus giving the issuer the flexibility to conserve cash in times of stress.
 - **Redeemable Preference Shares-** Preference shares have a fixed tenure at the end of which they have to be redeemed by the issuer. Furthermore, they also carry a fixed rate of dividend. As per the Companies Act, companies cannot issue preference shares of more than 20 years maturity (except for infrastructure companies). Hence, preference share capital typically has the characteristics of debt and is treated as such by CRAF in its analysis. However, if preference shares are issued to the promoters of the company and are redeemable after repayment of the outstanding term debt of the company, they assume the nature of long-term funding from the promoters and hence CRAF treats them as quasi equity.
 - **Compulsorily Convertible Instruments-** Sometimes the instrument could be compulsorily convertible into equity at the end of a long time frame, e.g., 5-7 years. Hence, the company does not have to redeem the instrument at the end of the tenure and as such there is no credit risk. In all, such cases where the terms of the preference shares/ debentures give it equity like characteristics, CRAF treats the Compulsorily Convertible instruments (including Compulsorily Convertible Preference Share Capital (CCPS)/ Compulsorily Convertible Debentures (CCDs)) as quasi equity and considers it as a part of the network of the company. However, if the terms of the compulsorily convertible instruments are such that the investors have an exit option on the company, CRAF treats these instruments as debt.
 - **Optionally Convertible Instruments-** At times, companies also issue optionally convertible instruments (typically Optionally Convertible Preference Shares (OCPS)/ Optionally Convertible Debentures (OCDs)). Here, the investor has the option to convert the instrument into equity shares at the end of a certain time frame at a pre-determined price. In this case, the alternative of redemption of the instrument cannot be ruled out till it is actually converted into equity. The instrument thus has debt like characteristics till the time it is actually converted into equity. Thus, CRAF generally treats the optionally convertible instruments as debt in its analysis.

D. Turnover Ratios

Turnover ratios, also referred to as activity ratios or asset management ratios, measure how efficiently the assets are employed by the entity. These ratios are based on the relationship between the level of activity, represented by sales or cost of goods sold, and level of various assets, including inventories and fixed assets. The turnover ratios considered by CRAF include:

Ratio	Formula	Significance in analysis
Avg. Inventory Period	$\frac{\text{Avg. (INV}_t, \text{INV}_{t-1}) \times 30 \times \text{No. of Months}}{\text{Costs of Sales} - \text{Selling Expenses}}$ INV = Total Inventory	This indicates the turnaround time of inventory. High average inventory period may indicate high levels of obsolescence of inventory, while low levels of inventory may be inadequate to meet emergencies. The ratio is compared with normal inventory holding policy of the company and the industry practice. CRAF also looks at the Average Raw Material Inventory Period, Average WIP Inventory Period and the Average Finished Goods Inventory Period.
Avg. Collection Period	$\frac{\text{Avg. (REC}_t, \text{REC}_{t-1}) \times 30 \times \text{No. of Months}}{\text{Gross Sales} + \text{Traded Goods Sales} + \text{Job Work Income} + \text{Scrap Sales}}$ REC = Total Receivables	This indicates quality of debtors. Very low figure can indicate strict trade terms resulting in possible loss in sales. Very high average collection period may indicate slow realization of debtors and in turn may be an indicator of stressed liquidity position. It is compared with the normal ('stated') credit period extended to customers and the industry norms.
Avg. Creditors Period	$\frac{\text{Avg. (CRED}_t, \text{CRED}_{t-1}) \times 30 \times \text{No. of Months}}{\text{Cost of Sales} - \text{Misc. Expenses Written Off}}$ CRED = Total Creditors	It is compared with normal credit period enjoyed by the entity and the industry norms. Very high figure will indicate possible delays in payments to the creditors, which would ultimately reflect in high cost of raw material, as the 'interest' on the 'delayed' payments normally gets loaded to the raw material cost.
Working Capital Cycle	$\text{Avg. Inventory Period} + \text{Avg. Collection Period} - \text{Avg. Creditors Period}$	The effect of all the above-mentioned ratios is reflected in the working capital cycle.

Fixed assets turnover ratio	$\frac{[\text{TOI} - \text{Other Income Not Related to Core Business}] \times [12 / \text{No. of Months}]}{\text{Avg. (Gross Block}_t, \text{Gross Block}_{t-1})}$ Gross Block: Net of Intangible Assets such as Goodwill etc.	In general, higher the ratio, higher the efficiency of asset/capital utilization. However, very high figure can indicate old assets requiring large outlay on modernization going forward. Hence, the ratio has to be looked at in conjunction with the industry average.
Working Capital Turnover Ratio	$\frac{[\text{TOI} - \text{Other Income Not Related to Core Business}] \times [12 / \text{No. of Months}]}{\text{Avg. (NWC}_t, \text{NWC}_{t-1})}$ NWC = Net Working Capital = Total Current Assets – [Total Current Liabilities related to Operations – Creditors for Capital Goods]	In general, higher the ratio, higher is the efficiency. Too high a figure can, however, indicate low levels of inventory, which may be inadequate to meet emergencies.

E. Liquidity ratios

Liquidity ratios such as current ratio and quick ratio are broad indicators of liquidity level and are important ratios for rating short-term instruments. Cash flow statements are also important for liquidity analysis. Liquidity ratios considered by CRAF include:

Ratio	Formula	Significance in analysis
Current Ratio	$\frac{\text{Total Current Assets}}{\text{Total Short-term Debt (includes Current Portion of Long-term Debt/Fixed Deposits and bills discounted) + Total Current Liabilities and Provisions}}$	This indicates short-term liquidity position. CRAF compares the same with the industry trends and banking norms.
Quick Ratio	$\frac{\text{Total Current Assets} - \text{Total Inventories}}{\text{Total Short-term Debt (includes Current Portion of Long-term Debt/Fixed Deposits) + Total Current Liabilities and Provisions}}$	This indicates capacity to meet short-term obligations using near-liquid assets. CRAF compares the same with the industry trends and banking norms.

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About:

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