



## ICRA Rating Feature

# Approach for Financial Ratio Analysis

This document updates and supersedes ICRA's earlier document on this subject, published in August 2016.

## Overview

ICRA's credit rating is a symbolic representation of its opinion on the relative credit risk associated with the debt instrument being rated. This opinion is formed after evaluating an entity's industry, business and financial risks, its liquidity and financial flexibility, the management's financial policy, its corporate governance practices and support from group entities. This note gives a description of the salient financial ratios assessed by ICRA for evaluating the financial risk profile of entities in the non-financial sector. These financial ratios are only the commonly used ones. In addition to these, a variety of sector-specific operating ratios, as described in the various sector-specific methodologies published by ICRA, are also evaluated as part of ICRA's analytical approach to credit risk assessment. The financial risk analysis is not undertaken solely on the basis of the latest available ratios as it may cause a point-in-time analysis bias for reasons such as recent capital expenditure, recent fresh capital infusion and so on. To assess the financial risk profile of an entity, ICRA analyses its performance trends over a period of time in the past as well as that projected for the future. The analysis is also meant to gain an understanding of how the financial metrics of the rated entity compare with that of its peers.

The various financial ratios discussed in this note have been divided into four categories viz., profitability, leverage, coverage and liquidity. Profitability metrics are a measure of an entity's efficiency and return on investments. Leverage ratios measure the indebtedness of an entity, while coverage ratios measure the factor of safety between inflows and obligations. Finally, liquidity ratios measure the buffer that an entity has in the form of cash or cash equivalents with respect to its obligations, which can be utilised in case of any temporary cash flow mismatch.

## Profitability

**What does it signify?** Profitability is a measure of the earnings generated by an entity in a given time period in relation to the resources deployed. Profitability could be influenced by a multitude of factors including those that are firm-specific or those that are related to the industry, economy or regulations. A consistent track record of higher profitability shown by an entity compared with its peers is a reflection of a superior competitive position emanating from one or more factors, including greater brand strength, better distribution reach, attractive product profile, technological superiority or higher cost efficiency (operating or capital).

**Why is it important?** It is imperative for most businesses to invest regularly in product development, marketing, physical assets and human capital so as to sustain or improve their competitive position. Entities that have superior profitability are able to do so through internally-generated resources with low dependence on external financing. Moreover, such entities are able to generate sufficient surplus for not only meeting debt servicing obligations, but also to reward equity investors. This in turn improves their ability to attract fresh capital for future business requirements. Moreover, entities with higher profitability have better resilience to economic downturns and are more likely to generate adequate internal resources for re-investment and debt servicing.

The various ratios, which are typically used to analyse an entity's profitability are discussed below:

### Operating Profit Margin

Operating Profit Margin (OPM) is a measure of an entity's pricing power and/ or operating efficiency and is a reflection of profitability on an unlevered basis. As this ratio is not affected by an entity's capital structure, it is useful in comparing entities independent of their financing choices (debt versus equity). However, OPM does get influenced by the credit terms an entity may have with its suppliers. For instance, ceteris paribus, one entity may choose to pay to its suppliers quickly and fund its working capital requirements through borrowings, while another may fund its working capital requirements by pushing back payments to creditors against which it may have to offer higher pricing to its suppliers. The reported operating profits (and OPM) are likely to be higher in case of the former, even as these may be offset at the net profit level in view of the former's relatively higher interest outgo. Likewise, OPM may be different for two entities, one of whom may have taken assets on financial lease, while the other may have entered into operating lease transaction with counterparties. Such aspects are appropriately factored in by ICRA while making inter-entity OPM comparisons.

### Net Profit Margin

Net Profit Margin (NPM) is a measure of the earnings generated by an entity after charging-off all operating and non-operating expenses, capital costs (depreciation and financial expenses) and taxes. Holding all else equal, two entities having the same OPM may have different NPM if one entity part-funds its business through debt while the other chooses to remain debt-free. The net profits (and NPM) of the former will be lower as it would need to pay out a part of its profits as interest. From a credit perspective, an entity that has higher NPM would accordingly rank higher. Yet, an entity that reports higher margins by virtue of a premium pricing strategy need not always be better than an entity whose business model hinges on low margins but high volumes, as despite the former's higher margins, its profits may fall short of the business requirements for investment and debt servicing. Effectively, while NPM comparison across entities does provide a perspective on relative returns, this is assessed by ICRA against the backdrop of business characteristics and strategic choices made by entities.

### Return on Capital Employed

Return on Capital Employed (RoCE) is a measure of the efficiency with which an entity sweats the capital deployed in its business. This ratio is unaffected by an entity's capital structure and capital requirements and thus could be used to compare entities across diverse industries and with different capital structures. When ICRA undertakes a comparative analysis of the level of RoCE demonstrated by entities, it does so against the backdrop of the fundamental business risk attributes of the entity, besides the track record of volatility in RoCE shown over the years. An entity may be commanding a relatively high RoCE, but that might be because it operates in a relatively high-risk business. This necessitates drawing out the meaning of RoCE on a business risk-adjusted basis. In addition, a track record of a highly volatile RoCE shown over the years could be because of an infirm business position. An entity's ability to consistently generate RoCE over and above its cost of capital would reflect well on its long-term business viability. However, the RoCE of an entity may slide in a given year if it undertakes a large capital expenditure (capex) programme or pursues an acquisition. ICRA does not necessarily perceive this as a negative, if in its assessment, the capex or the acquisition, is likely to generate adequate returns in the future. ICRA also appropriately takes into account the impact on RoCE of an entity's policy or practice of stretching payments to its suppliers and service providers, which may give the impression of healthy profitability but mask the reality of tight liquidity.

Ratio	Computation
Operating Profit Margin	(Operating Profit) / (Operating Income)
Net Profit Margin	(Net Profit after Tax) / (Operating Income)
Return on Capital Employed	(Profit before Interest and Tax) / (Average Capital Employed)

*Operating Income = Revenues from Operations (net of indirect taxes)*

*Operating Profit = Profit before Depreciation, Amortization, Interest, Tax and Non-Operating or Non-Recurring Income and Expense*

*Capital Employed = Total Debt + Net Worth + Deferred Tax Liability – Capital Work in Progress – Capital Advances*

## Leverage

**What does it signify?** Leverage, shorthand for financial leverage in this note, is a measure of an entity's dependence on borrowed funds. Lower the dependence on borrowings, the lower (better) the leverage. When an entity borrows, it is obligated to pay both interest as well as principal to the lenders as per a defined schedule. This pushes up the fixed cost burden on the borrowing entity and in the limiting case, increases the default risk. While high leverage may mean high risk from a credit perspective, it is an oft-adopted course by shareholder-oriented managements given that high leverage, in good times, leads to high returns on equity capital. An entity's financial leverage could thus be a function of its management's financial policy and risk tolerance, besides being a point-in-time reflection of an entity's business and financial choices.

**Why is it important?** Since borrowed funds typically have fixed obligations in the form of interest and principal payments irrespective of the level of cash flow generation, as against equity capital where there are no fixed obligations and pay-outs remain discretionary, leverage denotes the extent of financial risk taken by an entity. An entity with lower leverage typically has higher financial flexibility to raise incremental external capital (debt or equity) for re-investment in business or other purposes. An entity with lower leverage is also better equipped to withstand volatility in cash flow generation in situations of economic downturn, competitive challenges, unexpected rise in costs, changing consumer preferences, or regulatory changes. Compared with stable or mature industries, cyclical industries or those with higher volatility in cash flows have lower tolerance to financial leverage lest it should increase the proportion of fixed financial expenses in their cost structure, thereby increasing the probability of default.

The various ratios that are typically used to analyse an entity's leverage are discussed below:

### Gearing

Gearing is the most commonly used measure of leverage and is defined as the ratio of borrowed funds to shareholders' funds. While estimating borrowed funds, ICRA takes into account all the long-term and short-term debt, subordinated debt, as well as off-balance sheet liabilities such as receivables discounted for an entity. While estimating shareholders' funds, ICRA adjusts the net worth for revaluation reserves, miscellaneous expenditure, which has not been written-off, to arrive at the tangible net worth as it gives a more accurate representation of the amount of funds that have the first loss absorption capacity. Moreover, the minority interest, which represents the share of non-controlling shareholders in a consolidated entity, is also included in the shareholders' funds. Deferred tax liability is not included in the shareholders' funds as these arise from timing differences between book profits and profits computed as per the Income Tax Act, which are expected to be reversed eventually. Apart from these, ICRA makes appropriate adjustments to assign equity credit to various hybrid instruments, such as convertible debentures, preference shares and perpetual debt, depending on their contractual terms.

### Total Indebtedness Ratio

Total indebtedness ratio is defined as the ratio of all external liabilities to shareholders' funds or the market capitalisation (if the entity's equity is publically listed). The external liabilities include all the long-term and short-term liabilities such as debt, deferred tax liability and creditors. This ratio normalises the impact of funding difference among entities with respect to their use of fund-based and non-fund based facilities. Since non-fund based lines of credit are not reported under borrowed funds (unlike fund based facilities), an entity that relies primarily on non-fund based lines of credit for funding its working capital requirements or has extended credit terms with its suppliers and service providers will appear to have a lower (better) gearing as compared to an entity that utilises fund-based lines of credit such as cash credit limits. The total indebtedness ratio addresses this aspect as external liabilities include fund-based limits, non-fund based liabilities and creditors.

### Debt to Profit Ratio

Debt to profit ratio is defined as the ratio of borrowed funds to operating profits and denotes the extent of leverage in relation to profits. As debt is typically required to be serviced from operating profits (unless refinanced or paid through other internal or external resources), this ratio measures an entity's susceptibility to volatility in profits. However, as debt servicing includes both interest and principal payments, this ratio is seen in conjunction with the average cost and repayment schedule of the borrowed funds as two entities having similar debt-to-profit ratio could have different financial risk profiles, depending on the financing cost and the repayment

schedule. As an example, for two entities with similar debt levels, the entity having a longer repayment schedule can utilise the profits generated over a longer tenure to service the debt and thus can sustain a higher debt-to-profit ratio compared to an entity with a shorter repayment period.

### Accruals to Debt Ratio

It is defined as the ratio of cash accruals to borrowed funds and its reciprocal is an indicator of the number of years required to repay the borrowings with the existing level of accruals. For calculating cash accruals of an entity, depreciation is added back to net profits and dividend pay-outs to equity and preference shareholders are charged off. Although the debt holders rank higher than the shareholders in terms of priority of claims, this ratio attempts to assess the debt servicing ability of an entity while assuming dividend pay-outs to be non-discretionary and recurring. This ratio is particularly useful to analyse entities, most of whose debt is amortising in nature and dividends are expected to be sticky. Moreover, this ratio is seen along with the average maturity profile of the debt. Notwithstanding high accruals to debt ratio for an entity, lower average maturity profile of debt would indicate that it may be unable to meet its debt servicing obligations at its existing levels of cash accruals and will require either external funding support or refinancing.

Ratio	Computation
Gearing	(Total Debt) / (Tangible Net Worth)
Total Indebtedness Ratio	(Total Outside Liabilities) / (Tangible Net Worth)
Debt to Profit Ratio	(Total Debt) / (Operating Profit)
Accruals to Debt Ratio	(Net Cash Accruals) / (Total Debt)

*Total Debt = Long-Term and Short-Term Debt (including subordinated debt) + Off-Balance Sheet Liabilities (such as receivables discounted) + debt component of hybrid instruments as assessed by ICRA based on the instruments' contractual terms*

*Shareholders' Funds or Tangible Net Worth = Net Worth - Revaluation Reserves - Miscellaneous Expenditure not Written-off + Minority Interest + Share Application Money + equity component of hybrid instruments as assessed by ICRA based on the instruments' contractual terms*

*Total Outside Liabilities = Total Debt + All Long-Term and Short-Term External Liabilities such as Deferred Tax Liability, Creditors and Operating or Non-Operating Liabilities*

*Net Cash Accruals = Net Profit after Tax + Depreciation – Dividend on Preference and Equity Shares*

### Coverage

**What does it signify?** Coverage is a measure of an entity's debt-servicing ability and is calculated as the ratio of profits (or cash flows) to the debt servicing obligations in a given time period. The higher is the ratio, higher the cushion available with an entity to withstand variability in profits (or cash flows), for making good its financial obligations. Coverage is a function of an entity's profits, leverage and debt characteristics (in terms of cost of debt and repayment schedule).

**Why is it important?** Entities with higher profitability and lower leverage will generally have better coverage ratios and thereby healthier financial risk profiles. However, there may be exceptions to this such as in project funding structures for long-dated assets like road projects, power projects or hotel projects where the loan tenures are typically long. In such cases, even as profit generation may remain weak in the initial years of the project and leverage ratios may appear onerous, the fact that the long-term debt contracted may have a sufficiently long period of moratorium (and interest pay-out during the construction phase may also be funded through the project debt) along with a ballooning and a spread-out repayment schedule, the coverage ratios are likely to remain adequate. In case the coverage ratio of an entity is below 1.0 time in a given period, it may have to seek recourse from other sources of liquidity—such as cash balances or liquid investments or equity infusion or undrawn working capital limits or resort to refinancing the loans—to avert a situation of default on debt servicing.

The various ratios that are typically used to analyse an entity's coverage are discussed below:

### Interest Coverage Ratio

Interest coverage ratio is defined as the ratio of operating profits to gross interest expense (without netting off the interest income from loans and advances) and is an indicator of an entity's ability to cover the ongoing cost of borrowed funds through the profits generated from operations. An entity with an interest coverage ratio of less than unity would be unable to service even the cost of borrowed funds and thereby would be exposed to a high probability of default. For such entities, the capacity to raise fresh funds would also be constrained which in turn may adversely impact the long-term viability. On the contrary, for an entity with an interest coverage ratio of 10 times, its profits will need to fall dramatically before becoming insufficient to make good interest payments. An apparently comfortable interest coverage ratio, however, does not reveal whether the entity would have a surplus left, after making interest payments, to repay the debt as it becomes due or to fund the margin required for a proposed large capex outlay. Nevertheless, this ratio has high relevance in case of entities where most of the debt is non-amortising in nature.

### Debt Service Coverage Ratio

DSCR is defined as the ratio of internal accruals to the debt servicing obligations and is an indicator of an entity's ability to meet all the fixed financial obligations on the borrowed funds (interest, principal repayment and dividend on preference shares) from its internal accruals. A ratio of more than unity indicates that the entity will be able to meet its obligations from internal accruals, while a ratio of less than unity indicates a shortfall and high dependence on timely refinancing. However, a ratio of less than unity does not always indicate a stressed financial position as the entity may have high financial flexibility to timely refinance or may have sufficient liquidity or internal sources to meet the debt servicing obligations. Thus, this ratio is seen in conjunction with the financial flexibility and liquidity of an entity.

A similar cash flow based ratio is the cash debt service ratio, which is defined as the ratio of operating cash flows after adjusting for the changes in working capital to the debt servicing obligations. It is an indicator of an entity's ability to cover for all the fixed financial obligations on the borrowed funds (interest, repayment and dividend on preference shares) from its operating cash flows net of working capital changes. As profits often do not equal cash, as funds may be blocked in working capital, a cash flow ratio such as this is generally a better indicator of the debt servicing ability of an entity. However, a weak cash debt service ratio does not necessarily indicate a weakness in financial risk profile because the ratio assumes that the entire working capital requirement would be funded from operating profits, which may not always be the case. For a growing business, the incremental working capital requirement is generally funded through both operating profits as well as fresh borrowings. Nevertheless, a higher ratio in a stable or a growing business is generally indicative of a healthy financial risk profile and implies sufficient cash flow availability for re-investment in business. Likewise, in a declining business, even if this ratio appears comfortable, it may only be the outcome of release of working capital even as underlying profits may be on a declining curve. In such cases, while a positive cash debt service ratio would indicate no immediate pressure on the debt servicing ability, this situation may not sustain if the business and profits keep declining such that liquidity pressures eventually catch up.

Ratio	Computation
Interest Coverage Ratio	(Operating Profit) / (Gross Interest expense)
Debt Service Coverage Ratio	(Net Profit After Tax + Gross Interest + Depreciation) / (Gross Interest + Repayment + Dividend on Preference Shares)

### Liquidity

**What does it signify?** Liquidity is the measure of an entity's ability to meet its short-term cash obligations from various internal or external resources. Internal resources include the cash generated from operations, unencumbered cash and cash equivalents on hand, and cash inflows expected from the monetisation of physical and financial assets. External resources include various forms of external capital such as undrawn working capital limits, short-term loans, project loans and corporate loans from financial institutions, and fresh capital committed to be brought in by a third-party. The short-term obligations include both the committed as well as the contingent claims on an entity's cash, including the debt servicing obligations, working capital requirements, capital expenditure and other investment outlays, dividend and share buyback-related outflows, besides the sudden demand arising from crystallisation of discrete events such as litigation penalty. The higher the cushion available between the resources available (especially internal resources) and the obligations, the better is the

liquidity profile of an entity. In addition to the adequacy of internal and external resources, liquidity profile is also driven by the vulnerability of an entity to timely refinancing / renewal of short-term sources of funding.

**Why is it important?** Given that the prospect of healthy long-term fundamentals may not mean much for an entity if crisis looms in the short-term, liquidity analysis remains a crucial element of credit analysis. To assess the ease with which an entity can access cash or cash equivalents, one is interested in metrics beyond leverage. Low leverage does not necessarily indicate low default risk as an entity may find itself short of liquid assets—for conversion to cash quickly and cheaply—to meet its impending cash obligations. In addition, while cash flow analysis assesses the adequacy of an entity's internal resources and committed external sources of financing in relation to its obligations, it does not distinguish between the nature of such cash flows. In other words, cash flow analysis does not specifically capture whether it is the long-term sources of funds that are deployed towards the creation of long-term assets, including fixed assets, long-term investments and long-term loans and advances, or it is the short-term funds. In cases where short-term sources of funds (such as working capital limits, short-term loans and customer advances) are deployed for long-term purposes, liquidity of an entity remains vulnerable to timely refinancing or renewal of the short-term sources of financing. ICRA also notes that the measures of liquidity can become outdated quickly and hence an entity's management's approach to deal with the trade-off between returns and liquidity is accorded due importance in ICRA's analytical approach.

The various ratios, which are typically used to analyse an entity's liquidity are discussed below:

### Current Ratio

Current ratio is defined as the ratio of current assets to current liabilities and is an indicator of an entity's long-term funding adequacy. Generally, the higher the current ratio, the lower is the mismatch between the long-term requirement and the long-term sources of funding. The ratio is analysed after adjusting for the long-dated receivables and obsolete inventory as these may not be readily convertible to cash and are generally ineligible for short-term bank funding. A related aspect is evaluation of receivable and inventory ageing to appropriately estimate the long-term funding requirements as well as to assess the possibility and extent of write-off that may be required towards these assets. In addition to the ageing analysis for current assets, the quality of receivables is also assessed to determine the likelihood of timely collection of such receivables. Significant proportion of unsecured receivables concentrated among a few entities with weak or unascertainable credit profile poses a bigger risk as compared to a diversified distribution of receivables or concentration among entities with a stronger credit profile.

### Working Capital Cycle

Working capital cycle captures the amount of time taken by an entity to convert its net current assets (receivables and inventory net of payables) into cash. The longer the working capital cycle, the greater the working capital funding requirement for an entity and vice-versa. Typically, entities in a growth phase that have a shorter working capital cycle will have a better liquidity profile because of faster cash turnaround, and thereby lower incremental working capital requirements. In addition, such entities will have a lower proportion of long-dated receivables and inventory, which will limit the risk of write-downs on such assets in the future.

However, one of the analytical issues while assessing the working capital cycle relates to distinguishing between entities whose favourable working capital cycle is because of inherent efficiency in working capital management and those where a favourable working capital cycle is an outcome of stretching of payables. The latter may be a reflection of liquidity stress rather than an indication of bargaining power with business partners or efficiency in working capital management. In such a situation, an entity may find itself in a deeper liquidity crisis whenever such liberal credit terms are snapped.

In other cases, an entity may be relying solely on non-fund based limits (such as Letter of Credit) to manage its working capital requirements (instead of fund-based working capital limits). In such cases, if the gross operating cycle (Receivable Days + Inventory Days) is longer than the tenure of the non-fund based limits, the entity may find itself in a tight liquidity position as the time required for conversion of current assets into cash will be longer than the tenure of the underlying current liabilities.

Apart from the length of the working capital cycle, liquidity assessment also involves analysing the stability of an entity's working capital cycle. A declining working capital cycle, combined with improving operating profit

margins, is generally indicative of efficient working capital management as well as improvement in bargaining power with the business partners and vice versa.

### Working Capital Intensity

Working capital intensity is an extension of the “Working Capital Cycle” measure as it also captures the cash turnaround rate of an entity. However, while the “Working Capital Cycle” captures the cash turnaround rate with respect to only debtors, inventory and creditors, working capital intensity captures the turnaround rate with respect to an entity’s entire working capital, which also includes operating and non-operating current assets as well as liabilities. The ratio is expressed as a ratio of the net working capital to the operating income. Moreover, the higher the ratio, the higher is the cash turnaround time and thereby the working capital requirement for every unit of sale.

Ratio	Computation
Current Ratio	(Current Assets) / (Current Liabilities)
Working Capital Cycle	Debtor Days + Inventory Days – Payable Days
Working Capital Intensity	(Net Working Capital) / (Operating Income)

*Current Assets = Cash + Inventory + Debtors + Other Operating and Non-Operating Current Assets*

*Current Liabilities = Current Portion of Long-Term Debt + Short-Term Debt (including Working Capital Debt) + Creditors + Other Operating and Non-Operating Current Liabilities*

*Net Working Capital = (Current Assets – Cash) – (Current Liabilities – Current Portion of Long-Term Debt – Short-Term Debt – Capital Creditors)*

### Summing Up

This note discusses the various financial ratios, which are generally assessed by ICRA to evaluate an entity’s financial risk profile. As each financial ratio captures different aspects of the financial risk, none of them alone can reflect the financial risk of an entity in its entirety, and thus a collective analysis is undertaken to take a holistic view of the financial health of an entity. Moreover, while financial risk is an important factor in determining an entity’s creditworthiness, it is not the only driver of an entity’s credit rating as other factors such as business risk, management’s financial policy, support from group entities and corporate governance practices also have a large role to play. Thus, even as an entity may report strong financials, its credit rating may still be constrained if its business risk is high or it follows a less transparent corporate governance structure. On the other hand, strong financial flexibility or backing from stronger group entities could mitigate the impact of weak financials and support an entity’s credit profile.

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