

TRAINING GUIDE

Debt Service Cover Ratio (DSCR)

Why is it Important?

Introduction

The Debt Service Cover Ratio ("DSCR") is one of the key financial ratios that lenders focus on in project finance transactions. It measures the ratio between Cash Available for Debt Service ("CFADS") to Debt Service. In essence a DSCR highlights how much financial headroom a company has in relation to its debt obligations during a specific period. A ratio of 1.00x indicates cashflow is just sufficient to service debt, while a ratio of less than 1.00x signifies a shortfall.

When arranging debt (pre 'financial close')

The DSCR is widely considered the most important ratio in a project finance transaction. Lenders typically require minimum and average DSCRs be met as a 'Condition Precedent' ("CP") to signing the financing agreement, with the DSCR often the limiting factor when financial models are optimised – as opposed to other ratios such as the Loan Life ("LLCR") or the Project Life Cover Ratio ("PLCR"). The agreed CP level is negotiated with lenders based on the perceived risk of the project.



As a result, the DSCR often dictates the level of gearing in a project. If the DSCR is not meeting the CP, then a higher equity investment may be required (reducing debt and thus lowering debt service) or, alternatively, an increased annual payment from the Grantor when, for example, the project is a part of a Public Private Partnership (“PPP”) tender process.

Once debt has been invested (post ‘financial close’)

Whilst the DSCR initially governs how much debt a project can support when financing is arranged (as based on the financial close model’s forecast results), it continues to be relevant even after senior lenders have invested their capital and the project becomes operational.

Lenders will monitor a project’s performance at regular intervals using the DSCR, alongside other financial ratios. If the DSCR falls below agreed-upon thresholds the project may enter ‘lockup’, where sponsors are prohibited from making equity distributions or, more drastically, ‘default’, where lenders can assume control of the asset to safeguard their investment.



How is the DSCR Calculated?

Periodic DSCR

The DSCR is generally calculated as an annual ratio (“ADSCR”) and tested on a historic (“HADSCR”) and forecast (“FADSCR”) basis at the point debt service is paid, usually on a quarterly or semi-annual schedule.

The formula for the DSCR is:

$$\text{DSCR} = \frac{\text{CFADS}}{\text{Debt Service}}$$

The financing agreement will set out the detailed components of CFADS and Debt Service but, broadly speaking, Cash Flow Available for Debt Service will be equal to:

- Project Revenues
- Less: Project Costs (excluding Financing Costs)
- Less: Tax
- Less: Certain reserve account deposits
- Plus: Certain reserve account withdrawals

Debt Service will typically include:

- Principal debt repayments
- Interest payments
- Commitment fees and other fees
- Net amounts due (to) / from the project company as a result of interest rate hedging

It is essential however to cross-check the financial model against documentation, as different lenders will have their own approach to certain items. Several common discrepancies are listed later in this article.

Average DSCR

Whilst lenders will usually specify an Average DSCR CP that must be met, financing documentation is typically silent on how this average should be calculated. Two main approaches to calculating an Average DSCR exist:

Approach 1

A simple average of individual DSCRs is taken.

Approach 2

Total CFADS over the debt term is divided by total Debt Service over the same period.

Method 1 weights each individual DSCR equally regardless of the quantum of debt outstanding. This can however result in a skewed average, especially if DSCRs are higher in later periods where Debt Service is lower – perhaps in a scenario where gearing hasn't been maximised.

Method 2 divides total CFADS by total Debt Service to overcome this problem, meaning high ratios in the later years of the project (particularly the maturity period) will not materially impact the average reported.

As noted above funding documentation doesn't usually specify how the average DSCR is calculated and whilst Method 2 may appear more robust, it is more common to see the Average DSCR calculated as a simple average, per Method 1.



Modelling DSCR Calculations

Debt Sculpting

As previously mentioned, lenders will require the DSCR in the base case financial model to meet a minimum level, or CP. The optimal scenario that will either maximise gearing and equity returns, or minimise the annual Grantor payment in a PPP whilst meeting the desired equity return, will be to just meet this CP in each period.

CFADS is unlikely to remain constant though throughout the life of a project due to the seasonality of income or the lumpy nature of life cycle costs amongst other things. Constant Debt Service in each period will not therefore be optimal. To maintain a flat DSCR, Debt Service will need to fluctuate, increasing in periods of high CFADS and decreasing in periods of low CFADS.



Figure 1 below demonstrates how the DSCR might fluctuate over time where debt repayments are based on an annuity and with variable CFADS. In this scenario, assuming a minimum DSCR CP of 1.10x, the maximum debt that can be raised is £49.52 million (right hand scale).

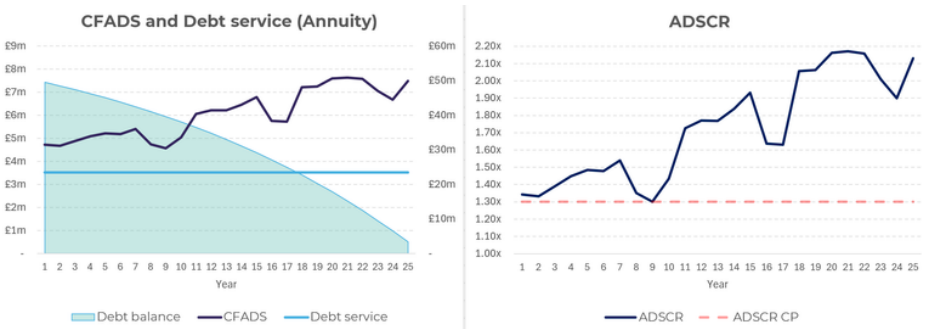
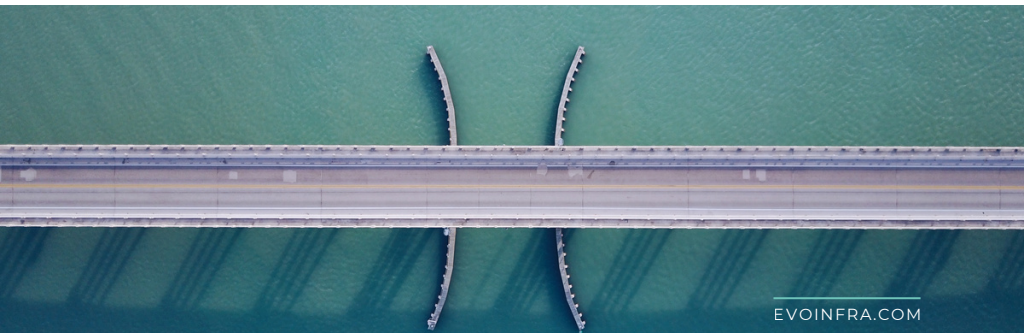


Figure 1: ADSCR with 'lumpy' CFADS and annuity debt repayments

Where debt repayments are structured to align with fluctuations in CFADS a flat DSCR can be achieved. This results in the potential for higher debt capacity (£62.15m) to be supported from the same CFADS or, alternatively, the same debt amount serviced from a lower CFADS (equalling a 12.6% reduction in the unitary payment in this example).



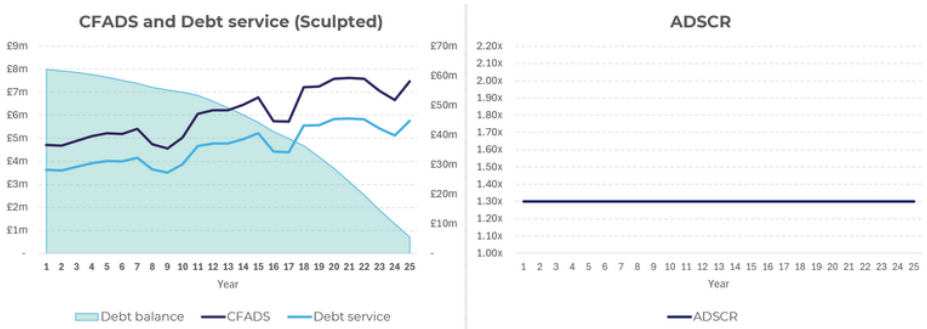


Figure 2: ADSCR with 'lumpy' CFADS and sculpted debt repayments

This structuring technique is referred to as debt sculpting. Debt sculpting can be demonstrated by rearranging the formula for the DSCR as follows:

DSCR = CFADS / Debt Service can be rearranged as:

$$\text{Debt Service} = \frac{\text{CFADS}}{\text{DSCR}}$$

Illustrating this numerically, where CFADS is 130 in a period and given an assumed DSCR CP of 1.30x, we know that Debt Service must be equal 100 in order for the ratio CP to be met.

Since the interest due in the period can be calculated (being the opening debt balance multiplied by the interest rate for the period length), along with any applicable fees, the maximum principal repayment that ensures the DSCR CP is met can be determined.

This can be expressed algebraically as follows:

$$\text{Principal Repayment} = \frac{\text{CFADS}}{\text{DSCR less Interest and Fees}}$$

Assuming Interest and Fees total 20, the maximum Principal Payment in this scenario would be 80 (calculated as $130/1.30 - 20$). By repeating this calculation across the tenor of the debt, the sum of the maximum repayments that can be made is known, thereby informing the total debt quantum that can be drawn.

It is important to note that debt sculpting is only performed when initially arranging the debt package. Once the financing agreement is signed at ('financial close') the debt repayment profile will become fixed.



Common Issues

1. Alignment with documentation

The DSCR calculation itself is straightforward and issues therefore more commonly therefore arise due to a misalignment with documentation. Items that may differ between projects include:

- **Bank agency fees:** May be included in CFADS or Debt Service
- **Interest income on project accounts:** Not always included within CFADS
- **Commitment fees:** Not always included within Debt Service
- **Timing of ratio calculations:** The timing (calculation dates) and length of calculation periods, e.g. in the period following construction and or just prior to debt maturity, require careful consideration

2. Cash sweep mechanisms

In some financing arrangements a cash sweep mechanism may be present, redirecting free cash that would otherwise be distributed to instead accelerate senior debt repayments. If 100% of free cash is swept the principal debt repayments will increase to the point where Debt Service equals CFADS, resulting in a DSCR of 1.00x. The DSCR therefore becomes less meaningful in this scenario as it no longer reflects the financial strength or stability of the project. Lenders may therefore prefer to see the DSCR calculated with only scheduled principal repayments included in the denominator.

Common Issues

3. Sensitivities

Errors can arise when conducting sensitivity analyses. For example, if a Debt Service Reserve Facility is part of the financing package it may be utilised in a downside scenario. Interest payments on such facilities must therefore be included in DSCR calculations. Furthermore, the treatment of DSRF repayments should be carefully assessed - if prioritised over all other cash flows, similar to the cash sweep scenario above, the outturn result will be a DSCR of 1.00x, with the true financial strength of the project masked. Lenders may again therefore prefer DSRF repayments not to be reported in the DSCR, notwithstanding how this is actually documented.

4. Lock-up mechanics and circularity

Financing agreements specify the DSCR should be tested against lock-up and default levels on both a historical and forward-looking basis. Forward-looking calculations are however inherently circular and so frequently excluded from models to avoid complexity. Where excluded we recommend adding an audit check to the model to flag where the lock-up should apply.



Get in touch today to discuss
your training requirements.
We're here to help you, or your
team become better modellers.



Karina Tam

Director, Head of Training

Email: tamk@evoinfra.com

Mobile: +44 (0) 7808 550 927



Jack Lowe

Director

Email: lowej@evoinfra.com

Mobile: +44 (0) 7919 481 722