

Sizing the loan: three tests, one answer

How much will the bank lend? Three tests answer it, and the lowest answer is the loan. A model has to run all three, apply the lowest, and say which one it was, because that single fact explains the cover, the equity cheque and the returns. This post runs the tests on Riverbend.

01 THE THREE TESTS

First, maximum gearing: the lender lends at most 75% of total project costs (the capital cost, the financing costs during construction and the DSRA's initial funding). This is the bank's credit policy, its minimum-equity requirement: the sponsor funds at least 25%, and its equity takes the first loss. It is not a tax rule. South Africa has no statutory debt-to-equity limit: SARS's 3:1 safe harbour (Practice Note 2) fell away for years of assessment from 1 April 2012, and section 31 and the s23M interest limit reach funding from connected or controlling parties, not a loan from an unrelated South African bank.

Second and third, the cash flows: the debt P50 CFADS can carry at 1.30x DSCR, and the debt one-year P90 CFADS can carry at 1.20x. Each is the present value, at the loan rate, of the debt service CFADS supports at that ratio:

fx

Debt capacity = $\Sigma [CFADS(t) \div DSCR\ target] \div (1 + r)^t$

Run period by period on P50 and on P90; in each period the tighter test sets the debt service.

In each period the debt service may not exceed $P50\ CFADS \div 1.30$ nor $P90\ CFADS \div 1.20$. The P90 test is the tighter one whenever P90 CFADS is below $1.20 / 1.30 = 92.3\%$ of P50 CFADS. In the P90 case output is 92.5% of P50 but the costs are the same, so P90 CFADS is about 91% of P50 CFADS: the P90 test sets the debt service in 13 of the 15 years, and the two tests together allow less than the P50 test alone. In years 9 and 10 the P90 case pays less cash tax (its assessed loss lasts longer), so the P50 test binds there.

TABLE 4.1 The two cash-flow tests, year by year

YEAR	P50 CFADS (R M)	P90 CFADS (R M)	P90 ÷ P50	SETS THE DEBT SERVICE
1	115.4	105.3	91.29%	P90
2	118.3	108.0	91.28%	P90
3	121.2	110.7	91.28%	P90
4	124.3	113.4	91.27%	P90
5	127.4	116.2	91.26%	P90
6	129.8	119.1	91.82%	P90
7	129.1	119.0	92.20%	P90
8	132.0	120.6	91.39%	P90
9	119.6	112.9	94.46%	P50
10	103.8	112.9	108.77%	P50
11	105.4	95.9	91.03%	P90

TABLE 4.1 The two cash-flow tests, year by year (continued)

YEAR	P50 CFADS (R M)	P90 CFADS (R M)	P90 ÷ P50	SETS THE DEBT SERVICE
12	125.6	115.9	92.28%	P90
13	118.3	108.4	91.59%	P90
14	119.4	109.2	91.46%	P90
15	120.3	109.9	91.31%	P90

The P90 test binds where $P90 \div P50$ is below 92.31% ($1.20 \div 1.30$).

EXHIBIT 4.2 The debt each test allows



The loan is the lowest: R554.9m. The gearing limit binds, R126m below what the cash flows support.

02 WHAT THE BINDING TEST DOES TO THE DEAL

TABLE 4.3 The loan as lent, against the loan the cash flows support

CASE	FACILITY	GEARING	MIN DSCR P50	MIN DSCR P90	EQUITY IRR
Sized to the cash flows	R680.6m	89.7%	1.30x	1.20x	30.1%
As lent: gearing limit binds	R554.9m	75.0%	1.57x	1.45x	21.6%

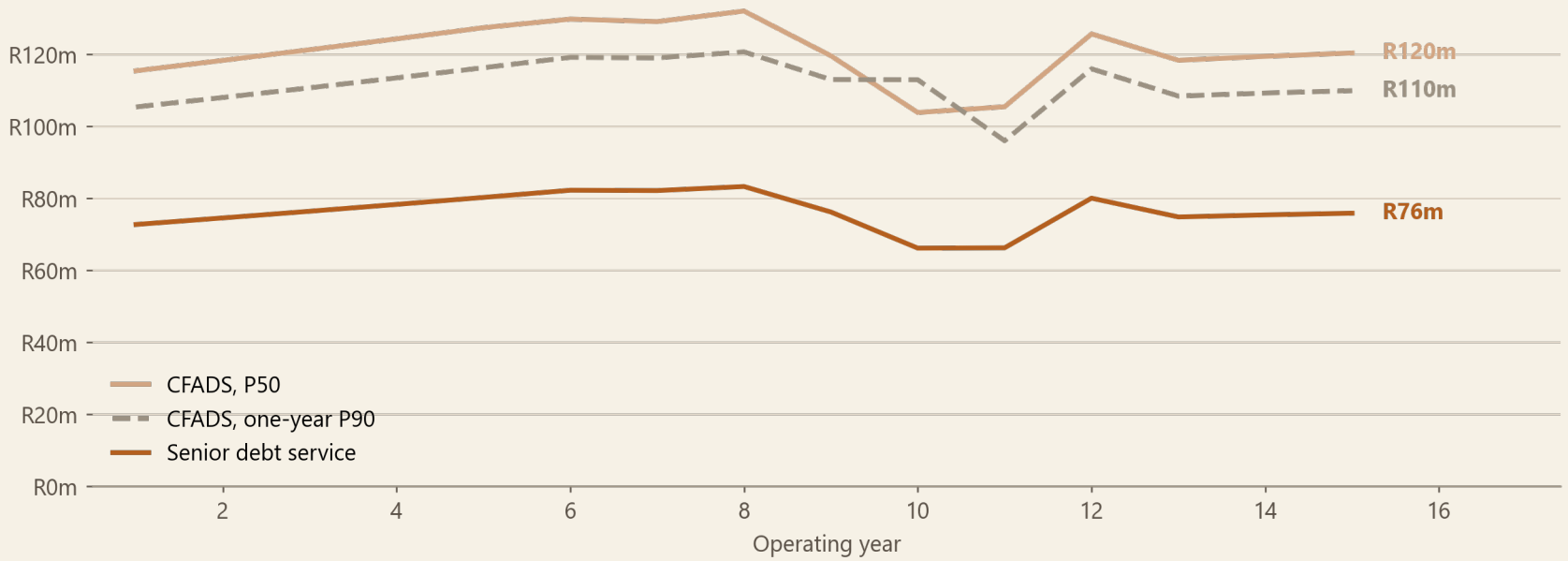
Both are full engine runs on the same inputs; the first lifts the gearing cap.

Lending the extra R126m would lift the equity IRR by 8.5 points and cut the lender's cover to 1.30x. The gearing limit keeps it at 1.57x on P50 and 1.45x on P90. A gearing cap can also be the sponsor's own choice, below what a lender would size to; either way the documents should say whose cap it is and how much debt was left undrawn. The term sheet states both.

03 SCULPTING

Sculpting sets each semi-annual repayment so that debt service follows CFADS at a near-level ratio. When the cash flows bind, that ratio is the sizing target. Here the gearing limit binds, so the smaller loan is repaid over the same tenor at 1.57x to 1.59x, not 1.30x. The term sheet states the ratio the schedule actually runs at, beside the sizing target.

EXHIBIT 4.4 CFADS and the sculpted debt service over the tenor



Debt service follows CFADS down in years 9 to 11, while the maintenance reserve is built and cash tax steps up; the reserve pays the year-12 overhaul.

04 THE EVIDENCE

TABLE 4.5 Indicative term sheet, sections 2 and 3

TERM	INDICATIVE TERM SHEET
Amount	R 554.9m
Repayment	Sculpted to CFADS at the sizing DSCRs (1.30x on P50, 1.20x on one-year P90), scaled down to the gearing limit: minimum DSCR 1.57x, 2 instalments a year
Gearing	75.0% of total project costs (R 739.9m)
Maximum gearing	75%: the lender's maximum (minimum sponsor equity 25%)
Debt the cash flows support	R 670.2m at the sizing DSCRs; not drawn, as the gearing limit binds first
P50 sizing DSCR	1.30x
P90 (one-year) sizing DSCR	1.20x
Binding sizing case	Lender maximum gearing (75%)
Base-case minimum DSCR	1.57x
Minimum DSCR, P90 one-year	1.45x

Reproduced from Riverbend_Indicative_Term_Sheet.docx, written from the same run. The term sheet measures the debt the cash flows support on the base case's cash flows (R670.2m); Table 4.3 re-runs the deal with the larger loan, whose extra interest lowers tax and lifts CFADS, so it supports R680.6m.

05 CONCLUSION

Three tests, one answer, and the model names the test. On Riverbend it is the lender's gearing limit, which leaves cover well above the sizing ratios and some debt undrawn. Next: the price of that debt, and what the swap does to it.

NEXT · 05

Interest: ZARONIA, the margin and the swap

The blended rate, and hedged against unhedged.

Riverbend Solar is an illustrative case study: a fictional deal with no real counterparty. Every figure comes from one run of the engine; every exhibit is generated, none is typed.