



# CFADS - CASHFLOW AVAILABLE FOR DEBT SERVICE

## CFADS Introduction

A project's Cashflow Available for Debt Service (CFADS or CADS) is analysed by project lenders (senior debt banks) to determine debt sizes and repayment criteria.

CFADS is calculated by netting out Revenue, Operating Expenditure (OpEx), Capital Expenditure (CapEx), Debt & Equity Funding, Tax and Working Capital Adjustments. The annual Cashflow Waterfall below clearly demonstrates the calculations.

Period Start	1-Jan-09	1-Jan-10	1-Jan-11	1-Jan-12
Period End	31-Dec-09	31-Dec-10	31-Dec-11	31-Dec-12
Construction				
Operations				
<b>Cashflow</b>				
<b>Revenue</b>				
Spot Sales	73,265	88,685	88,732	88,532
Interest Income				
<b>Total</b>	<b>73,265</b>	<b>88,685</b>	<b>88,732</b>	<b>88,532</b>
<b>OpEx</b>				
Variable OpEx	(24,968)	(27,958)	(35,158)	(35,584)
Fixed OpEx	(1,500)	(1,500)	(1,500)	(1,500)
<b>Total</b>	<b>(26,468)</b>	<b>(29,458)</b>	<b>(36,658)</b>	<b>(37,084)</b>
<b>CapEx</b>				
Expansion CapEx	(8,000)	(8,000)	(3,000)	(3,000)
Exploration CapEx	(4,500)	(4,500)	(2,500)	(2,500)
<b>Total</b>	<b>(12,500)</b>	<b>(12,500)</b>	<b>(5,500)</b>	<b>(5,500)</b>
<b>Cashflow before Funding</b>	<b>34,297</b>	<b>46,727</b>	<b>46,574</b>	<b>45,948</b>
<b>Funding</b>				
Debt	-	-	-	-
Equity	-	-	-	-
<b>Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Corporate Income Tax	(6,859)	(9,345)	(9,315)	(9,190)
Working Capital Adjustments				
<b>CFADS</b>	<b>27,438</b>	<b>37,382</b>	<b>37,259</b>	<b>36,758</b>
<b>Debt Service</b>				
Interest	(4,406)	(3,403)	(2,337)	(1,204)
Principal	(16,056)	(17,060)	(18,126)	(19,259)
<b>Total</b>	<b>(20,462)</b>	<b>(20,462)</b>	<b>(20,462)</b>	<b>(20,462)</b>
<b>Cash Available to Equity</b>	<b>6,975</b>	<b>16,919</b>	<b>16,797</b>	<b>16,296</b>

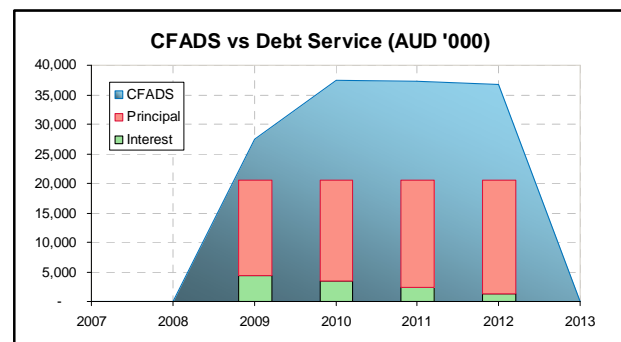
Screenshot #1: Annual Cashflow Waterfall to determine CFADS

## Application of CFADS in Project Finance analysis

CFADS is preferred to determine gearing and lending capacity as opposed to EBITDA since this measure does not take taxes and timing of cashflows into consideration.

EBITDA is a common metric in Corporate Finance but in Project Finance the focus is on actual cashflow (CFADS).

This project illustrated below is repaying the funds borrowed to finance the Capital Expenditure as an Annuity (Credit Foncier) over a four year tenor. Principal and interest together sum up to an equal amount every year, however more principal is repaid in the later years since the interest component decreases in line with the debt balance.



Screenshot #2: Graph of CFADS vs Debt Service

"If you would like to learn more about debt metrics widely used in project finance and other items relating to project finance modelling, then you should attend the Project Finance Modelling (A) course."

Nick Crawley, Managing Director  
Navigator Project Finance

Many projects experience a ramp-up period before they reach steady state production and revenue, this can be clearly seen by plotting CFADS vs Debt Service as illustrated in Screenshot #2.

Project lenders usually determine borrowing capacity on the basis of debt service ratios. Most common debt ratios in project finance are Debt Service Cover Ratio (DSCR) and Loan Life Cover Ratio (LLCR) which both use CFADS in the numerator.



## Debt Service Cover Ratio (DSCR)

The DSCR uses CFADS in the numerator and Debt Service (Principal + Interest) in the denominator. A ratio of 1.00x would thus mean that the project cashflows are equal to total debt service in the period.

$$\text{DSCR} = \text{CFADS} / \text{Scheduled Debt Service}$$

$$\text{Scheduled Debt Service} = \text{Interests} + \text{Principal Repayment}$$

## Loan Life Cover Ratio (LLCR)

Unlike period on period measures such as the DSCR, LLCR measures how many times the Discounted CFADS over the scheduled life of the loan can repay the outstanding debt balance.

$$\text{LLCR} = \text{NPV}(\text{CFADS over Loan Life}) / \text{Debt Balance b/f}$$

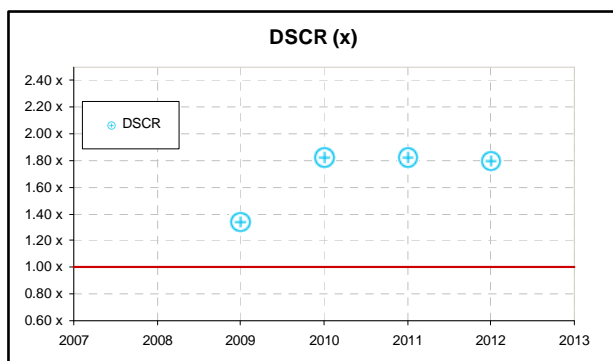
### Public Courses by Navigator Project Finance

- Project Finance Modelling (A)
- Project Finance Modelling (B)
- Debt Modelling Masterclass
- VBA for Financiers

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Period End	31-Dec-09	31-Dec-10	31-Dec-11	31-Dec-12
Construction				
Operations				

CFADS vs Debt Service				
Year: Calendar	2009	2010	2011	2012
Interest	4,406	3,403	2,337	1,204
Principal	16,056	17,060	18,126	19,259
Total Debt Service	20,462	20,462	20,462	20,462
CFADS	27,438	37,382	37,259	36,758
Debt Service	20,462	20,462	20,462	20,462
DSCR	1.34 x	1.83 x	1.82 x	1.80 x



Screenshot #3: Example of DSCR calculation and Graph

Navigator's courses are presented in the following cities

- Sydney
- Perth
- London
- New York
- Frankfurt
- Hong Kong
- Singapore
- Dubai

## Common Mistakes in CFADS Calculations

- Incorrect items are included in the calculation: Depreciation; Cash Balances; Reserve Accounts etc.
- When modelling Sub or Mezzanine debt, it is important to include cashflow available at the appropriate level of seniority;
- CFADS calculations set up to 'back out' CFADS from EBITDA is a warning sign the modeller is inexperienced in project finance modelling and should be checked carefully.

If you would like to know more about Project Finance ratios including DSCR and LLCR, check-out our free tutorials on these topics. If you have any feedback or suggestions for future developments we would like to hear from you!

The team at Navigator Project Finance  
[www.navigatorpf.com/training/tutorials](http://www.navigatorpf.com/training/tutorials)

## About Navigator Project Finance

Founded in 2004, Navigator Project Finance Pty Ltd (Navigator) is the project finance modelling expert. Headquartered in Sydney, Australia, Navigator is raising the global benchmark in financial modelling services to the project finance sector. Navigator designs and constructs financial models for complex project financings, offers training courses throughout the Middle East, Asia and Europe, and conducts independent model reviews of project finance transaction models. Navigator delivers fast, flexible and rigorously-tested project finance services that provide unparalleled transparency and ease of use.

Customers include market leaders such as Deutsche Bank, ANZ Investment Bank, Bovis Lend Lease, Oxiana, Mirvac Property, Westpac and the Commonwealth Bank of Australia, together with leaders from the finance, mining, property, utilities, banking, chemical and infrastructure sectors.

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