Cashflow Waterfall & CFADS

Tutorial

February 2017

1.0 General

Pease note the following guidance and instruction is to be used as an accompaniment to the 'Cashflow Waterfall & CFADS' Excel file.

Please feel free to get in touch at contact@lentransolutions.com if you would like additional guidance or to discuss the methodologies represented here and in the Excel file.

2.0 Tutorial

2.1 Aim and audience

The aim of this tutorial is to provide an understanding of what the Cashflow Waterfall is and how to set it up correctly in a financial model. The tutorial will also focus on the cashflow available for debt service (CFADS). Given that the cashflow waterfall is the most common financial statement in a project finance transaction, the intended audience are those preparing or analysing project finance related financial models.

2.2 Introduction and tutorial conventions

The cashflow waterfall, not to be confused with cashflow statement, together with CFADS are often the most important financial statement and cashflow item respectively in project finance.

Quite often when transactions are large and complex, the cashflow waterfall can turn into a minefield. Therefore, this tutorial attempts to illustrate how a typical cashflow waterfall should be laid out with an explanation of the categories and the key line items that it should or may contain.

The terms asset and project are used interchangeably in this tutorial. Cashflow available for debt service is represented by the acronym CFADS. Sheet references are displayed as '***Sheet***' while section headings and line references are displayed as '*Item*'.

2.3 The Cashflow Waterfall

Before we discuss about the cashflow waterfall, we need to first set the scene by explaining how a project finance transaction works:

Project finance is a method of financing the development of a particular asset or pool of assets whereby repayment of funding is limited to the cashflow generated by the asset or pool of assets.

This means that lending in project finance is non or limited recourse. Therefore, lenders and equity investors can only rely on the cashflows generated by the asset itself to repay its debt obligations and distribute to investors respectively. This is different from corporate lending whereby lenders can also rely on the balance sheet of its sponsors to have their debt commitment repaid.

Because lenders are essentially lending against a stream of future cashflows generated by the asset or pool of assets and given that there are often multiple parties that are providing funding, it is important to understand who gets paid first. This is when the cashflow waterfall (***CaIcs***) becomes the most important financial statement in project finance.

A cashflow waterfall is a representation of the cashflow statement rearranged to show the priority of each cash inflow and outflow. Or simply, all cashflow items that are placed in their order of seniority.

This is vital when there are multiple creditors involved (e.g. multiple debt tranches) and ensuring who gets paid first is crucial to deal structuring, debt sizing, pricing and contingencies.

2.3.1 Categories

- Revenues – *row 12*

  These include all operating related revenues. Note that this should not include interest income as interest income should be excluded as part of operating cashflows. There are some arguments for interest income to be excluded entirely but at LMS we believe it represents a true potential cashflow and should not be set aside.

- Operating expenditures (OpEx) – *row 13*

  These include all operating related costs and excludes capital expenses.

- Working capital adjustments[1] – *row 14*

  These are adjustments made to the cashflow waterfall for timing differences in when revenue is received for trade debtors and when costs are paid for trade creditors.

- Construction costs (capex) – *rows 17:24*

  These are construction or development costs relating to the project and includes interests during construction and financing fees of all debt facilities that will be capitalised. It can also include the initial funding of a debt contingency reserve (DSRA – debt service reserve account).

- Funding – *rows 28:32*

  These are sources of equity and debt funding used to fund the development costs of the project. In most cases these will exactly equate to the construction costs, unless there is some overlap between operations starting (and generating cashflows) while construction continues.

- Interest income, tax, royalties & maintenance capital expenditures – *rows 36:39*

[1] See our Working Capital tutorial for more guidance on how to set this up.

Maintenance capex is also known as ongoing or sustaining capex relating to capital costs to the maintenance or improvement of the project's assets.

- MMRA/c – *rows 41:44*

  The major maintenance reserve account is an operational reserve account normally required by lenders if capex is lumpy or large in order to smooth-out cashflows.

- Senior & junior debt service – *rows 48:51 & 67:70*

  These include both interest paid and scheduled principal repayment for two (in this example) debt tranches of different seniority.

- Senior DSRA/c – *rows 55:59*

  This represents the net movement of the senior debt service reserve account normally required by the senior lenders and should always sit directly below the scheduled senior debt service and in advance of junior facilities.

- Cash sweep – *row 63*

  This are mandatory prepayments for the senior debt tranche that may be required by the lenders in the event that a debt covenant has been breached. This is a typical structure though and not the only position for a senior cash sweep.

- Distributions – *row 74*

  This represents returns to equity investors in the form of distributions or dividends.

2.3.2 Key line items

- Operating cashflows – *row 12*

  Operating cashflows is the equivalent of EBITDA in P&L (*row 83*) except that operating cashflows include working capital adjustments while EBITDA does not.

- Cashflow after funding – *row 34*

  This key line item provides a useful check that all construction costs are being met by debt and equity funding (i.e. cashflows should net to zero during construction).

- Cashflow available for debt service (CFADS) – *row 46*

  Given the significance of this key line item, this will be discussed in more detail in section 2.4 below.

- Cashflow available for senior DSRA/c, cash sweep & junior debt – *rows 53, 61 & 65*

These key line items represent cashflows available for debt or debt related repayments of different seniorities.

- Cashflow available for equity – *row 72*

  Once all debt facilities have been repaid, cashflow is then available to repay equity investors.

- Net cashflow– *row 77*

  Net cashflow is the remaining cashflow after paying all different parties, which flows into the closing cash balance.

2.4 CFADS

Cashflow available for debt service, CFADS (or CADS) is arguably the most important cashflow item in the cashflow waterfall. This is because CFADS represents the project's free cashflow after all operating related costs such as opex, capex and taxes have been paid.

From a lender point of view, CFADS is the most important cashflow line item because it is used for senior debt repayments and ratio calculations[2]. In corporate finance, the equivalent cashflow item to CFADS is the Free Cashflow for the Firm (FCFF).

2.5 Further considerations

2.5.1 Display / formatting

As the cashflow waterfall is after all a financial statement, it should always be treated as an output sheet in a model. Therefore, here are a few considerations:

- Cash inflows should be brought in as positive numbers and outflows as negative.

  This helps both the user in understanding whether an item represents an inflow or outflow while lowering the risk of errors for the developer in linking them into key line items (where a SUM or addition can always be used).

- Key line items should be inserted in logical places (refer to 2.3.2 above).

  Using key line items that are formatted correctly can help 'separate' the cashflow waterfall into subsections while preserving the priority / seniority of repayments:

[2] See our Project Finance Ratios tutorial for more guidance on what these are and how to set them up.

	A	B	C	D	E	F	G	H	I	J	K	L
1			Calculations									
2			Tutorial: Cashflow Waterfall									
3			Forecast year	Num				1	2	3	4	5
46			Cashflow available for debt service (CFADS)				3,343	-	-	422	566	565
47												
48			**Senior debt service**									
49			Interest paid				(210)	-	-	(84)	(63)	(42)
50			Principal repayment				(1,200)	-	-	(300)	(300)	(300)
51			Total				(1,410)	-	-	(384)	(363)	(342)
52												
53			Cashflow available for senior DSRA/c				1,933	-	-	38	203	223
54												
55			**Senior DSRA/c**									
56			Additions: cashflows				17	-	-	-	17	-
57			Release: debt service				-	-	-	-	-	-
58			Release: excess cash				(37)	-	-	-	-	(7)
59			Total				(20)	-	-	-	17	(7)
60												
61			Cashflow available for cash sweep				1,913	-	-	38	220	216
62												
63			Cash sweep				-	-	-	-	-	-
64												
65			Cashflow available for junior debt				1,913	-	-	38	220	216

2.5.2 Commercial aspects

Apart from modelling considerations, the cashflow waterfall should always meet the commercial aspects of the project:

- Seniority of line items in the cashflow waterfall should match those in the term sheet or loan documents.
- The definition of CFADS in the term sheet should match those in the cashflow waterfall.
- Construction costs should equal to construction funding (i.e. uses = sources).
- Signal checks, such as for negative cash balances, should be built in.
- There should be no cashflows occurring beyond the operations or forecast period.