



CASH SWEEP ANALYSIS IN PROJECT FINANCE

Stand Alone Cash Sweep Introduction

Stand alone cash sweep analysis is an alternative metric for refinance risk and repayment ability in cashflow models for project finance. This article outlines the key features of a modelling cash sweep calculation and its application in analysis of a project finance model.

During a Cash Sweep, 100% of cashflow available for debt service is used to repay principal and interest. Stand alone cash sweep analysis is used to calculate the amount of time it takes to repay the debt in full and should not be confused with Cash Sweep mechanics governed by the Term Sheet.

It is an alternative to interpreting debt metrics, such as the LLCR and RLCR, which also analyse the project's ability to repay debt. It is a quick and useful way of analysing the impact of downside scenarios.

Application of Cash Sweep Analysis in a Project Finance Model

Cash Sweep analysis can be applied on the base case but will be the most beneficial when applied on a series of downside scenarios.

A cash sweep that demonstrates debt being fully repaid in the most conservative downside scenario will reinforce the soundness of the project. Having a stand alone cash sweep is beneficial for a number of reasons as outlined below.

Quicker Modelling

It is easier to set up than all the mechanics needed to model the complete interpretation of a Term Sheet Cash Sweep that is triggered by financial covenants, but provides comparable levels of analysis.

Dynamic Analysis

The start date of the sweep can be set up as an input, which makes it flexible. This can then be set to either the start of the debt facility, end of completion or the debt maturity to analyse refinance risk.

Effective Communication

A graphical representation of the Closing Debt Balance in the Cash Sweep account and in the usual debt account gives a good understanding of the project's cashflow characteristics.

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Key Features in Modelling the Stand Alone Cash Sweep

Step 1: Determine Cashflow Used for Cash Sweep

The cashflow used for a stand alone cash sweep is CFADS less Interest Payable on the cash sweep debt balance – Cash Available for Principal.

Period Start	Jan-09	Jul-09	Jan-10	Jul-10	Jan-11
Period End	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11
Construction					
Operations					
Sweep Analysis					
CFADS	20.00	20.00	20.00	20.00	20.00
Less: Interest	(2.93)	(2.47)	(1.91)	(1.40)	(0.84)
Cash Available for Principal	17.07	17.53	18.09	18.60	19.16

Screenshot #1: Cashflow used for a stand alone sweep

"Cash sweep modelling is analysed in detail in our Debt Modelling Masterclass training course"

Nick Crawley, Managing Director
Navigator Project Finance

Step 2: Set-up Flag for Sweep Start Date

Setting up a flag that illustrates when the sweep is in place enables the start date to change and helps to reduce the complexity of the mechanics in the cash sweep debt account. The flag drives off the sweep start date and is a simple binary [1, 0] result.

Period Start	Jan-09	Jul-09	Jan-10	Jul-10	Jan-11
Period End	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11
Construction					
Operations					
Sweep Starting 1-Jan-09					

Screenshot #2: Setting-up flag for sweep start date

Step 3: Set-up Stand Alone Cash Sweep Account

The stand alone cash sweep account is set up so that during the periods before the sweep, the repayment is the scheduled principal and once the sweep starts the repayment switches to the Cash Available for Principal.



Period Start	Jul-08	Jan-09	Jul-09	Jan-10	Jul-10
Period End	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10
Construction					
Operations					
Debt Facility (Base Case)					
Balance B/f	100.00	99.81	92.73	85.50	78.00
Scheduled Principal Repayment	(0.19)	(7.07)	(7.24)	(7.49)	(7.67)
Balance C/f	99.81	92.73	85.50	78.00	70.33
Sweep Analysis					
CFADS	20.00	20.00	20.00	20.00	20.00
Less: Interest	(2.98)	(2.93)	(2.47)	(1.91)	(1.40)
Cash Available for Principal	17.02	17.07	17.53	18.09	18.60
Sweep Starting 1-Jan-09					
Scheduled Principal Repayment	0.19	7.07	7.24	7.49	7.67
Balance B/f	100.00	99.81	82.73	65.20	47.11
Principal Repayment	(0.19)	(17.07)	(17.53)	(18.09)	(18.60)
Balance C/f	99.81	82.73	65.20	47.11	28.51

Screenshot #3: Cash sweep calculation

Screenshot #3 demonstrates that during the period ending Dec-08 (before the sweep start date of Jan-09), the repayment is the scheduled principal of USD 0.19 Million and once the sweep starts the repayment switches to the Cash Available for Principal, i.e. USD 17.07 Million in period ending Jun-09.

Step 4: Determine the Payback and Repaid Date

The analysis on the debt account gives us the repaid date and the time it takes to repay in the cash sweep.

Period Start	Jan-09	Jul-09	Jan-10	Jul-10	Jan-11	Jul-11
Period End	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11	Dec-11
Construction						
Operations						
Sweep Analysis						
CFADS	320.00	20.00	20.00	20.00	20.00	20.00
Less: Interest	(15.75)	(2.93)	(2.47)	(1.91)	(1.40)	(0.84)
Cash Available for Principal	304.25	17.07	17.53	18.09	18.60	19.16
Sweep Starting 1-Jan-09						
Scheduled Principal Repayment	100.00	7.07	7.24	7.49	7.67	7.94
Balance B/f		99.81	82.73	65.20	47.11	28.51
Principal Repayment	(100.00)	(17.07)	(17.53)	(18.09)	(18.60)	(19.16)
Balance C/f	100.00	82.73	65.20	47.11	28.51	9.35
Debt Fully Repaid						
	Full Repaid					
	31-Dec-11					
Debt Outstanding						
	Payback					
	2.50 Years					

Screenshot #4: Analysis to determine the payback and repaid date in the cash sweep

The example above shows the debt is fully repaid by 31-Dec-11 or it takes 2.50 years to pay back the debt under the cash sweep analysis.

Step 5: Link the Outputs into Scenario Table

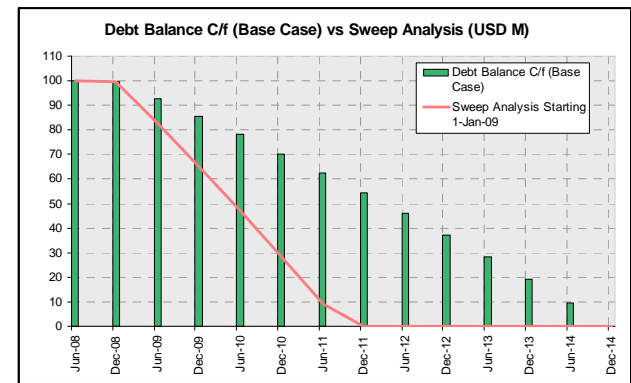
The payback and repaid date as illustrated in Step 4 are key outputs which can be linked into a scenario table highlighting the payback under each scenario.

Case	Semi-annual DSCR		RLCR	Sweep Repaid	
	Min	Avg	Fin Close	Start Date	Years
Base Case	1.63 x	1.82 x	1.70 x	01-Jan-09	2.50 Years
Production	1.55 x	1.69 x	1.59 x	01-Jan-09	3.50 Years
OpEx	1.63 x	1.79 x	1.67 x	01-Jan-09	3.00 Years
CapEx	1.63 x	1.80 x	1.69 x	01-Jan-09	3.00 Years
CPI	1.63 x	1.80 x	1.69 x	01-Jan-09	2.00 Years
Prices Low	1.50 x	1.59 x	1.52 x	01-Jan-09	4.00 Years
Interest	1.60 x	1.79 x	1.66 x	01-Jan-09	2.50 Years
Prices	1.50 x	1.61 x	1.53 x	01-Jan-09	2.50 Years

Screenshot #5: Sweep Payback under various scenarios

Step 6: Create Graph

Finally, the sweep analysis can be compared against the debt account by presenting it in a graph.



Screenshot #6: Graph Presentation

Constraints with a Stand Alone Cash Sweep

- Tax calculations are not as accurate as in the modelling of the full Term Sheet, however the difference is often less than one quarter of repayments.
- The flexibility can sometimes cause confusion. Make sure to present all timing assumptions clearly to decision makers.

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