



PRE-OPERATING CASHFLOW UTILISATION FOR FUNDING

In a project finance transaction, there is often a ramp-up or commissioning period which starts prior to formal project “C”ompletion. This tutorial demonstrates how to model such pre-operating cashflows to fund construction in a transparent way. The inclusion of these cashflows is very important to sponsors but often ignored by lenders due to their inherent uncertainty. Examples are: staged opening of a toll road, commissioning of a power station or mining processing plant.

For illustration, we have prepared a case study of a simple project finance model. Screenshots 1 and 2 below show the Input worksheet, which contains the model timing and operations assumptions.

#	C	D	E	F
1	Inputs			
6	General			
7	Timing			
9		Cons	Operations	
10	Start date	01-Jan-09	01-Jan-10	
11	Duration	12 Mth(s)	10.00 Yr(s)	
12	End date	31-Dec-09	31-Dec-19	

Screenshot 1: Input page (Timing)

#	C	D	E	F	G	H	I	J
1	Inputs							
24	Operations							
26		01-Jul-09	01-Aug-09	01-Sep-09	01-Oct-09	01-Nov-09	01-Dec-09	
27		31-Jul-09	31-Aug-09	30-Sep-09	31-Oct-09	30-Nov-09	31-Dec-09	
28		PreOps M 6	PreOps M 5	PreOps M 4	PreOps M 3	PreOps M 2	PreOps M 1	
29	Production: Pre-Ops	T p.m.	-	-	500	1,000	1,250	1,500
32		01-Jan-10	01-Jan-11	01-Jan-12	01-Jan-13	01-Jan-14	01-Jan-15	
33		31-Dec-10	31-Dec-11	31-Dec-12	31-Dec-13	31-Dec-14	31-Dec-15	
34		Op Yr 1	Op Yr 2	Op Yr 3	Op Yr 4	Op Yr 5	Op Yr 6	
35	Production: Ops	T p.a.	30,000	30,000	30,000	30,000	30,000	
37		2009	2010	2011	2012	2013	2014	
38	Price	\$ / T	950	950	950	850	850	850
40	OpEx							
41			01-Jan-10	01-Jan-11	01-Jan-12	01-Jan-13	01-Jan-14	
42			31-Dec-10	31-Dec-11	31-Dec-12	31-Dec-13	31-Dec-14	
43			PreOps	Op Yr 1	Op Yr 2	Op Yr 3	Op Yr 4	Op Yr 5
44	Variable	\$ / T	250.00	250.00	250.00	250.00	250.00	250.00
45	Fixed	\$ '000 p.a.	1,500	2,500	2,500	2,500	2,500	2,500

Screenshot 2: Input page (Operations)

The project has 12 months of construction and the target commercial operation date is on 1-Jan-10 (COD). There is a ramp-up of production which starts 4 months prior to COD (Sep-09). Hence the project will generate pre-operating revenue as well as the pre-operating operating costs.

Pre-operating cashflow can be utilized to fund the construction costs and their effect on cashflows are

- reducing utilization of capital funds (Debt / Equity)
- possibly improving equity return (i.e. equity raisings could be reduced)
- possibly improving project return and debt ratios

It would be clearer to illustrate the concept if we model the cashflows as shown in Screenshot 3. As demonstrated in row #21 there is approximately \$1.85 million of net cashflow that could be utilized to fund the construction costs.

#	C	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	Integrated Financial Statements													
2		1-Jan-09	1-Feb-09	1-Mar-09	1-Apr-09	1-May-09	1-Jun-09	1-Jul-09	1-Aug-09	1-Sep-09	1-Oct-09	1-Nov-09	1-Dec-09	1-Jan-10
3		31-Jan-09	28-Feb-09	31-Mar-09	30-Apr-09	31-May-09	30-Jun-09	31-Jul-09	31-Aug-09	30-Sep-09	31-Oct-09	30-Nov-09	31-Dec-09	31-Mar-10
10	Cashflows													
11	Operations													
12	Revenue	-	-	-	-	-	-	-	-	496	974	1,220	1,468	7,392
13	Variable OpEx: Pre-Ops	-	-	-	-	-	-	-	-	(128)	(256)	(321)	(386)	-
14	Variable OpEx: Ops	-	-	-	-	-	-	-	-	-	-	-	-	(1,945)
15	Fixed OpEx: Pre-Ops	-	-	-	-	-	-	-	-	(128)	(128)	(128)	(129)	-
16	Fixed OpEx: Ops	-	-	-	-	-	-	-	-	-	-	-	-	(646)
17	Total	-	-	-	-	-	-	-	-	230	589	771	953	4,799
18														
19	Corporate Tax	-	-	-	-	-	-	-	-	-	(107)	(254)	(327)	(402)
21	Cashflow from Operations	-	-	-	-	-	-	-	-	230	482	517	625	4,397
22														
23	CapEx													
24	Construction Capex	(12,339)	(12,339)	(12,339)	(12,339)	(7,403)	(7,403)	(7,403)	(7,403)	(4,936)	(4,936)	(4,936)	(4,936)	-
25	Senior Facility: Interest	-	-	-	(45)	(118)	(156)	(205)	(249)	(283)	(321)	(338)	(376)	-
26	Senior Facility: Upfront Fee	(1,050)	-	-	-	-	-	-	-	-	-	-	-	-
27	Total	(13,389)	(12,339)	(12,339)	(12,384)	(7,521)	(7,559)	(7,608)	(7,652)	(5,219)	(5,257)	(5,273)	(5,312)	-
28														
29	Cashflow Before Funding	(13,389)	(12,339)	(12,339)	(12,384)	(7,521)	(7,559)	(7,608)	(7,652)	(4,989)	(4,775)	(4,756)	(4,687)	4,397

Screenshot 3: Extract of Cashflow

Next, we demonstrate how to model transparent construction funding so that the required funding line recognises that there are these early cashflows available. Usually in a Bank Base Case these cashflows might be sensitised or even switched off so that the financiers have the confidence that there are sufficient funds to complete the project without the need of early ‘testing’ cashflows.

Populate costs to be funded

The costs to be funded during construction in this case study are the usual costs during construction:

- Construction CapEx
- Any interests / financing costs during construction

Plus any pre-operating costs:

- Pre-ops Variable OpEx (row #13 Screenshot 3)
- Pre-ops Fixed OpEx (row #15 Screenshot 3)
- Tax paid during construction (row #19 Screenshot 3)

Model the above costs in a worksheet, as demonstrated in Screenshot 4. Note: add other costs such as working capital adjustments during construction if applicable.

Modelling source of funds

The next step is to model the source of funds. As mentioned, the pre-operating costs can be utilized to reduce the disbursement of other available sources of funds (Equity or Debt). As shown in Screenshot 5, the sources of funds based on priority order of utilization are:



#	C	J	K	L	M	N	O	P	Q	R	S	T	U
2		1-Jan-09	1-Feb-09	1-Mar-09	1-Apr-09	1-May-09	1-Jun-09	1-Jul-09	1-Aug-09	1-Sep-09	1-Oct-09	1-Nov-09	1-Dec-09
3		31-Jan-09	28-Feb-09	31-Mar-09	30-Apr-09	31-May-09	30-Jun-09	31-Jul-09	31-Aug-09	30-Sep-09	31-Oct-09	30-Nov-09	31-Dec-09
8	Construction Funding												
9	Costs to be Funded												
10	Construction Capex	12,339	12,339	12,339	12,339	7,403	7,403	7,403	7,403	4,936	4,936	4,936	4,936
11	Senior Facility: Interest	-	-	-	45	118	156	205	249	283	321	338	37
12	Senior Facility: Upfront Fee	1,050	-	-	-	-	-	-	-	-	-	-	-
13	Variable OpEx: Pre-Ops	-	-	-	-	-	-	-	128	256	321	38	21
14	Fixed OpEx: Pre-Ops	-	-	-	-	-	-	-	128	128	128	12	22
15	Corporate Tax	-	-	-	-	-	-	-	-	107	254	32	23
16	Total	13,389	12,339	12,339	12,384	7,521	7,559	7,608	7,652	5,474	5,749	5,977	6,15

Screenshot 4: Costs to be funded

- Pre-ops Revenue (row #24)
- Initial Equity (row #27)
- Debt (row #30)
- Additional Equity (row #33)

#	C	J	K	L	M	N	O	P	Q	R	S	T	U
21	Costs to be Funded	13,389	12,339	12,339	12,384	7,521	7,559	7,608	7,652	5,474	5,749	5,977	6,155
22	Sources												
24	Revenue: Pre-Ops	-	-	-	-	-	-	-	-	488	974	1,220	1,468
25	Sub Total	13,389	12,339	12,339	12,384	7,521	7,559	7,608	7,652	4,989	4,775	4,756	4,687
27	Equity: Initial	(13,389)	(12,339)	(4,272)	-	-	-	-	-	-	-	-	-
28	Sub Total	-	-	8,067	12,384	7,521	7,559	7,608	7,652	4,989	4,775	4,756	4,687
30	Senior Facility	-	-	(8,067)	(12,384)	(7,521)	(7,559)	(7,608)	(7,652)	(4,989)	(4,775)	(4,756)	(4,687)
31	Sub Total	-	-	-	-	-	-	-	-	-	-	-	-
33	Equity: Additional	-	-	-	-	-	-	-	-	-	-	-	-
34	Sub Total	-	-	-	-	-	-	-	-	-	-	-	-
36	Total	(13,389)	(12,339)	(12,339)	(12,384)	(7,521)	(7,559)	(7,608)	(7,652)	(5,474)	(5,749)	(5,977)	(6,155)
53	Revenue: Pre-Ops												
54	Revenue: Pre-Ops	-	-	-	-	-	-	-	-	488	974	1,220	1,468

Screenshot 5: Sources of Funds

Let's focus on period Sep-09 (4 months prior to COD, Col R):

- Row #21: Total cost to be funded is \$5,474
- Row #24: Pre-operating revenue is \$488
- Row #25: Remaining costs to be funded after utilizing the pre-operating revenue is \$4,989
- Row #30: Debt utilized in this period is \$4,989

Note that if the pre-operating revenue is not utilized, then the drawn debt during this period would be higher (\$5,474).

Linking the calculation to the cashflow

Linking the calculations in the step above to the cashflow waterfall is a straightforward exercise. Refer to the extract in Screenshot 6 and note that the cashflow after funding in row #37 is zero.

Income statement & balance sheet

Unlike the construction capex and financing costs during construction, pre-operating costs are usually not capitalized. These costs are expensed outright when incurred – the costs appear in the income statement as an expense and no depreciation / amortization is involved.

#	C	J	K	L	M	N	O	P	Q	R	S	T	U
21	Cashflow from Operations	-	-	-	-	-	-	-	-	-	230	482	517
22	CapEx												
25	Construction Capex	(12,339)	(12,339)	(12,339)	(12,339)	(7,403)	(7,403)	(7,403)	(7,403)	(4,936)	(4,936)	(4,936)	(4,936)
26	Senior Facility: Interest	-	-	-	(45)	(118)	(156)	(205)	(249)	(283)	(321)	(338)	(37)
27	Senior Facility: Upfront Fee	(1,050)	-	-	-	-	-	-	-	-	-	-	-
28	Total	(13,389)	(12,339)	(12,339)	(12,384)	(7,521)	(7,559)	(7,608)	(7,652)	(5,219)	(5,257)	(5,273)	(5,312)
29	Cashflow Before Funding	(13,389)	(12,339)	(12,339)	(12,384)	(7,521)	(7,559)	(7,608)	(7,652)	(4,989)	(4,775)	(4,756)	(4,687)
30	Funding												
32	Equity: Initial	13,389	12,339	4,272	-	-	-	-	-	-	-	-	-
33	Senior Facility	-	-	8,067	12,384	7,521	7,559	7,608	7,652	4,989	4,775	4,756	4,687
34	Equity: Additional	-	-	-	-	-	-	-	-	-	-	-	-
35	Total	13,389	12,339	12,339	12,384	7,521	7,559	7,608	7,652	4,989	4,775	4,756	4,687
37	Cashflow After Funding	-	-	-	-	-	-	-	-	-	-	-	-

Screenshot 6: Extract of Cashflow

However, there may be some exceptions where certain pre-operating costs can be capitalized and depreciated over a certain period. For example, in this case study the pre-ops Variable OpEx is shown to be capitalized and depreciated for five (5) years. In this case the cost would appear in the income statement / balance sheet such as shown in Screenshot 8.

#	C	D	E	F	G
1	Inputs				
66	Depreciation				
67	Category				
68	Construction Capex	Choice (0=Expensed)	Category 1		
69	Senior Facility: Interest	Choice (0=Expensed)	Category 2		
70	Senior Facility: Upfront Fee	Choice (0=Expensed)	Category 3		
71	Variable OpEx: Pre-Ops	Choice (0=Expensed)	Expensed		
72	Fixed OpEx: Pre-Ops	Choice (0=Expensed)	Expensed		
73					
74	Depreciation Rates				
75					
76					
77	Category 1	<Asset Class 1>	10.00% Yr(a)	10.00%	2.50% p.p
78	Category 2	<Asset Class 2>	8.00 Yr(a)	12.50%	3.13% p.p
79	Category 3	<Capitalised OpEx>	5.00 Yr(a)	20.00%	5.00% p.p

Screenshot 7:

Input page (Depreciation)

#	C	R	S	T	U	V
2		1-Sep-09	1-Oct-09	1-Nov-09	1-Dec-09	1-Jan-10
3		30-Sep-09	31-Oct-09	30-Nov-09	31-Dec-09	31-Mar-10
54	Income Statement					
55	Revenue	486	974	1,220	1,468	7,392
56	OpEx: Pre-Ops (Expensed)	(128)	(128)	(128)	(129)	-
57	OpEx: Ops	-	-	-	-	(2,504)
58	EBITDA	358	846	1,092	1,339	4,799
59	Depreciation <Asset Class 1>	-	-	-	-	(2,468)
60	Depreciation <Asset Class 2>	-	-	-	-	(98)
61	Depreciation <Capitalised OpEx>	-	-	-	-	(55)
62	EBIT	358	846	1,092	1,339	2,178
63	Interest	-	-	-	-	(1,178)
64	EBT	358	846	1,092	1,339	1,000
65	Tax: Payable	(107)	(254)	(327)	(402)	(300)
66	NPAT	250	592	764	937	700
67	Dividends	-	-	-	-	(1,550)
68	Net Profit	250	592	764	937	(850)
69	Retained Earnings B/f	-	250	842	1,607	2,544
70	Retained Earnings C/f	250	842	1,607	2,544	1,694
71						
72	Balance Sheet					
78	Non-current Assets					
79	NBV: <Asset Class 1>	83,906	88,842	93,777	98,713	96,245
80	NBV: <Asset Class 2>	2,105	2,427	2,765	3,141	3,043
81	NBV: <Capitalised OpEx>	128	384	705	1,091	1,037
82	Total	86,139	91,653	97,247	102,945	100,325

Screenshot 8: Extract of Income statement / Balance sheet

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.

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