PROJECT CASH FLOW

Objective

- **Perform** cash flow analysis without and with advance payment.

Agenda

- **Cash Flow**
- **Cash Flow Projection**
- **Cash Flow to the Contractor**
- **Overdraft Requirements**

Cash Flow

According to *Wikipedia*, the free encyclopedia:

"It is an accounting term that refers to the amounts of cash being *received* and *spent* by a business during a defined period of time, sometimes tied to a specific project."

Cash Flow (Cont'd)

- Contractor incurs cost before receiving monthly payments from Owner.
- The difference between income & expense is financed
- Advanced payments reduce financing cost
- Projects create a "Financing Envelope" that limits the contractor's ability to bid.

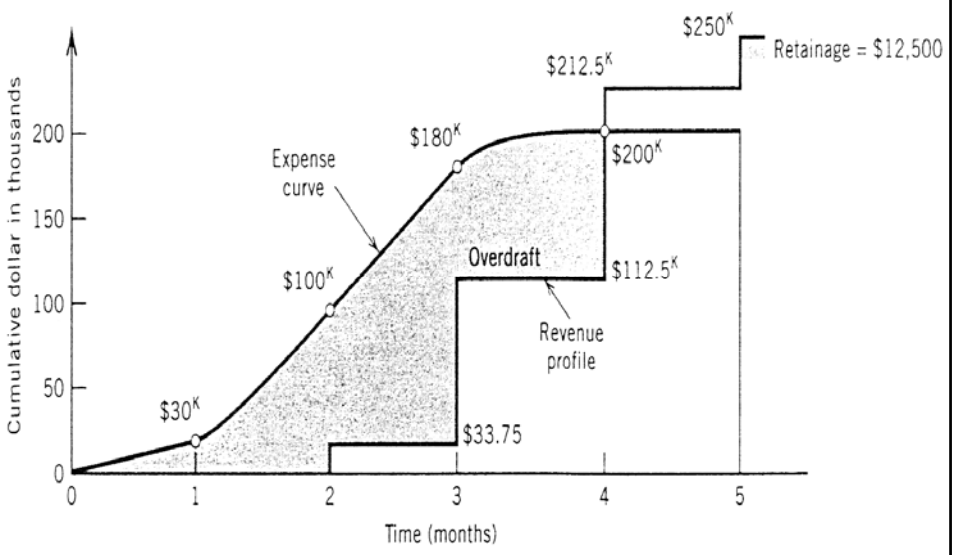
Cash Flow Projection

- The projection of income and expense during the life of a project can be developed from several time-scheduling aids used by the contractor.
- Example: See Figure 9.1

	Month #1	Month #2	Month #3	Month #4
A	50,000			
B		40,000		
C		60,000		
D			30,000	
Monthly direct cost	25,000	65,000	75,000	15,000
Monthly indirect cost	5,000	5,000	5,000	5,000
Total monthly costs	30,000	70,000	80,000	20,000
Cumulative monthly costs	30,000	100,000	180,000	200,000

Cash Flow to the Contractor

- The flow of money from the owner to the contractor is in the form of progress payments.
- Because of the delay in payment of billings by the owner and the Retainage withheld, the revenue profile lags behind the expense S-curve (Overdraft).
- See Figure 9.2.

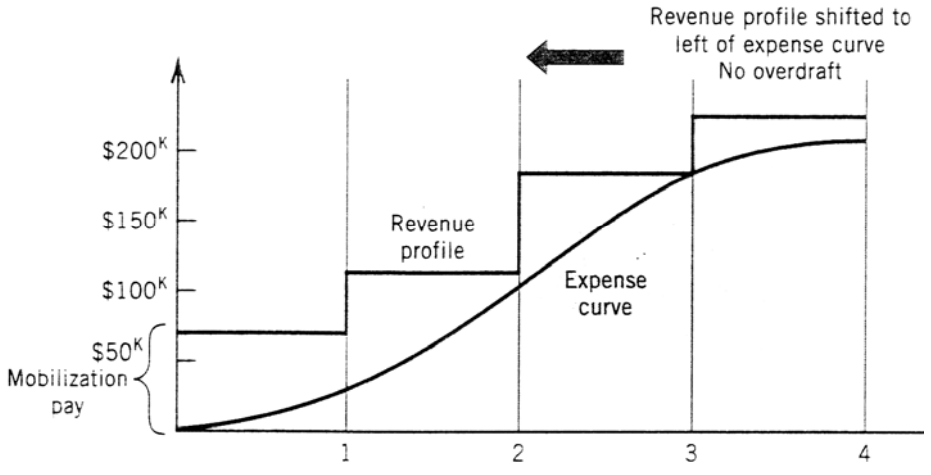


Expenses and Income Profiles

Cash Flow to the Contractor (Cont'd)

- Contractors offset the overdraft borrowing requirement by requesting front or mobilization money *(Advance Payment)* from the owner.
- This shifts the position of the income profile so that no overdraft occurs.
- See Figure 9.3.

Influence of front, or mobilization payment on expense and income profile



Overdraft Requirements

- In order to know how much credit must be made available at the bank, the contractor needs to know what the maximum overdraft will be during the life of the project.
- See Table 9.1 & Figure 9.4

Overdraft Calculation

1. Calculate total price of work performed at end of each billing period.
2. Calculate total amount billed at end of each billing period.
3. Calculate amount of payment received.
4. Calculate Overdraft at end of month.

	Month										
	1		2		3		4		5		6
	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	IN
Direct Cost	25,000		65,000		75,000		15,000				
Indirect Cost	5,000		5,000		5,000		5,000				
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Subtotal	30,000		70,000		80,000		20,000				
Profit (25%)	7,500		17,500		20,000		5,000				
	---------		---------		---------		---------				
Total Billed	37,500		87,500		100,000		25,000				
Retainage Withheld (10)	3,750		8,750		0		0				
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Payment Received		0		33,750		78,750		100,000		37,500	
Overdraft End of Month	30,000		100,300		147,553		90,279		(8,819)		(46,319)
Interest on Overdraft balance (1% per Month)	300		1003		1,476		903		0		
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Total Amount Financed	30,300		101,303		149,029		91,182		(8,819)		

Overdraft At end of month 2 = 30,300+70,000=100,300

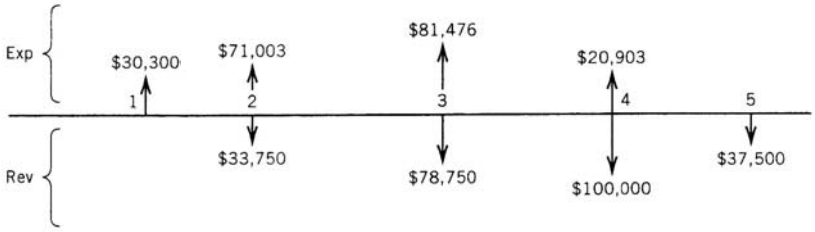
Overdraft At end of month 3 = 101,303+80,000-33,750=147,553

Overdraft At end of month 4 = 149,029+20,000-78,750=90,279

Overdraft At end of month 5 = 91,181+0-100,000= -8,819

Overdraft At end of month 6 = -8,819 +0-37,500= -46,319

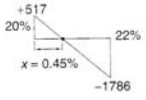
Cash Flow
No Advance Payment



ROR Calculation
No Advance Payment

Table 9.2 ROR Calculations for Small Project

N	NET[a]	PWF[b] @ 20%	Total @ 20%	PWF @ 25%	Total @ 25%	PWF @ 22%	Total @ 22%
1	−30300	.8333	−25249	.8000	−24240	.8196	−24834
2	−37253	.6944	−25868	.6400	−23842	.6719	−25030
3	−2726	.5787	−1577	.5120	−1396	.5507	−1501
4	79097	.4822	38140	.4096	32398	.4514	35704
5	37500	.4019	15071	.3277	12289	.3700	13875
			$\sum = +517$		$\sum = -4971$		$\sum = -1786$



$$\frac{X}{2\%} = \frac{517}{(1786 + 517)}$$

$$X = 0.45\%$$

$$\text{ROR} = 20\% + 0.45\%$$

$$= 20.45\%$$

[a] A negative net value indicates expenses exceed revenue for this period.
[b] PWF = Present Worth Factor.

In case if there is an Advance Payment of 20,000

See Table 9-3

	Month										
	1		2		3		4		5		6
	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	IN
Direct Cost	25,000		65,000		75,000		15,000				
Indirect Cost	5,000		5,000		5,000		5,000				
	---------		---------		---------		---------				
Subtotal	30,000		70,000		80,000		20,000				
Profit (25%)	7,500		17,500		20,000		5,000				
	---------		---------		---------		---------				
Total Billed	37,500		87,500		100,000		25,000				
Retainage Withheld (10)	3,750		8,750		0		0				
		-----		---------		---------		---------			
Payment Received		20,000		33,750		78,750		100,000		17,500	
Overdraft End of Month	10,000		80,100		127,151		69,673		(29,630)		(47,130)
Interest on Overdraft balance (1% per Month)	100		801		1272		697		0		
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Total Amount Financed	10,100		80,901		128,423		70,370		(29,630)		

Overdraft At end of month 2 = 30,300+70,000-20,000=80,300

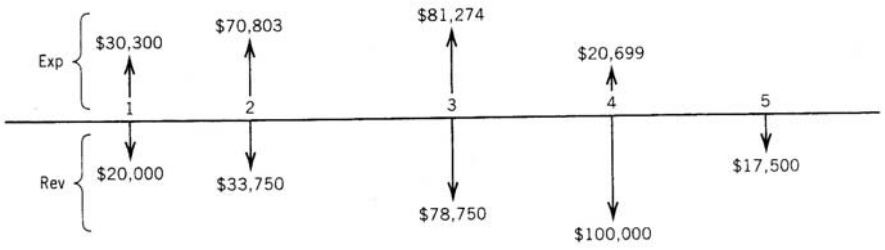
Overdraft At end of month 3 = 81,103+80,000-33,750=127,353

Overdraft At end of month 4 = 128,627+20,000-78,750=69,877

Overdraft At end of month 5 = 70,576+0-100,000= -29,424

Overdraft At end of month 6 = -29,424 +0-17,500= -46,924

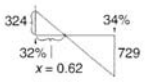
Cash Flow
With Advance Payment



ROR Calculation
With Advance Payment

Table 9.4 ROR Calculations to Include Mobilization Payment

N	Net[a]	PWF[b] 30%	Total @ 30%	PWF 32%	Total @ 32%	PWF 34%	Total @ 34%
1	−10300	.7692	−7923	.7575	−7802	.7463	−7687
2	−37053	.5917	−21925	.5739	−21265	.5569	−20635
3	−2524	.4552	−1149	.4348	−1097	.4156	−1049
4	79301	.3501	27765	.3294	26122	.3101	24591
5	17500	.2693	4713	.2495	4366	.2315	4051
			$\sum$ =1482		$\sum$=324		$\sum$ = −729



$$\frac{X}{2\%} = \frac{324}{(324 + 729)}$$

$$X = 0.62$$

$$\text{ROR} = [32 + .62]\%$$

$$= 32.62\%$$

[a] A negative net value indicates expenses exceed revenue for this period.
[b] PWF = Present Worth Factor

Objectives

- **Perform** cash flow analysis without and with advance payment.

Questions