Project Initiation Activities

Initiation Process

Formulas for Numeric Model

Equivalent Worth			
F = Future Amount *P = Present Amount* *N = Periods* *n = Year from Date of Investment*		i = Interest Rate (Cost of Capital, Minimal Acceptable Rate of Return)	Need to understand and apply concepts. Problems are generally table driven.
Future Value of a Present Amount	$F = P(1+i)^N$	You borrow $X for N yrs. How much is your lump sum repayment at end of Nth year?	
Present Value of a Future Amount	$P = F\left(\frac{1}{(1+i)^N}\right)$	How much must you invest today to have $X at some future point in time?	
Present Value of an Annuity	$P = A\left(\frac{(1+i)^N - 1}{i(1+i)^N}\right)$	How much must you invest today to provide $X in annual withdrawals for N years?	
Internal Rate of Return **(IRR)**	$IRR = \sum^{N}\left(\frac{NCF_n}{(1+i)^n}\right) - Int.\,Inv. = 0$	Internal Rate of Return is that interest rate that when the sum of the Net Cash Flows for each year is divided by $(1+i)^n$, it equals the initial investment (Net Present Value = 0)	

Table Example **For NPV**	*N*	*0*	*1*	*2*	*3*	*4*
	8%	1.0	.926	.857	.794	.735
	12%	1.0	.893	.797	.712	.636
	14%	1.0	.877	.769	.675	.592

	What is NPV for an Investment	NPV = [$4,000(0.926) + $4,000 (0.857) + $4,000(0.794) + $4,000 (0.735) - $13,250(1.0)]

	of $13,250 with cash flows of $4,000 for each of the next 4 years at 8%?	NPV = $3,704 + $3,428 + $3,176 + $2,940 -$13,250 NPV = <$2>
		Therefore, the IRR is slightly less than 8%
Benefit Cost Ratio (Conventional Method)	BCR=PV of Revenue PV of Costs Benefit Cost Ratio = Present Value of Revenue (assume end of project, unless advised otherwise) divided by Present Value of Costs (assume now, unless advised otherwise)	Sometimes called a *Savings Investment Ratio*
	What is the BCR for a project w/$3M in Revenue over 2 years w/$600K in costs with a 8% rate	*(Using Previous Table)* BCR = $3M x 0.857 / $600K $2,571,000 =~4.3 $600K

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