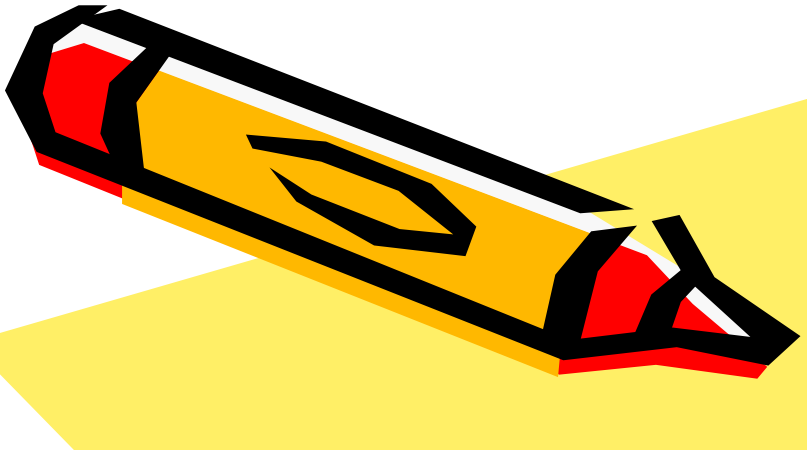
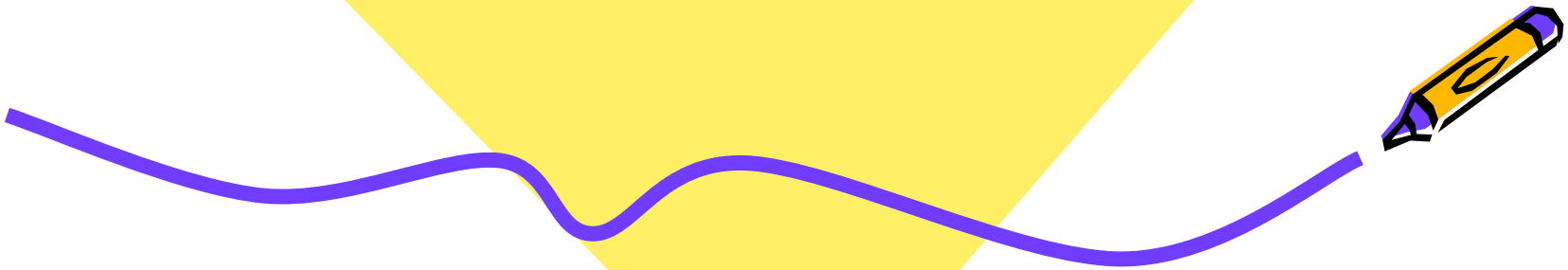
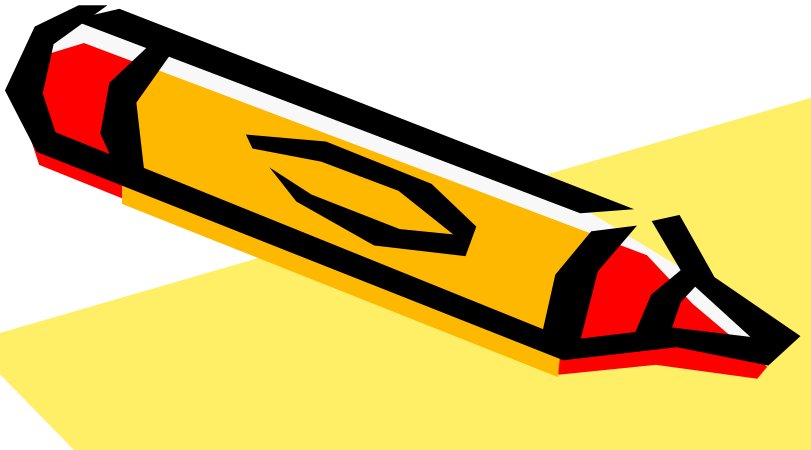
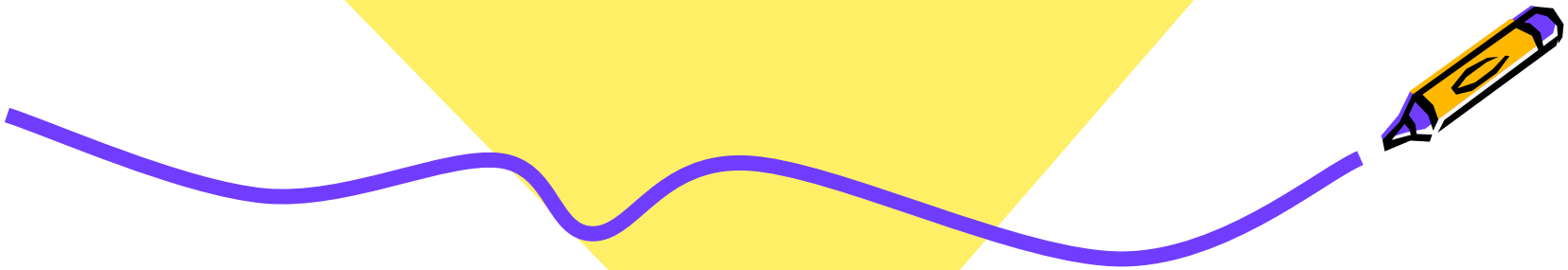


How is Valuation of a "Sick Company" is done?





How do we decide on land value (price to pay)?



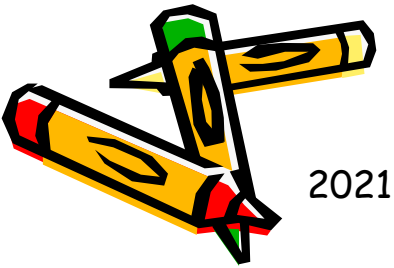
- Illustration: **Value a Firm with an unused asset i.e., Land (say, a sick company listed on the stock market – with no other assets worth talking about)**
- Land Price Rs 100 crores
- Outstanding Debt Rs 80 crores
- Life of the Option 10 years
- Standard Deviation 40%
- Riskless rate 10%
- Value of the call option 75.94

- **Illustration:** Value a Firm with an unused asset i.e., Land (say, a sick company listed on the stock market – with no other assets worth talking about)
- Land Price Rs 50 crores
- Outstanding Debt Rs 80 crores
- Life of the Option 10 years
- Standard Deviation 40%
- Riskless rate 10%
- Value of the call option 29.86

- **Illustration:** Value a Firm with Land (say, a sick company listed on the stock market – with no other assets worth talking about)
- **New Project by our Real Estate Company (Topic: Lenders Vs Equityholders)**
- Negative NPV Project … & also more Volatile
- Land Price Rs 98 crores
- Outstanding Debt Rs 80 crores
- Life of the Option 10 years
- Standard Deviation 50%
- Riskless rate 10%
- Value of the call option 77.03

Example of Natural Resources Valuation

- ✓ONGC would bid based on …
- ✓ The timing option in an offshore project (oil exploration field - a) not to develop; b) develop the reserve immediately; and c) postpone development and thus extend exploration phase;



Valuing Natural Resource Options: Inputs

(a) Available reserves of the resource

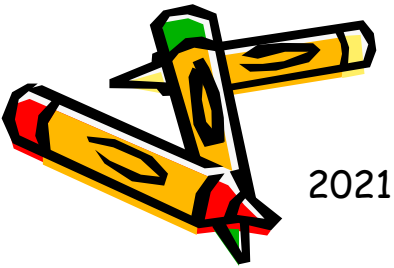
(b) Estimated cost of developing the resource

(c) Time to expiration of the option

(d) Variance in value of the underlying asset

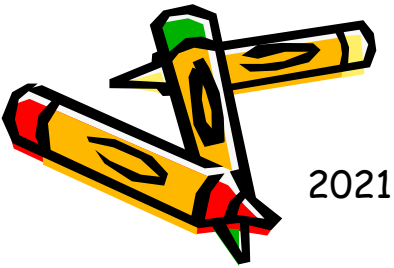
(e) Operating cash flow on underlying asset

(f) Periodical Leakages (if any)

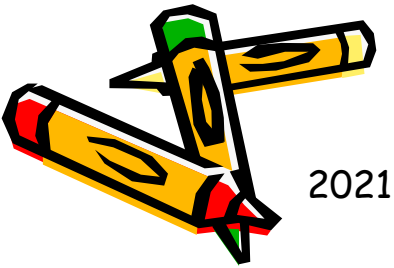


- **Illustration: A Coal mine in Meghalaya**
- Estimated inventory of 1 million tonnes. | Capacity output rate: 50,000 tonnes per year | Price of coal is expected to grow 3% a year | Firm owns rights to this mine for 20 years | Cost of opening the mine is Rs 1 crore | Average production cost is Rs 250 per tonne | Production cost is expected to grow by 5% | Riskless interest rate 9% | Standard Deviation in Coal Price 16% | Current market price of coal Rs 375 per tonne
- Value of the underlying asset is Present value of expected coal sales Rs. 211 m
- Exercise Price is Cost of opening the mine + present value of the cost of producing coal Rs. 174 m
- Dividend yield is loss in production for each year of delay 5%
- Value of the coal mine as a call option Rs. 51.73 m
- If you use capital budgeting then value is Rs. 37.24 m

- **Illustration: A Oil Reserve in Krishna-Godavari Basin**
- Estimated Oil Reserve is 50 million barrels
- Present Value of the development cost $12 per barrel (with 2 years of development lag)
- Firm owns rights to exploit the reserve 20 years
- Cost (Marginal value) per barrel of oil is $12 per barrel
- Riskless rate 8%
- Standard Deviation in Oil Prices 9%
- Dividend yield 5%
- S $544 and X $600
- call option value $97 million



- **Illustration: Project to develop land for commercial purpose**
- Value of the underlying land Rs 500 crore
- Present value of cost of developing land Rs 400 crores
- Time to expire 25 years
- Standard Deviation of land prices 20%
- Riskless rate 7%
- Dividend Yield 4%
- Call value Rs 155 crores



Use of Real Options in this traditional Power Plant project for

(a) Pricing of land

(b) Stretching the payments and sharing the upside

(c) Acquiting of coal mines (in bidding)

(d) Limiting the downside by creating put options (such as, making two phases of the power plant project)