

Problem 1

Scenario	Value/share
Worst	\$5.00
Most likely	\$18.00
Best Case	\$30.00

If the most likely scenario value is already risk adjusted, I would still buy the stock. There is a chance that I will lose money but rejecting the investment, with a risk adjusted value > price would represent double counting.

Problem 2

After-tax cash flows last year =	40
Expected growth rate =	2%
Cost of capital =	12%
Value of operating assets =	$408 = 40 / (.12 - .02)$
+Cash	0
- Debt	50
Value of equity	358
Number of shares	25
Value per share	14.32

After-tax cash flow if contract is	20
Value of operating assets =	204
+Cash	0
- Debt	50
Value of equity	154
Number of shares	25
Value per share	6.16

Expected value per share = $12.688 = 14.32 (.80) + 6.16 (.20) = 12.688$
 Price per share = 10
 Stock is still under valued. Buy it.

Problem 3

Net Income	100				
Book value of equity	1000				
Dividends	70				
Assumed stable growth rate =	3% ! You can assume any stable growth rate or cost of equity				
Assumed cost of equity =	10% ! Be consistent across the scenarios				
	Probability	ROE	Growth rate	Payout ratio	Value of equity
Status Quo	40%	10.00%	3%	70.0%	\$441.43
Regulatory easing	25%	12%	3%	75.0%	\$367.86
Regulatory tightening	35%	9%	3%	66.7%	\$490.48

Expected value of equity (today) $\boxed{\$440.20} = 40\% (441.43) + 25\% (367.86) + 35\% (490.48)$

Problem 4

Expected EBIT (1-t) next year	50	
	Subsidy	No subsidy
Oil prices > \$100	\$833.33	\$555.56
	18%	12%
Oil price \$60 - \$100	\$700.00	\$500.00
	30%	20%
Oil price < \$60	\$625.00	\$468.75
	12%	8%
Expected value across scenarios =	$\boxed{\$639.17}$	

Problem 5

After-tax operating income = 120
 Return on capital = 20%
 Expected growth rate = 4%
 Reinvestment rate = 20.0%
 Cost of capital = 12%

Value of firm = 1200
 Book value = 600
 Probability of nationalization = 30%
 Value of firm today = \$1,020.00

Success
60%
\$244.18

Failure
40%
-\$327.27

Problem 6

Today
-\$7.52

Success
80%
\$15.60

Failure
20%
-\$100.00

Problem 7

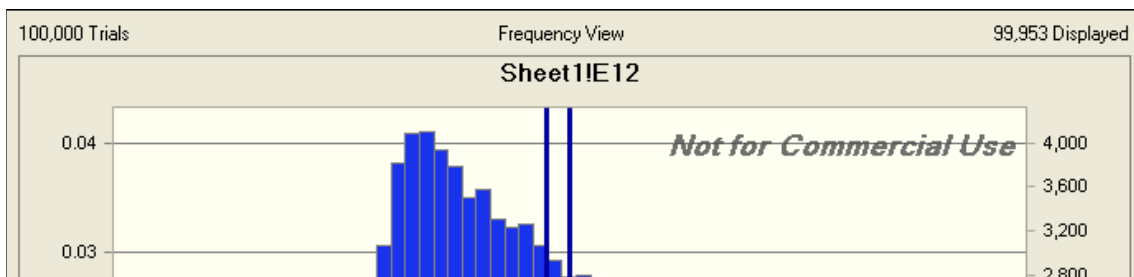
Value of business once operational = \$300.00
 PV of operational value = \$213.53
 Likelihood of survival = 60%
 Survival adjusted value = \$128.12
 VC equity brought in = \$50.00
 Proportion of value you would demand = 39.03%

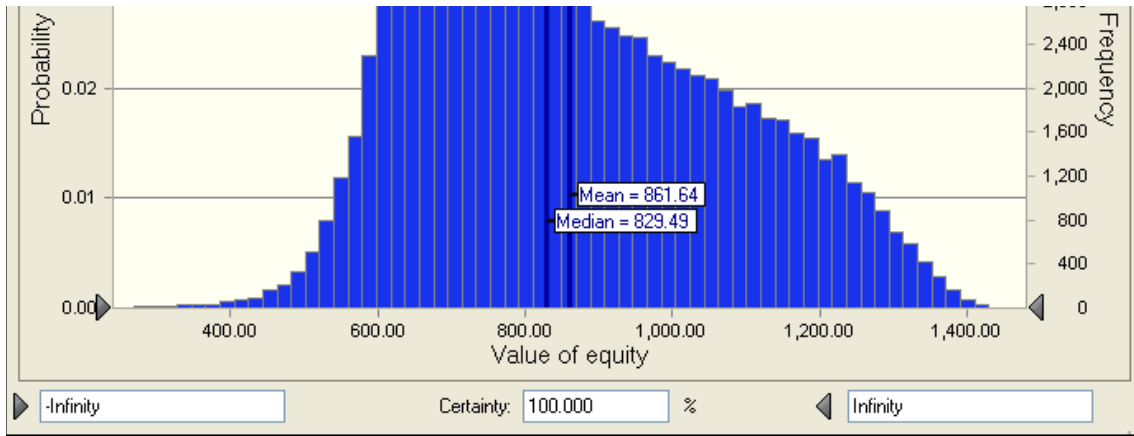
Target rate of return = 32.79% $! (300/128)^{(1/3)} - 1$

Problem 8

Expected EBIT (1-t) next year =	100
Expected growth rate =	3%
Return on capital =	15%
Cost of capital =	10%

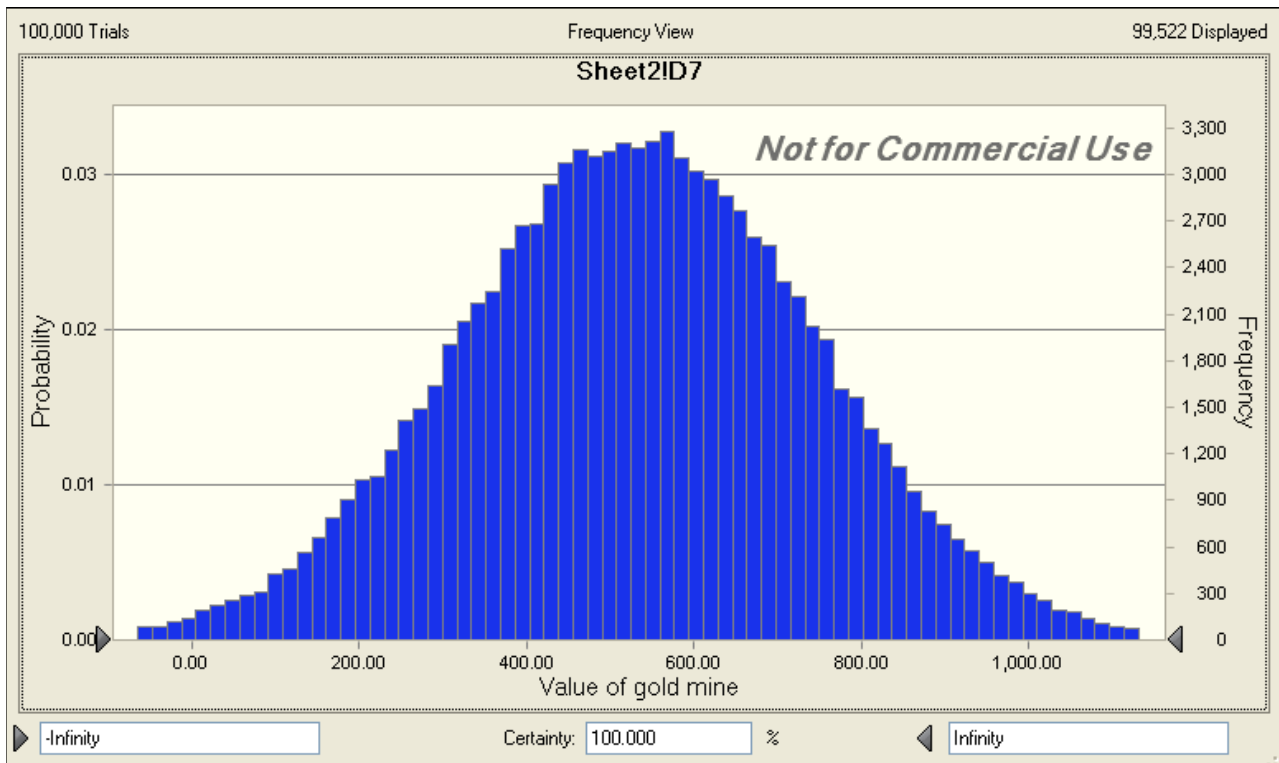
Value of operating assets =	\$1,142.86
+ Cash	\$200.00
- Debt	\$500.00
Value of equity =	\$842.86





Problem 9

Production per year (in millions)	0.1
Price/oz =	1500
Fixed Cost per year =	100
Annual cash flow =	50
Number of years =	25
Cost of capital =	8%
Value of gold mine =	\$533.74



Problem 10

Company	Price	Expected value	Standard deviation	% chance that t	Lowest value	Highest value
A	\$8.00	\$10.00	\$1.00	80%	\$7.00	\$13.00
B	\$12.00	\$13.50	\$0.50	75%	\$10.00	\$16.00
C	\$15.00	\$20.00	\$5	50%	\$4.00	\$50.00
D	\$9.00	\$10.00	\$0.20	85%	\$8.50	\$13.00
E	\$50.00	\$80.00	\$10	80%	\$40.00	\$150.00
F	\$22.00	\$25.00	\$1	88%	\$18.00	\$28.00
G	\$3.00	\$5.00	\$0.50	70%	\$2.50	\$6.00
H	\$150.00	\$200.00	\$30	60%	\$40.00	\$500.00
I	\$35.00	\$70.00	\$20	65%	\$0.00	\$200.00
J	\$80.00	\$100.00	\$5	90%	\$70.00	\$115.00

a. On Expected value basis

Company	Price	Expected value	% Under/Over valued
I	\$35.00	\$70.00	-50.00%
G	\$3.00	\$5.00	-40.00%
E	\$50.00	\$80.00	-37.50%
C	\$15.00	\$20.00	-25.00%
H	\$150.00	\$200.00	-25.00%
A	\$8.00	\$10.00	-20.00%
J	\$80.00	\$100.00	-20.00%
F	\$22.00	\$25.00	-12.00%
B	\$12.00	\$13.50	-11.11%
D	\$9.00	\$10.00	-10.00%

b. With uncertainty incorporated

Company	Price	Expected value	Standard deviation	T statistics
D	\$9.00	\$10.00	\$0.20	-5.00
G	\$3.00	\$5.00	\$0.50	-4.00
J	\$80.00	\$100.00	\$5	-4.00
B	\$12.00	\$13.50	\$0.50	-3.00
E	\$50.00	\$80.00	\$10	-3.00
F	\$22.00	\$25.00	\$1	-3.00
A	\$8.00	\$10.00	\$1.00	-2.00
I	\$35.00	\$70.00	\$20	-1.75
H	\$150.00	\$200.00	\$30	-1.67
C	\$15.00	\$20.00	\$5	-1.00

$T = (\text{Price} - \text{Exp value}) / \text{Std deviation}$

c. With downside worries

Company	Price	Expected value	Lowest value	Worst case % dro	% Under valued
D	\$9.00	\$10.00	\$8.50	-5.6%	-10%
A	\$8.00	\$10.00	\$7.00	-12.5%	-20%
J	\$80.00	\$100.00	\$70.00	-12.5%	-20%
B	\$12.00	\$13.50	\$10.00	-16.7%	-11%
G	\$3.00	\$5.00	\$2.50	-16.7%	-40%
F	\$22.00	\$25.00	\$18.00	-18.2%	-12%
E	\$50.00	\$80.00	\$40.00	-20.0%	-38%
C	\$15.00	\$20.00	\$4.00	-73.3%	-25%
H	\$150.00	\$200.00	\$40.00	-73.3%	-25%

I	\$35.00	\$70.00	\$0.00	-100.0%	-50%
---	---------	---------	--------	---------	------

Go with stocks with the least percentage drops in worst case

d. If my compensation was a fixed amount plus a percentage of the excess return that I make for my clients.