

Quiz B for 2:30 Class: 9/12/12

Name Key

Assume your firm is considering whether or not to build a factory at a cost of \$1.5 million today and \$750,000 two months from today. The factory would produce a net, after-tax monthly cash flow of \$150,000 five months from today. After this initial cash flow, monthly cash flows would grow by 2% each and would continue through five years from today. The land on which the factory would be built was purchased earlier today for \$170,000. If the factory is not built, it could be sold for an after-tax cash flow of \$140,000. If the factory is built, the firm's net working capital would increase by \$180,000 beginning four months from today and would remain at this level until the factory closes. Set up the calculations required to determine whether or not the factory should be built if the cost of capital for the factory equals 10.5% per year. Also state how you would use the number you calculate to decide whether or not the factory should be built. Note: You do not need to solve anything, just set up all calculations and fill in all of the numbers needed to make the decision.

Wall Street Journal Questions are on the back of this page.

$$\begin{aligned}
 NPV = & -1,500,000 - \frac{750,000}{(1.105)^{2/12}} + \left(\frac{150,000}{r(1/12)} - 0.02 \right) \left(1 - \frac{1.02}{1+r(1/12)} \right)^{56} \left(\frac{1}{1+r(1/12)} \right)^{4+6} \\
 & - 140,000 - \frac{180,000}{(1.105)^{4/12}} + \frac{180,000}{(1.105)^{5-4}}
 \end{aligned}$$

Handwritten annotations: (11) +3, (14) +6, (19) +3, (11) +3, (11) +3, (12)

$$r(1/12) = (1.105)^{1/12} - 1 \quad (12)$$

-s.f include sunk cost

Accept if NPV > 0 +3