

$$1) \text{EPS}_U = \text{EPS}_L$$

$$\Rightarrow \frac{\text{EBIT}}{\# \text{Shares}_U} = \frac{\text{EBIT} - I}{\# \text{Shares}_L}$$

$$\Rightarrow \frac{\text{EBIT}}{40000} = \frac{\text{EBIT} - 280000(.07)}{25000}$$

$$\Rightarrow \frac{5}{8} \text{EBIT} = \text{EBIT} - 19600$$

$$\Rightarrow \frac{3}{8} \text{EBIT} = 19600 \rightarrow \text{EBIT} = \boxed{\$52266.67}$$

$$2) \text{Firm repurchases } \frac{\$30000}{\$15} = 2000 \text{ shares}$$

$$\frac{\text{EBIT}}{5000} = \frac{\text{EBIT} - \$30000(.10)}{3000}$$

$$\Rightarrow \frac{2}{5} \text{EBIT} = 3000$$

$$\Rightarrow \text{EBIT} = \$7500$$

$$\Rightarrow \text{EPS} = \frac{\$7500 - 3000}{3000} = \$1.50$$

$$3) \text{Firm repurchases stk @ } \frac{\$600000}{12000} = \$50/\text{shr}$$

$$\text{Since no taxes } V_U = V_L = \$50/\text{shr} \times 80000 = \$4\text{M}$$

$$4) R_E = R_A + D/E (R_A - R_D)$$

$$= 16.1\% + .65(16.1\% - 8.7\%) = \boxed{20.91\%}$$

$$5) R_E = R_A + D/E (1 - T_c) (R_A - R_D)$$

$$\Rightarrow 14.6\% = 13.2\% + D/E (1 - 0) (13.2\% - 7.8\%)$$

$$\Rightarrow 1.4\% = D/E (5.4\%) \Rightarrow \boxed{D/E = 25.93\%}$$

$$6) R_E = R_A + D/E (R_A - R_D)$$

$$\Rightarrow 16.1\% = 14.2\% + .62 (14.2\% - R_D)$$

$$\Rightarrow \frac{1.9\%}{.62} = 14.2\% - R_D \Rightarrow \boxed{11.14\% = R_D}$$

$$7) V_U = \frac{48900(1 - .34)}{.145} = \$222579.31$$

$$V_L = V_U + T_c D = \$222579.31 + .34 (\$8000)$$

$$\boxed{V_L = \$225299.31}$$

$$8) R_E = 11.7\% + \frac{12000}{4164.10} (1 - .3) (11.7\% - 6\%) = \boxed{23.20\%}$$

$$V_U = \frac{2100(1 - .3)}{.117} = \$12564.10 \Rightarrow V_L = V_U + T_c D$$

$$= 12564.10 + (.3)(12000)$$

$$= 16164.10$$

$$= E + D \Rightarrow E = 4164.10$$

$$9) V_L = \frac{7000(1-.34)}{.15} + .34(.5V_L)$$

$$\Rightarrow .83V_L = 30800 \Rightarrow \boxed{V_L = \$37108.43}$$

$$10) V_L = \frac{73000(1-.35)}{.11} + .35(145000) = \$482113.64$$

Yes firm can implement $\frac{D}{V} = 1$

$$\Rightarrow \frac{D}{E} \rightarrow \infty$$

$$11) V_U = \frac{19750(1-.35)}{.15} = \$85583.33$$

$$D = .5V_U \Rightarrow V_L = 85583.33 + .35(.5)(85583.33) = \$100560.42$$

$$D = V_U \Rightarrow V_L = 85583.33(1 + .35) = \$115537.50$$

$$D = .5V_L \Rightarrow V_L = 85583.33 + .35(.5V_L) = \cancel{\$103737.37} \\ \$103737.37$$

$$D = V_L \Rightarrow V_L = 85583.33 + .35V_L = \$131666.66$$

12) 5% of Knight's equity is $\$2.05M \times .05 = \$102,500$

5% of Veblen's equity is $\$3.1M \times .05 = \$155,000$

If initial costs are the same then investor must
borrow $155000 - 102500 = \$52500$.

Cash flow from Knight

~~$.05(500000 - 78000)$~~

$$.05(500000 - 78000) = \$21100$$

Cash flow from Veblen less interest

$$.05(500000) - .06(52500) = \$21850$$

Veblen has higher return.

$E_K \downarrow$ and $E_V \uparrow$ until $CF_V = CF_K$.