1. A. Strong-form inefficiency. Managers make superior returns by using inside information

B.

C. Weak, semi-strong and strong-form market inefficiency. It is impossible to get abnormal return by using past price data if market is weak-form efficient.

D. Semi-strong and strong-form inefficiency. If market is semi-strong efficient, we should not make higher returns than normal by public information.

E.

F. Strong-form inefficiency. In strong-form efficient, we can’t beat the market making abnormal return by private information.

G. Semi-strong and strong-form inefficiency. If market is semi-strong form efficient, market should reflect fully and immediately all publicly available information.

1. EBIT (after tax) per year = $12mil (1-0.35) = $7.8mil

NPVU = -$60mil + -$60mil + $41.61mil = -$18.39mil

|  |  |  |  |
| --- | --- | --- | --- |
|  | Tax saving amount | Subsidized amount | Total financing side effect |
| Year 1 | 25mil \* 0.35 \* 0.05 = 0.4375 mil | 25mil \* 0.02 = 0.5mil | 0.9375mil |
| Year 2 | 20mil \* 0.35 \* 0.05 = 0.35mil | 20mil \* 0.02 = 0.4mil | 0.75mil |
| Year 3 | 15mil \* 0.35 \* 0.05 = 0.2625mil | 15mil \* 0.02 = 0.3mil | 0.5625mil |
| Year 4 | 10mil \* 0.35 \* 0.05 = 0.175mil | 10mil \* 0.02 = 0.2mil | 0.375mil |
| Year 5 | 5mil \* 0.35 \* 0.05 = 0.0875mil | 5mil \* 0.02 = 0.1mil | 0.1875mil |

NPVF =

APV = NPVU + NPVF = -$18.39mil +$2.41mil = -$15.98mil

1. A. ro = rf + β\*(rm – rf) = 0.03 + 1.5(0.85) \* 0.08 = 0.132

NPVU =

B. Tax saving amount per year = $30mil \* 0.3 \* 0.34 \* 0.11 = $0.3366mil

NPVF =

APV = NPVU + NPVF = $6.244mil

C. Tax saving amount per year = $30mil \* 0.3 \* 0.34 \* 0.08 = $0.2448mil

Subsidized amount per year = $30mil \* 0.3 \* 0.03 = $0.27mil

Total saving amount per year = $0.5148mil

NPVF(subsidized) =

APV = NPVU + NPVF(subsidized) = $6.903mil

1. When no tax, rs = r0 + ⬄ 16% = r0 + $30mil/$50mil (r0 – 8%)

r0 = 13%

If common stock is increased $10mil and debt is decreased $10mil,

rs = 13% + $20mil/$60mil (13%-8%) = 14.67%

When 35% corporate tax,

rs = r0 + ⬄ 16% = r0 + $30mil/$50mil (r0 – 8%)\*(1 – 0.35)

r0 = 13.76%

By MM proposition 1 and pie theory, VL = VU + TCB = SL + B = VU + $30mil \* 0.35 = VU + $10.5mil = $80mil

VU = $69.5mil

If common stock is increased $10mil and debt is decreased $10mil,

VL = VU + TCB = $69.5mil + $20mil \* 0.35 = $76.5mil

VL = SL + B ⬄ SL = VL – B = $76.5mil - $20mil = $56.5mil

rs = r0 + ⬄ 16% = 13.76% + $20mil/$56.5mil (13.76% – 8%)\*(1 – 0.35)

= 15.09%

1. A. By MM proposition 1,

VU =

If there is $4mil in debt,

VL = VU + TcB = $10mil + 0.4 \* $4mil = $11.6mil

B. VU =

If there is $4mil in debt,

VL = VU +

1. A. rs = r0 + ⬄ 14% = + 1/2 ( – 7%)\*(1 – 0.35)

= 12.28%

NPVU = -$7mil +

B. rWACC = 10.85%

NPV =