Chapter 6 - Primary Equity Markets

6-1:

Divide the ownership of the Discovery Café into 100 shares. The Venture capitalist purchases 40 shares (40% of the company) for $50,000. Thus each share is worth $1,250.

\[
\frac{\$50,000}{40 \text{ shares}} = \$1,250 \text{ per share}
\]

A. Joe Partner owns 30% or 30 shares * $1,250 = $37,500.

B. The total shares outstanding are worth 100 shares * $1,250 = $125,000.
6-2:

A. Market capitalization is $15 million

\[ 300,000 \text{ shares outstanding} \times \frac{\$50.00}{\text{share}} = \$15,000,000 \]

B. 120,000 shares are offered to the public

\[ 0.40 \times 300,000 \text{ shares} = 120,000 \text{ shares} \]

C. We raise $6 million through the offering, $300,000 goes to the underwriter; so Discovery Café realizes $5,700,000.

\[ \frac{120,000 \text{ shares} \times \$50.00}{\text{share}} = \$6,000,000 \]

\[ \$6,000,000 \times 0.95 = \$300,000 \text{ (underwriter)} \]

\[ \$6,000,000 \times 0.95 = \$5,700,000 \text{ (Discovery Café)} \]

D. Elisabeth and Joe each have 54,000 shares for a total market value of $2.7 million. This represents a rate of return of 26,900%. Since we do not know the time between the initial partnership investment and the IPO this is simply a holding period return.

\[ 0.30 \times (0.60 \times 300,000 \text{ shares}) = 54,000 \text{ shares} \]

\[ = 54,000 \text{ shares} \times \frac{\$50.00}{\text{share}} = \$2,700,000 \]

\[ R = 1 + r = \frac{\$2,700,000}{\$10,000} = 270.00 = 1 + 269.00 \]

\[ r = 26,900\% \]

E. The Venture Capitalist has 72,000 shares for a total market value of $3.6 million. This represents a rate of return of 7,100%.

\[ 0.40 \times (0.60 \times 300,000 \text{ shares}) = 72,000 \text{ shares} \]

\[ = 72,000 \text{ shares} \times \frac{\$50.00}{\text{share}} = \$3,600,000 \]

\[ R = 1 + r = \frac{\$3,600,000}{\$50.00} = 72.00 = 1 + 71.00 \]

\[ r = 7,100\% \]

The 7,100% return is not directly comparable to the 26,900% return earned by the original partners because the time horizon is shorter. If the time horizon were the same then we could attribute the 19,800% difference to “sweat equity”.
ANSWERS TO QUESTIONS & PROBLEMS

6-3:

Companies can increase earnings per share by buying back shares (which make them treasury shares) and retiring the stock.

6-4:

A. $9 million

\[ 100,000 \text{ shares} \times \frac{$90.00}{\text{share}} = $9,000,000 \]  

B. $39,000,000. If the company is worth $30 million then it should be worth $39 million after a $9 million cash infusion.

\[ \left[ 300,000 \text{ shares} \times \frac{$100}{\text{share}} \right] + $9,000,000 = $39,000,000 \]

C. $97.50 This is a weighted average of the value of the existing and new shares. Essentially Discovery Café, now worth $39 million, is divided into 400,000 shares.

\[ \frac{\left( 300,000 \text{ shares} \times \frac{$100}{\text{share}} \right) + \left( 100,000 \text{ shares} \times \frac{$90}{\text{share}} \right)}{300,000 \text{ shares} + 100,000 \text{ shares}} = \frac{$39,000,000}{400,000 \text{ shares}} = $97.50 \text{ per share} \]

D. To calculate the fair market value of the rights we use the fact that the price of buying shares before and after the rights offering should be the same since we are buying the same percentage of the company.

A. Buy three shares @ $100 per share before the rights offering. We are then issued three rights. These three rights plus $90 will buy us one additional share. Thus we have spent $390 for 4 shares or $97.50 per share.

B. Wait until after the rights offering. We can now buy four shares of the company for $90 per share for a total of $360, but only if we have 12 rights (3 rights per share for 4 shares). These 12 rights can be purchased in the open market at price p. The most we would pay for these 12 rights is $30 ($390-$360). Thus the maximum price we would pay per right is $2.50.

\[ \left( 3 \text{ shares} \times \frac{$100}{\text{share}} \right) + 1 \text{ share} \times \left( \frac{$90 + 3 \text{ rights} \times \frac{$0}{\text{right}}}{\text{share}} \right) = \left( 4 \text{ shares} \times \frac{$90}{\text{share}} \right) + \left( 4 \text{ shares} \times \frac{3 \text{ rights} \times \frac{p}{\text{right}}}{\text{share}} \right) \]

\[ $300 + $90 = $360 + 12p \]

\[ p = $2.50 \]
6-5:
(D)

6-6:
(D)

6-7:
(C) Employees are members of the public

6-8:

I. (C) The underwriter gets $2.40 per share out of which he pays the selling group $1.80

II  (A) 1,000,000 * $0.30 = $300,000

III  (B) $30 less $2.40 underwriting expenses per share is $27.60 per share for a total of $27,600,000.00