
Question 3: Equity Valuation and Analysis**(27 points)**

a)

The expected market capitalization of IT Corporation at the time of an IPO 5 years hence
= Projected net profits five years hence · Projected PER
= EUR 20 million · 30 = EUR 600 million

The value of IT's shares after the equity finance can be calculated by discounting this value by the 50% required rate of return on IT shares:

$$\frac{\text{EUR } 600,000,000}{1.5^5} = \text{EUR } 79,012,346$$

b)

The value of existing shares at the time of the equity finance is found by subtracting the amount of the capital increase from market capitalization after the equity finance:

$$\text{EUR } 79,012,346 - \text{EUR } 5,000,000 = \text{EUR } 74,012,346$$

The theoretical share price at the time of the equity finance is obtained by dividing this amount by the number of issued and outstanding shares:

$$\text{EUR } 74,012,346 \div 1,000,000 \text{ shares} = \text{EUR } 74.01$$

Alternative answer:

Most venture capitalists use the following calculation.

The percentage ownership required by venture capitalists can be found by dividing the amount of the capital increase by market capitalization after the equity finance:

$$\text{Required percentage ownership} = \text{EUR } 5,000,000 \div \text{EUR } 79,012,346 = 6.328\%$$

The number of newly issued shares and the share price can be found with the following formula:

Number of newly issued shares

= (Required percentage ownership / (1 - Required Percentage Ownership)) · Number of existing shares

$$= (0.06328 / (1 - 0.06328)) \cdot 1'000'000 \text{ shares} = 67'555 \text{ shares}$$

Share price

= Investment / Number of newly issued shares

$$= \text{EUR } 5'000'000 / 67'555 \text{ shares} = \text{EUR } 74.01$$

c)

The following are conceivable reasons:

- Private equity shares have low liquidity and are difficult to sell. Higher required rates of return include a liquidity premium that reflects this liquidity risk (liquidity)

- New startups have an extremely high risk of bankruptcy. Higher required rates of return include a premium that reflects this bankruptcy risk (risk)
- Unlike investments in listed companies, investments in private equities require that venture capitalists commit to their management if they are to succeed. Higher required rates of return include the reward to the services provided by venture capitalists (services)
- The business plans and profit forecasts of new startups tend to be optimistic and often are not achieved. Higher required rates of return can be interpreted as adjustment to the overly-optimistic figures provided by management (forecast adjustments)

d)

d1)

Generally, when an option is purchased, its value is higher the higher the volatility in the price of the underlying asset because if the transaction does not go in one's favor losses are limited to be option premium, while if it does go in one's favor, capital gains are unlimited. Startup companies contain a great deal of uncertainty regarding future potential and directions and have many different options for developing the business depending on circumstances and are therefore suitable to valuation using the "real option" approach.

d2)

The current set of valuation and decision making tools aren't sufficient for the new business realities:

- strategic investments with lots of uncertainty and huge capital requirements.
- projects that must adapt to evolving conditions.
- complex asset structures through partnerships, licenses, and joint ventures.