# Corporate Finance Progress Test

## Last week

1) What are the different ways that a firm can raise equity?
    a. IPO (Initial Public Offering)
    b. SEO (Seasoned Equity Offering)
    c. Rights issue
    d. Private placement
    e. Reduce payments to shareholders (reduce dividends, reduce buybacks, let shareholders participate in a DRP)
2) What are the different ways that a firm can pay out its equity?
    a. Pay higher dividends
    b. Pay a one-off special dividend
    c. On or off-market buy backs
3) What are the different ways that a firm can change the share price without actually transacting any cash or affecting total firm value?
    a. Bonus issue
    b. Share dividend
    c. Stock split

4) For each of the following announcements, list the theories and signalling effects that may affect share price and state what the effect is: a higher, lower or unchanged share price.
NOTE: This list is incomplete, there are other signalling theories that may also be valid. Please read your textbook for other ideas.
    a. Dividends will be raised
        - *Signals that company expects to make higher profits in future so it can afford to pay higher dividends (Lintner model). Share price may rise.*
        - *Signals that firm has no more positive NPV projects, so it's returning cash. Share price may fall.*
        - *Signals that managers have no more positive NPV projects to commence, which is why they are paying back equity. The share price may fall.*
        - *Signals that managers are responsible and return cash to shareholders rather than waste it on perks and indulgences or commence negative-NPV projects just to make a bigger firm and for them to have more power. This is the theory of 'empire building'. Share price may fall.*
        - *According to the DDM (Dividend Discount Model, $P_0 = \frac{d_1}{r-g}$), when dividends rise then share price rises. But, this assumes that the growth rate stays the same. The growth*

*rate will only stay the same if the rise in dividends is accompanied by a rise in the firm's cash flow from assets (CFFA). If the CFFA is just the same, but more dividends are paid, then the share price will not change because the growth rate of the dividend (which is also the capital gain) will fall. So the DDM says that the share price may increase, or stay unchanged, it depends on what happens to CFFA.*

- *The dividend clientele effect. Investors who prefer dividends to capital gains may buy the stock, and vice versa. This is not likely to affect share price.*

b. An on-market buy-back will commence

- *Signals that management believe that the share price is under-valued, which is why they are buying the stock back at a discount to the true price. Share price may rise.*
- *Signals that firm has no more positive NPV projects, so it's returning cash. Share price may fall.*
- *Economic theory says that the company's purchase of shares will increase demand and the share price would increase, assuming that the supply curve is not horizontal.*

c. An off-market buy-back will commence

*Same as for the on-market buy-back, but there is an additional cost of the premium that needs to be offered to shareholders to entice them to sell. This might lead to a share price fall.*

d. A special dividend will be paid

*Same as for an ordinary dividend, but investors do not expect it to happen again.*

e. A rights issue will take place

*- Since a rights issue raises equity, according to the pecking order theory the share price may fall since internally generated cash should be a firms first choice, then debt, then equity.*

*- In a rights issue the shares are usually sold at a slight discount to the market price. So the share price should fall slightly since there will be dilution.*

f. A large amount of debt will be raised to expand the firm's existing business. Leverage (the debt-to-equity ratio or debt-to-assets ratio) will increase significantly.

*According to the trade-off theory, the firm will benefit from the additional tax shields, but suffer from the higher costs of financial distress. So the share price may increase or fall. According to the pecking order theory, raising funds through debt is better than equity, but worse than internally generated cash (retained profits). So the share price may increase or decrease.*

5) You project the Free Cash Flow to Equity for a firm over the next 20 years. What rate should you use to discount it?

*Cost of equity*

6) You project the Free Cash Flow to the Firm, excluding interest expense, over the next 20 years. What rate should you use to discount it?

   *WACC after tax*

7) The above 2 firm's debt-to-equity ratios change every year. What problem does this pose for using the WACC (after or before tax) or the cost of equity to discount cash flows?

   *The problem is that the WACC or cost of equity will need to be recalculated every single year since the E/V and D/V ratios are always changing.*

8) A firm has no debt. You project its Free Cash Flow to Equity. State why it is OK to use the WACC, Opportunity cost of capital, or the cost of equity to discount its FCFE.

   *D/V = 0 so all of those equations are equal.*

9) A firm will have **nominal** FCFE (Free Cash Flow to Equity) of $1m next year, with a **nominal** growth rate of 5% each year after that. The **nominal** cost of equity is 10%. Inflation is 3%. Calculate the value of the firm's equity.

   *Since cash flows and rates are all nominal, there is no need to adjust for inflation.*

   *So PV(perpetuity) = C1 / (r – g)*

   *= 1m / (0.1 – 0.05)*

   *=20m*

10) A firm will have **nominal** FCFF (Free Cash Flow to the Firm) of $1m next year, with a **real** growth rate of 5% each year after that. The **real** Cost of equity is 10%. Inflation is 3%. Calculate the value of the firm's assets.

   ***Method 1**: Convert nominal cashflows to real cashflows: Just discount all nominal cashflows by the inflation rate.*

$$Real\ cashflow\ next\ year\ = \frac{1m}{(1+0.03)^1} = 0.970874m$$

   *No we can make calculations using this real cash flow together with the real discount and growth rates:*

$$PV(perp) = \frac{0.970874m}{0.1-0.05} = 19.41748m$$

   ***Method 2**: Convert the real rates into nominal rates using the Fisher equation*

   *To find the nominal cost of equity:*

$$1 + r_{nominal} = (1 + r_{real})(1 + inflation)$$

$$1 + r_{nom} = (1 + 0.1)(1 + 0.03)$$

$r_{nom} = 0.133$

*To find the nominal growth rate:*

$1 + g_{nominal} = (1 + g_{real})(1 + inflation)$

$1 + g_{nom} = (1 + 0.05)(1 + 0.03)$

$g_{nom} = 0.0815$

$$PV(perp) = \frac{1m}{0.133 - 0.0815} = 19.41748m$$

10) State the different types of real options.

*Abandonment option*

*Timing option (delaying option)*

*Production option (switching option)*

*Expansion option*

11) What is the method of Equivalent Annual Cost (EAC) used for?

*Equivalent Annual Cost is the method of comparing projects or machines that have different lives. It is needed because comparing NPV's is not fair since the longer-lasting machine will obviously cost more, but it might cost less per year.*