MPF753 Finance Revision Questions

1. **Why does the value of money deteriorate if received in the future instead of the present?**

Money has a time value which causes one dollar received today to be worth more than one dollar received at some point in the future. One reason for this is that the dollar you receive today can be invested and earn interest income over time. For example, if you receive $1 today you could invest it in a savings account that pays an annual interest payment, let's say 4%. In one year's time you will have $1 x (1+0.04) = $1.04 in the savings account, in two year's time you will have $1.04 x (1+0.04) = $1.08, and in ten years time you will have $1 x (1+0.04)^10 = $1.48. Therefore if you receive just $1 in ten years time it is worth less than the dollar you received ten years prior and invested to earn interest. Additionally, in an inflationary economy, money received toady has more purchasing power than the same amount of money received at some point in the future, hence a dollar received today is worth more than a dollar received in the future because you can purchase more with the dollar you receive today.

The 'time value of money' is a financial concept that recognises that the value of a cash receipt or payment is dependent on both the amount and timing of the receipt or payment. Just as future value of a present cashflow was calculated above by accumulating the present value over time to arrive at a future value, the present value of future cashflows can be calculated by discounting future cashflows back to the present (or another) time. The formula for accumulating a present value to a future value is: FV = PV (1+r)^n. To discount a future value back to a present value the following formula can be used: PV = FV/(1+r)^n.

The time value of money should be taken into account when evaluating potential investment projects as these generally involve a large initial net outflow followed by smaller net inflows that are spread over time. If the time value of money is not considered and the sum of the inflows is only slightly higher than the initial outflow, the project may incorrectly be seen as profitable as discounting of money received in the latter stages back to present values may erode the profit margin.

2. **"If the EAR on a savings account is given to be 4.848% then the monthly rate is 0.404%." Is this statement correct or incorrect? Explain your answer.**

EAR is the annual rate of interest actually earned or paid which reflects the impact of compounding frequency. While 4.848%/12 = 0.404%, this calculation does not take into account the effect of compounding interest. The relationship between EAR and the nominal annual rate, r, that has m compounding periods is: EAR = (1+r/m)^m-1. Using the figures given above, assuming that the savings account compounds interest on a monthly basis, the annual nominal rate is: r = m x (1 + EAR)^(1/m) = 12 x(1.04848^(1/12) – 1) = 0.047435. To get the monthly nominal rate the annual nominal rate is divided by 12, so the monthly nominal rate is 0.047435/12 = 0.00395 = 0.395%, not 0.404%.

3. **What is 'loan covenant'? How may you distinguish between positive and negative covenants?**

A loan covenant is a contractual clause in a debt agreement that place specific operating and financial constraints on the borrower. Loan covenants typically remain in place for the life of the debt agreement but generally place no burden on a financially sound business. Covenants allow the lender to monitor and control the borrower's activities to protect itself against agency problems created by the differing objectives of owners and lenders. Positive loan covenants require the borrower to take specific actions, for example they may require the borrower to supply audited financial statements. Negative loan covenants prohibit certain actions, for example disallowing the selling of receivables.

MPF753 – Finance Revision Notes

Financing: raising capital to support the company's operations and investment programs, from either:

- Shareholders (equity): no legal obligation to pay dividends
    - Privately through professional investors (venture capitalists)
    - Public by conducting and initial public offering (IPO)
    - An ownership interest, usually in the form of ordinary or preference shares
    - Ordinary shareholders receive returns on their investments only after creditors and preference shareholders are paid in full
- Creditors (debt): legally company must repay
    - Borrowed money
    - Borrower is obliged to pay interest, at specified annual rate on full amount borrowed, as well as repay the principle amount at the debt's maturity

Financial management: managing a company's internal cash flows for day-to-day operations, and its mix of debt and equity financing, to maximise value of the debt and equity claims on the company.

- To ensure company can pay off its obligations when they come due
- Involves obtaining seasonal financing, managing inventories, paying suppliers, collecting from customers and investing surplus cash

Capital budgeting: selecting best projects in which to invest the resources of the company, based on each projects perceived risk and return by:

- Identifying potential investments
- Analysing the set of investment opportunities and selecting those that create shareholder value
- Implementing and managing the selected investments

Corporate Governance: developing company ownership and corporate governance structures that ensure that managers behave ethically and make decisions that benefit shareholders.

- Dimensions of corporate governance: Boards of directors, compensation packages, auditors, legislative environment and compliance requirements

Financial Intermediaries: institution that raises capital by issuing liabilities against itself and then lending capital to corporate and individual borrowers.

Legal forms of business organisations:

- **Sole proprietorships:**
    - No distinction between business and person
    - Easy to set up and operate, taxed as personal income
    - Personal liability, limited life, difficult to transfer
- **Partnerships:**
    - Two or more business owners
    - Each partner liable for every partner's actions
- **Limited partnerships:**
    - One or more general partners and mainly limited partners
    - Limited liability of corporation, tax benefits of partnership
- **Proprietary limited company:**

    - Separate legal entity with all economic rights and responsibilities of a person
    - Creates roles for employees, directors and shareholders
    - Regulated under the Corporations Law 2001
- **Companies:**
    - Legal entity with all the economic rights and responsibilities of a person
    - Owned by shareholders
    - Strengths: limited liability for investors, unlimited business life

Corporate Financial Manager goal: maximise shareholders' wealth by performing basic duties of corporate finance: External financing, capital budgeting and having an optimal payout (reward) policy that ensures fulfilment of stakeholder expectations

Agency costs: conflict between goals of a company's owners and its managers. Overcome by:

- Relying on market forces to exert managerial discipline
- Incurring monitoring and bonding costs to supervise managers
- Structuring executive compensation packages to align managers' interests with shareholders' interests (actual workings of many compensation plans have been criticised in recent years)

Time Value of money: a dollar received today is worth more than a dollar received in the future
Future Value (FV) = PV*(1+r)^n, where PV = present value, r = interest rate, n = number of periods
Present Value (PV) = FV/(1+r)^n
Mixed Stream: series of unequal cash flows reflecting no particular pattern

- $FV = \sum_{t=1}^{n} CF_t * (1+r)^{n-t}$
- $PV = \sum_{t=1}^{n} CF_t * \frac{1}{(1+r)^t}$

Annuity: stream of equal periodic cashflows

- $FV = PMT * (\frac{(1+r)^n - 1}{r})$
- $PV = \frac{PMT}{r} * (1 - \frac{1}{(1+r)^n})$

Perpetuity: constant stream of cash flows that continues forever

- $PV = PMT * \sum_{t=1}^{\infty} \frac{1}{(1+r)\hat{}t} = \frac{PMT}{r}$

Present value of growing perpetuity: g = growth rate and r>g, CF_1= cash flow at time 1 (first cash flow)

- $PV = \frac{CF_1}{r-g}$

Compounding more frequently than annually: the more frequent the compound period, the larger the FV

- m compounding periods: $FV = PV * (1 + \frac{r}{m})^{m*n}$
- continuous compounding: $FV = PV * (e^{r*n})$

Stated/ nominal annual rate: contractual annual rate of interest charged by a lender or promised by a borrower

- **Average annual Percentage Rate (AAPR):** stated annual rate calculated by multiplying the periodic rate by the number of periods in one year

Effective annual rate (EAR): annual rate of interest actually paid or earned, reflecting the impact of compounding frequency

- $EAR = \left(1 + \frac{r}{m}\right)^m - 1$
- $EAR_{continuous\ compounding} = e^r - 1$
- **Annual percentage yield (APY):** same as EAR