# ACCA AFM

# 64 Most Frequently Asked Theory Questions

**Q1 . Discuss how a decrease in the value of each of the determinants of the option price in the Black-Scholes option pricing model for European options is likely to change the price of a call option.**

**Solution**. The value of the option depends on the following variables.

**(i) The price of the security**
A decrease in the price of the security will mean that a call option becomes less valuable. Exercising the option will mean purchasing a security that has a lower value.

**(ii) The exercise price of the option**
A decrease in the exercise price will mean that a call option becomes more valuable; the profit that can be made from exercising the option will have increased.

**(iii) Risk-free rate of return**
A decrease in the risk-free rate will mean that a call option becomes less valuable. The purchase of an option rather than the underlying security will mean that the option holder has spare cash available which can be invested at the risk-free rate of return. A decrease in that rate will mean that it becomes less worthwhile to have spare cash available, and hence to have an option rather than having to buy the underlying security.

**(iv) Time to expiry of the option**
A decrease in the time of expiry will mean that a call option becomes less valuable, as the time premium element of the option price has been decreased.

**(v) Volatility of the security price**
A decrease in volatility will mean that a call option becomes less valuable. A decrease in volatility will decrease the chance that the security price will be above the exercise price when the option expires.

## Q2. What is triple bo▮om line reporting ?

**Solution.** Triple bottom line (TBL) reporting involves providing a quantitative summary in terms of social, financial and environmental performance.

The underlying principle is that in order to evaluate a company's true performance against its objectives, and assess the risk to the investor, the investor must consider all three areas.

Under the TBL approach decision making should ensure that each perspective is growing but not at the expense of the others. That is, economic performance should not come at the expense of the environment or society. The idea is that an organisation which accommodates all three areas will enhance shareholder value as long as the costs of producing the report are less than the benefits that arise from it.

## Q3. What is benefit of diversified porMolio ?

**Solution.** Portfolio theory states that shareholders who hold a well-diversified portfolio will have diversified away the unsystematic or company-specific risk and will be leM with systematic risk. Following this a shareholder cannot reduce risk further by undertaking additional diversification in the same system or market.

A company may be able to achieve further diversification for its shareholders by investing in a system or market that the individual shareholders do not invest in themselves. Some studies have shown that well-diversified investors can benefit from risk diversification when companies invest in emerging markets.

## Q4. What is difference between APV & NPV as methods of investment appraisal and comment upon the circumstances under which APV might be a be▮er method of evaluating a capital investment than NPV ?

**Solution.** Both APV and NPV are discounted cash flow techniques but differ in the way project finance is incorporated into the process. With NPV, finance is usually incorporated into the discount rate which is then applied to project-only (i.e. excluding finance) cash flows. The clearest example of this is when a project (or company) WACC is used to discount project cash flows.

APV involves a two stage process dealing with project and financing flows separately. Project cash flows are discounted at an ungeared cost of equity to calculate a base case NPV. Financing side effects are then discounted at an appropriate rate – usually the pre-tax risk free rate.

APV may be a better technique to use than NPV when:

(i) There is a significant change in capital structure as a result of the investment.
(ii) The investment involves complex tax payments and tax allowances, and/or has periods when taxation is not paid.
(iii) Subsidised loans, grants or issue costs exist.
(iv) Financing side effects exist (e.g. the subsidised loan), which require discounting at a different rate than that applied to the mainstream project.

## Q5. Explain the major differences between Islamic finance and other conventional forms of finance

**Solution.** Islamic finance rests on the application of Islamic, or Shariah, law.

The main principles of Islamic finance are that:
(a) Wealth must be generated from legitimate trade and asset-based investment. The use of money for the purposes of making money is forbidden.
(b) Investment should also have a social and an ethical benefit to wider society beyond pure return.
(c) Risk should be shared.
(d) Harmful activities (such as gambling, alcohol and the sale of certain foods) should be avoided.

The raising of term loan debt finance (where the lender would make a straight interest charge, irrespective of how the underlying assets fare) would violate the principle of sharing risk and of not using money for the purposes of making money. Under Islamic finance, the charging and receiving of interest (riba) is strictly prohibited. This is in stark contrast to more conventional, Western forms of finance.

One alternative form of finance would be Murabaha, a form of trade credit for asset acquisition. Here the provider of finance would buy the item and then sell it on to buyer at a price that includes an agreed mark-up for profit. The mark-up is fixed in advance and cannot be increased and the payment is made by instalments.

Another form of finance would be Islamic bonds, known as sukuk. To be Shariah- compliant, the sukuk holders must have a proprietary interest in the assets which are being financed. The sukuk holders' return for providing finance is a share of the income generated by the assets. The key distinction between sukuk and murabaha is that sukuk holders have ownership of the cash flows but not the assets themselves.

## Q6. Discuss the possible reasons why company may have switched its strategy of organic growth to one of growing by acquiring companies.

**Solution.** Company may have switched from a strategy of organic growth to one of growth by acquisition, if it was of the opinion that such a change would result in increasing the value for the shareholders.

Acquiring a company to gain access to new products, markets, technologies and expertise will almost certainly be quicker and may be less costly than developing these internally. Horizontal acquisitions may help Vogel Co eliminate key competitors and thereby reduce rivalry and possible overcapacity in its industry; they may also have enabled Vogel Co to take advantage of economies of scale and to compete against large rivals. Vertical acquisitions may help Vogel Co to secure the supply chain and maximise returns from its value chain.

Organic growth may take a long time, can be expensive and may result in little competitive advantage being established due to the time taken. Also organic growth, especially into a new area, would need managers to gain knowledge and expertise of an area or function, which they are not currently familiar with. Furthermore, in a saturated market, there may be little opportunity for organic growth.

**Q7. Distinguish between the different types of synergy and discuss possible sources of synergy based on the above scenario.**

**Solution.** Synergies arise from an acquisition when the value of the new, combined entity is greaterthan the sum of the two individual values before the acquisition. There are three types of synergies: revenue, cost and financial.

**Revenue synergies** create higher revenues for the combined entity, also creating a higher return on equity and an extended period of competitive advantage.

**Cost synergies** arise from eliminating duplication of functions and also from economies of scale due to the size of the new entity.

Financial synergies may result from the ability to increase debt capacity or from transferring group funds to companies where they can be best utilised.

In this scenario, there may be financial synergies available as Hav Co has significant cash reserves, but Strand Co is constrained by a lack of funds. This means that the new entity may have the funds to **undertake projects** that would have been rejected by Strand Co due to a lack of funds. The larger company may also have an increased debt capacity and therefore additional access to finance. It is also possible that the new entity will have a lower cost of capital as a result of the acquisition.

Cost synergies may be available, through the removal of duplication in areas such as head office functions, but also in R&D. These synergies are likely to be more short term. Other cost synergies may arise from a stronger negotiating position with suppliers due to the size of the new entity, meaning better credit terms and also lower costs.

Revenue synergies have the potential to be the biggest synergies from this acquisition, although they are likely to be the hardest to achieve, and also to sustain. Hav Co can help Strand Co with the marketing of its products, which should result in **higher revenues** and a longer period of **competitive advantage**. Combining the R&D activity and the technologies of both companies may mean products can be brought to market faster too. To achieve these synergies it is important to retain the services of the scientist managers of Strand Co. They have been used to complete autonomy as the managers of Strand Co, so this relationship should be managed carefully.
A major challenge in an effective acquisition is to **integrate processes and systems** between the two companies efficiently and effectively in order to gain the full potential benefits. OMen, this is done poorly and can mean that the acquisition is ultimately seen as a failure. Hav Co needs to plan for this before proceeding with the acquisition.

**Q8. Discuss the possible actions Vogel Co could take to reduce the risk that the acquisition of Tori Co fails to increase shareholder value .**

**Solution**. Vogel Co can take the following actions to reduce the risk that the acquisition of Tori Co fails to increase shareholder value.

Since Vogel Co has a poor track record of adding value from its acquisitions it needs to review recent acquisitions to understand why they have not added value ie it should do a post- audit of these acquisitions.

Vogel Co should also ensure that the valuation is based on reasonable input figures and that proper due diligence of the perceived benefits is undertaken prior to the offer being made. OMen it is difficult to get an accurate picture of the target when looking at it from the outside. Vogel Co needs to ensure that it has sufficient data and information to enable a thorough and sufficient analysis to be undertaken.

The sources of synergy need to be properly assessed to ensure that they are achievable and to identify what actions Vogel Co needs to undertake to ensure their achievement. Targets should be set for all areas of synergy and responsibility for achieving these targets should be clearly allocated to members of Vogels' senior management team.

The board of directors of Vogel Co needs to ensure that there are good reasons to undertake the acquisition, and that the acquisition should result in an increase in value for the shareholders. The non-executive directors should play a crucial role in ensuring that acquisitions are made to enhance the value for the shareholders. Procedures need to be established to ensure that the acquisition is not overpaid. Vogel Co should determine the maximum premium it is willing to pay and not go beyond that figure. Research indicates that oMen too much is paid to acquire a company and the resultant synergy benefits are not sufficient to cover the premium paid. OMen this is the result of the management of the acquiring company wanting to complete the deal at any cost, because not completing the deal may be perceived as damaging to both their own, and their company's, reputation. Vogel Co needs to ensure that it has proper procedures in place to integrate the staff and systems of the target company effectively, and also to recognise that such integration takes time. Vogel Co may decide instead to give the target company a large degree of autonomy and thus make integration less necessary; however, this may result in a reduction in synergy benefits.

Vogel Co should also have strategies in place to retain key staff in the companies that it is acquiring – these people need to be identified at an early stage and given assurances over their role and responsibilities post-acquisition. Vogel Co should also be mindful that its own and the acquired company's staff and management need to integrate and ensure a good working relationship between them.

**Q9. Distinguish between a divestment through a sell-off and a management buy-in as forms of unbundling.**

**Solution.** Both forms of unbundling involve disposing of the non-core parts of the company.

The divestment through a sell-off normally involves selling part of a company as an entity or as separate assets to a third party for an agreed amount of funds or value. This value may comprise of cash and non cash based assets. The company can then utilise the funds gained in alternative, value-enhancing activities.

The MBI is a particular type of sell-off which involves selling a division or part of a company to an external management team, who will take up the running of the new business and have an equity stake in the business. An MBI is normally undertaken when it is thought that the division or part of the company can probably be run better by a different management team compared to the current one.

**Q10. Discuss the advantages and drawbacks of exchange traded option contracts compared with over-the-counter options.**

**Solution.**

**Advantages**

Exchange traded options are readily available on the financial markets, their price and contract details are transparent, and there is no need to negotiate these. Greater transparency and tight regulations can make exchange traded options less risky. For these reasons, exchange traded options' transaction costs can be lower.

The option buyer can sell (close) the options before expiry. American style options can be exercised any time before expiry and most traded options are American style options, whereas over-the-counter options tend to be European style options.

**Disadvantages**

The maturity date and contract sizes for exchange traded options are fixed, whereas over-the-counter options can be tailored to the needs of parties buying and selling the options.
Exchange traded options tend to be of shorter terms, so if longer term options are needed, then they would probably need to be over-the-counter.
A wider range of products (for example, a greater choice of currencies) is normally available in over-the-counter options markets.

**Q11. Distinguish between an IPO and a reverse takeover, and discuss whether an IPO or a reverse takeover would be an appropriate method to obtain a listing.**

**Solution.**

The initial public offering (IPO) is the conventional way to obtain a listing where a company issues and offers shares to the public. When doing this, the company will follow the normal procedures and processes required by the stock exchange regarding a new issue of shares and will comply with the regulatory requirements.

Undertaking a reverse takeover enables a company to obtain a listing without going through the IPO process.

Compared with an IPO, the main benefits of undertaking a reverse takeover are that it is cheaper, takes less time and ensures that company will obtain a listing on a stock exchange.

An IPO can cost between 3% and 5% of the capital being raised because it involves investment banks, lawyers, and other experts. A marketing campaign and issuing a prospectus are also needed to make the offering attractive and ensure shares to the public do get sold. A reverse takeover does not need any of these and therefore avoids the related costs. The IPO process can typically take one or two years to complete due to hiring the experts, the marketing process and the need to obtain a value for the shares. Additionally, the regulatory process and procedures of the stock exchange need to be complied with. With a reverse takeover, none of these are required and therefore the process is quicker. Finally, there is no guarantee that an IPO will be successful. In times of uncertainty, economic downturn or recession, it may not attract the attention of investors and a listing may not be obtained.

However, obtaining a listing through a reverse takeover can have issues attached to it. The listed 'shell' company may have potential liabilities which are not transparent at the outset, such as potential litigation action. A full due diligence of the listed company should be conducted before the reverse takeover process is started. The IPO process is probably better at helping provide the senior management of company with knowledge of the stock exchange and its regulatory environment. The involvement of experts and the time senior management need to devote to the listing process will help in this regard. Due to the marketing effort involved with an IPO launch, it will probably have an investor following, which a reverse takeover would not. Therefore, a company which has gone through an IPO would probably find it easier to raise extra funds, whilst a company which has gone through a reverse takeover may find it more difficult to raise new funding.

Overall, neither option of obtaining a listing has a clear advantage over the other. The choice of listing method depends on the company undertaking the listing and the purpose for which it is doing so.

**Q12.Discuss the benefits and drawbacks for using forward contracts compared with using over-the-counter currency options, and explain why companies may prefer to use exchange-traded derivatives rather than over-the-counter derivatives to hedge foreign currency risk.**

**Solution.**

**Benefits of a forward contract**

A forward contract would not involve payment of a large premium upfront to the counterparty.

A forward contract is a simple arrangement to understand, whereas the basis of calculation of the premium for an over-the-counter (OTC) option may be unclear.

A forward contract gives a certain receipt for the purposes of budgeting.

**Drawbacks of a forward contract**

A forward contract has to be fulfilled, even if the transaction which led to the forward contract being purchased is cancelled. Exchange rate movements may mean that the contract has to be fulfilled at an unfavourable rate. An OTC option can be allowed to lapse if it is not needed.

A forward contract does not allow the holder to take advantage of favourable exchange rate movements. An OTC option need not be exercised if the exchange rate moves in the holder's favour.

A forward contract may only be available for a short time period, depending on what currencies are involved. An OTC option may be purchased for a longer time period, over a year.

The rate offered on a forward contract will be determined by a prediction based on expected interest rates. The rate offered on an OTC option may be more flexible. This may suit a holder who is prepared to tolerate the risk of some loss in order to have the opportunity to take advantage of favourable exchange rate movements, but who wishes to use the option to set a limit to possible losses.

**Reasons why exchange-traded derivatives are used**

One of the main reasons why the treasury function uses exchange-traded derivatives is that the contracts can be bought and sold as required. Also, because the markets are regulated by an exchange, counterparty risk (the risk of the other party to the transaction defaulting) should be minimised.

**Q13. Discuss how incorporating real options into net present value decisions may help companies with its investment appraisal decisions.**

**Solution.**

When making decisions, following investment appraisals of projects, net present value assumes that a decision must be made immediately or not at all, and once made, it cannot be changed. Real options, on the other hand, recognise that many investment appraisal decisions have some flexibility.

For example, decisions may not have to be made immediately and can be delayed to assess the impact of any uncertainties or risks attached to the projects. Alternatively, once a decision on a project has been made, to change it, if circumstances surrounding the project change. Finally, to recognise the potential future opportunities, if the initial project is undertaken.

Real options give managers choices when making decisions about whether or not to undertake projects, by estimating the value of this flexibility or choice. Real options take into account the time available before a decision, on a project, has to be made, and the risks and uncertainties attached to the project. It uses these factors to estimate an additional value which can be attributable to the project. Real options view risks and uncertainties as opportunities, where upside outcomes can be exploited, and a company has the option to disregard any downside impact.

By incorporating the value of any real options available into an investment appraisal decision, company will be able to assess the full value of a project.

**Q14. Explain the nature of a mudaraba contract and discuss briefly how this form of Islamic finance could be used to finance the planned expansion.**

**Solution.**

One central principle of Islamic finance is that making money out of money is not acceptable, i.e. interest is prohibited. A mudaraba contract, in Islamic finance, is a partnership between one party that brings finance or capital into the contract and another party that brings business expertise and personal effort into the contract. The first party is called the owner of capital, while the second party is called the agent, who runs or manages the business. The mudaraba contract specifies how profit from the business is shared proportionately between the two parties. Any loss, however, is borne by the owner of capital, and not by the agent managing the business. It can therefore be seen that three key characteristics of a mudaraba contract are that no interest is paid, that profits are shared, and that losses are not shared.

If company were to decide to seek Islamic finance for the planned expansion and if the company were to enter into a mudaraba contract, the company would therefore be entering into a partnership as an agent, managing the business and sharing profits with the Islamic bank that provided the finance and which was acting as the owner of capital. The Islamic bank would not interfere in the management of the business and this is what would be expected if company were to finance the business expansion using debt such as a bank loan. However, while interest on debt is likely to be at a fixed rate, the mudaraba contract would require a sharing of profit in the agreed proportions.

**Q15. Discuss the advantages and disadvantages of using swaps as a means of hedging interest rate risk for the company.**

**Solution.**

**Advantages of swaps**

Transaction costs are generally relatively low. If company arranged the swap itself, the costs would be limited to legal fees.

The transaction costs may also be lower than the costs of terminating one loan and arranging another.

The company can, as here, swap a commitment to pay a variable rate of interest which is uncertain with a guaranteed fixed rate of interest. This allows the entity to forecast finance costs on the loan with certainty.

Swaps are over-the-counter arrangements. They can be arranged in any size and for whatever time period is required, unlike traded derivatives. The period available for the swap may be longer than is offered for other interest rate derivatives.

Swaps make use of the principle of comparative advantage. Company can borrow in the market where the best deal is available to it, and then use the swap to access the loan finance it actually wants at an overall cheaper cost.

**Disadvantages of swaps**

Swaps are subject to counterparty risk, the risk that the other party to the arrangement may default on the arrangement. This would apply in particular if the company arranged the swap itself. If it isarranged through a bank, the bank can provide a guarantee that the swap will be honoured.

If the company swaps into a fixed rate commitment, it cannot then change that commitment. This means it cannot take advantage of favourable interest rate changes as it could if it used options. This may be a particular problem if the swap period is more than a few months and interest rates are expected to be volatile.

As swaps are over-the-counter instruments, they cannot be easily traded or allowed to lapse if they are not needed or become no longer advantageous. It is possible that a bank may allow a reswapping arrangement to reverse a swap which is not required, but this will incur further costs.

**Q16.**

**Treasury staffing**

Company's new chief executive has made the following comments: 'I understand that the treasury department has a number of day-to-day responsibilities, including investing surplus funds for the short-term liquidity management and hedging against currency and interest rates. However, these tasks could all be carried out by the junior, less experienced, members of the department. I do not see why the department needs to employ experienced, expensive staff, as it does not contribute to the strategic success of the company

**Criticise the views of the chief executive about the work carried out by the treasury department and the staff required to do this work.**

**Solution.**

The chief executive appears to underestimate the degree of knowledge required for day-to-day work. Less experienced staff may be able to arrange borrowing if the lender has already been chosen or, for example, arrange forward rate agreements to be used if they are prescribed.

However, if judgement is required as to, for example, which lender or hedging instrument to use, using less experienced staff may mean that a sub-optimal decision is taken. Poor decisions may result in opportunity costs, for example, not using the lender who gives the best deal or being committed to a fixed forward rate agreement when an option would have allowed the business to take advantage of favourable rate movements. These opportunity costs may not be as clear as the salary costs of experienced staff.

As the business operates internationally, the treasury department will need to monitor financial market conditions and exchange rates, and other issues which may be significant such as political developments. Because of their previous experiences, longer-serving staff are more likely to appreciate the implications of developments and whether treasury policies and decisions need to change in response to changes in risk. Senior staff are also needed to manage the work of less experienced staff to prevent or mitigate the effect of mistakes which may be costly.

Experienced staff are also needed to establish overall guidelines and policies for treasury activities. Their judgement will be required to establish principles which will mean that actions taken by staff are in line with the risk appetite of the business and are sufficiently prudent from the viewpoint of risk management. Experienced staff will also have greater knowledge of law, accounting standards and tax regulations, which can help the business avoid penalties and perhaps structure its dealings so that it can, for example, minimise the level of tax paid.

The chief executive has plans for a major expansion of the business, involving significant investment and financing decisions. Advice from experienced treasury staff will be invaluable in supporting the decisions required. If the company is planning a major acquisition, the treasury function can provide advice on the structure of consideration and financing implications. If, as here, a major investment is being contemplated, experienced staff can advise on translating views on risk into a relevant cost of capital, which will help ensure that the financial appraisal of the investment is realistic.

**Q17. Discuss why a company may prefer to use the adjusted present value (APV) method, rather than the net present value (NPV) method.**

**Solution.**

Adjusted present values (APVs) separate out a project's cash flows and allocate a specific discount rate to each type of cash flow, dependent on the risk attributable to that particular type of cash flow. Net present value (NPV) discounts all cash flows by the average discount rate attributable to the average risk of a project.

One reason why APV may be preferable to NPV is because by separating out different types of cash flows, the company's managers will be able to see which part of the project generates what proportion of the project's value. Furthermore, allocating a specific discount rate to a cash flow part helps determine the value added or destroyed. In this example, the company is able to determine how much value is being created by the investment and how much by the debt financing. For complex projects, investment related cash flows could be further distinguished by their constituent risk factors, where applicable.

**Q18. Discuss the importance to a company of recognising all of its stakeholders when making a new project investment decision.**

**Solution.**

**Importance of recognising stakeholders**

A project investment decision is bound to create 'winners' and 'losers'. In any project appraisal, it is important to identify and recognise the claims of all of the stakeholders for several reasons.

Stakeholder recognition is necessary to gain an understanding of the sources of potential risk and disruption. Environmental pressure groups, for example, could threaten to disrupt any project that is perceived as being environmentally damaging, or could threaten legal action.
Stakeholder recognition is important in terms of assessing the sources of influence over the objectives and outcomes for the project. Stakeholder influence is assessed in terms of each stakeholder's power and interest, with higher power and higher interest combining to generate the highest influence.

Stakeholder recognition is necessary in order to identify potential areas of conflict and tension between stakeholders, especially relevant when it is likely that stakeholders of influence will be in disagreement over the outcomes. A survey of the stakeholders, once mapped in terms of influence, would signal which stakeholders are likely to cause delays to the project and paralysis by disagreement and whose claims can then be studied for ways to reduce disagreement.

There is an ethical and reputational case for knowledge of how decisions affect stakeholders, both inside the organisation or external to it. Society can withdraw its support from organisations that it perceives as unethical or arrogant. This can affect organisational performance by reducing their reputations as employers and suppliers of future services.

A 'deep green' perspective would take an unfavourable view of companies that failed to recognise some stakeholder claims.

**Q19. Comment on the concern that synergy is oben overestimated, including any steps which could be taken by the company's board to address this problem.**

**Solution.**

**Overestimation of synergy value**

There is evidence that bidding companies oMen overestimate the value of synergy arising from a potential acquisition with the result that companies pay too much for their target. When this happens, there is destruction in wealth for the bidding company's shareholders. There are a number of possible explanations for this problem.

First, merger and acquisition activity tends to be driven by the availability of cheap credit. At the peak of a wave of activity, there may be competition for targets, thereby increasing acquisition premiums.

Second, conflicts of interest may lead to a biased evaluation process. Deal advisers such as investment banks earn a large proportion of their fees from mergers and acquisitions. Their advice on whether an acquisition makes sense is potentially biased if they do not look aMer their clients' interests.

Third, management overconfidence may explain why this occurs. Acquiring companies may overestimate the acquisition synergy and/or underestimate the time it will take to deliver. Management may then be reluctant to admit mistakes when the facts change, even when there is still time to back out of a deal. Agency costs may be also a factor if managers are more interested in pursuing personal goals than maximising shareholder wealth.
Finally, there may be difficulties integrating the companies due to different work cultures and conflicts of interest.

**Steps to address this problem**

The company's board needs to plan for synergy and take active steps to ensure that it is delivered. This responsibility needs to be allocated to someone who can ensure spare cash is utilised to invest in new growth opportunities, that tax losses are offset as efficiently as possible and that the combined company avails itself of cheaper financing.
Companies which allocate this responsibility and monitor and review performance tend to be more successful in creating value. In order to avoid any bias, the deal advisers who stand to profit from an acquisition need to be separate from the evaluation process. Effective due diligence ensures the financial documents which form the basis of a valuation are scrutinised and inspected.

**Q20. Discuss how interest rate swaps and currency swaps might be of value to the corporate finance manager.**

**Solution.**

A swap is the exchange of one stream of future cash flows for another stream of future cash flows with different characteristics.

Interest rate and currency swaps offer many potential benefits to companies including:

(I) The ability to obtain finance cheaper than would be possible by borrowing directly in the relevant market. As companies with different credit ratings can borrow at different cost differentials in for example the fixed and floating rate markets, a company that borrows in the market where it has a comparative advantage (or least disadvantage) can, through swaps, reduce its borrowing costs. For example a highly rated company might be able to borrow funds 1.5% cheaper in the fixed rate market than a lower rated company, and 0.80% cheaper in the floating rate market. By using swaps an arbitrage gain of 0.70% (1.5% – 0.80%) can be made and split between the participants in the swap.

(II) Hedging against foreign exchange risk. Swaps can be arranged for up to 10 years which provide protection against exchange rate movements for much longer periods than the forward foreign exchange market. Currency swaps are especially useful when dealing with countries with exchange controls and/or volatile exchange rates.

(III) The opportunity to effectively restructure a company's capital profile by altering the nature of interest commitments, without physically redeeming old debt or issuing new debt. This can save substantial redemption costs and issue costs. Interest commitments can be altered from fixed to floating rate or vice versa, or from one type of floating rate debt to another, or from one currency to another.

(IV) Access to capital markets in which it is impossible to borrow directly. For example, companies with a relatively low credit rating might not have direct access to some fixed rate markets, but can arrange to pay fixed rate interest by using swaps.

(V) The availability of many different types of swaps developed to meet a company's specific needs. These include amortising swaps, zero coupon swaps, callable, puttable or extendable swaps and swaptions.

**Q21. From the perspective of a corporate financial manager, discuss the advantages and potential problems of using currency swaps.**

**Solution.**

**Advantages of currency swaps include:**

1. They allow companies to undertake foreign currency hedging, oMen for longer periods than is possible with forwards.

2. They are usually cheaper than long-term forwards, where such products exist.

3. Finance may be obtained at a cheaper rate than would be possible by borrowing directly in the relevant market. This occurs by taking advantage of arbitrage if a company has a relative funding advantage in one country.

4. They may provide access to finance in currencies that could not be borrowed directly, e.g. due to government restrictions, or lack of a credit rating in the overseas market.

5. Currency swaps offer the opportunity to restructure the company's debt profile without physically redeeming debt or issuing new debt.

6. Currency swaps might be used to avoid a country's exchange control restrictions.

**Potential problems include:**

1. If the swap is directly with a corporate counterparty the potential default risk of the counterparty must be considered. Swaps arranged with a bank as the direct counterparty tend to be much less risky.

2. Political or sovereign risk; the possibility that a government will introduce restrictions that interfere with the performance of the swap.

3. Basis risk. With a floating to floating swap, basis risk might exist if the two floating rates are not pegged to the same index.

4. Exchange rate risk. The swap may result in a worse outcome than would have occurred if no swap had been arranged.

**Q22. Discuss the relative advantages and disadvantages of the use of a money market hedge compared with using exchange traded derivatives for hedging a foreign exchange exposure.**

**Solution.**

A money market hedge is a mechanism for the delivery of foreign currency, at a future date, at a specified rate without recourse to the forward FOREX market. If a company is able to achieve preferential access to the short term money markets in the base and counter currency zones then it can be a cost effective substitute for a forward agreement. However, it is difficult to reverse quickly and is cumbersome to establish as it requires borrowing/lending agreements to be established denominated in the two currencies.

Exchange traded derivatives such as futures and foreign exchange options offer a rapid way of creating a hedge and are easily closed out. For example, currency futures are normally closed out and the profit/ loss on the derivative position used to offset the gain or loss in the underlying. The fixed contract sizes for exchange traded products mean that it is oMen impossible to achieve a perfect hedge and some gain or loss on the unhedged element of the underlying or the derivative will be carried. Also, given that exchange traded derivatives are priced in a separate market to the underlying there may be discrepancies in the movements of each and the observed delta may not equal one. This basis risk is minimised by choosing short maturity derivatives but cannot be completely eliminated unless maturity coincides exactly with the end of the exposure. Furthermore less than perfectly hedged positions require disclosure under IFRS 39. Although rapid to establish, currency hedging using the derivatives market may also involve significant cash flows in meeting and maintaining the margin requirements of the exchange. Unlike futures, currency options will entail the payment of a premium which may be an expensive way of eliminating the risk of an adverse currency movement.

With relatively small amounts, the OTC market represents the most convenient means of locking in exchange rates. Where cross border flows are common and business is well diversified across different currency areas then currency hedging is of questionable benefit. Where, as in this case, relatively infrequent flows occur then the simplest solution is to engage in the forward market for hedging risk. The use of a money market hedge as described may generate a more favourable forward rate than direct recourse to the forex market. However the administrative and management costs in setting up the necessary loans and deposits are a significant consideration.

**Q23. What is economic exposure and how it is managed ?**

**Solution.**

**Economic exposure** relates to the change in the value of a company as a result of unexpected changes in exchange rates.

Unless there are known contractual future cash flows it is difficult to hedge economic exposure using options, swaps, or other financial hedges, as the amount of the exposure is unknown.

Economic exposure is normally managed by internationally diversifying activities, and organising activities to allow flexibility to vary the location of production, the supply sources of raw materials and components, and international financing, in response to changes in exchange rates.

**Q24. Explain the role of the International Monetary Fund (IMF) and its significance to the activities of multinational companies.**

**Solution.**

The International Monetary Fund (IMF) was established at the Bretton Wood Conference of 1945. Its initial tasks were to promote world trade and to help support the fixed exchange rate system that existed at that time. Support was mainly in the form of temporary loans to member countries which experienced balance of payments difficulties.

Such loans were financed by member countries' quota subscriptions. Although floating exchange rates and exchange rate agreements between blocs of countries have replaced the fixed exchange rate system, the IMF still provides loans to many of its members, particularly developing countries. Today loans are also granted to help countries repay large commercial debts that they have built up from the international banking system.

An important feature of most IMF loans is the conditions attached to the loans. Countries receiving IMF loans are required to take strong economic measures to try to improve or eliminate the economic problems that made the loans necessary, and to stimulate medium to long-term economic development. These conditions typically include currency devaluation, controls over inflation via the money supply, public expenditure cuts to reduce government budget deficits and local tax increases.

Loans of up to 25% of a member country's quotas are given without condition. A further 25% is available to countries that 'demonstrate reasonable efforts' to overcome balance of payments difficulties. Upper credit tranches of up to a further 75% of quota, normally in the form of standby facilities, are available subject to conditionality agreements. Most loans are for a period of up to five years.

The IMF has undoubtedly been successful in helping to reduce volatility in international exchange rates, and in facilitating world trade. This has beneficial effects on the trading activities of multinational companies. However, the strong influence of the IMF on the macro-economic policies of developing nations oMen leads to short term deflation and reductions in the size of markets for multinational companies' products.

Conflicts may exist between multinationals, who wish to freely move capital internationally, and governments trying to control the money supply and inflation. Tax increases oMen accompany economic austerity measures, import tariff quotas may make operations more difficult and increases in interest rates raise the cost of finance. In the medium to long term it is hoped that the structural adjustments will stimulate economic growth and will increase the size of markets for multinational companies, but IMF economic conditions may cause significant short to medium term difficulties for subsidiaries of multinationals in the countries concerned.

**Q25. Warren Buffe▮, the stock market investor, views derivatives as a 'time bomb', but many corporate treasurers clearly perceive them as very useful tools for reducing risk. Explain and discuss the reasons for such divergent viewpoints.**

**Solution.**

There is no inconsistency between the views of Warren Buffett and the views of many corporate treasurers. Derivatives such as futures contracts, swaps and options enable the holder to manage the risk associated with an underlying position. Thus they can be used to reduce the risk of a position (e.g. if you are due to receive a certain amount of foreign currency on a known date in the future, you can sell it forward and thus fix the amount of the receipt in your own home currency to eliminate the currency risk) or to speculate to increase the risk of a position (e.g. you can buy a financial futures contract for trading purposes, hoping that you can sell it in the future for more than you paid for it). Buffett is concerned about speculators who buy derivatives for trading purposes with no underlying need for them. Corporate treasurers see the value in using derivatives to hedge their risk away, thus reducing their overall risk exposure.

Let us consider Buffett's views in more detail. He has been a long-term investor in the US stock market. As an investor, he would like relevant and reliable financial information on the companies that he is thinking of investing in. In the past, the financial accounting for derivatives has been inadequate throughout the world. Favouring the historical cost convention meant that derivatives were stated at cost in the SOFP, with any profit or loss only being recognised when the derivative was sold. However the initial cost of a derivative is small or even zero, while its market value at a SOFP date might be large. It is in this sense that Buffett is correct in having described derivatives as a 'time-bomb', waiting for their profit or loss to be recognised in the future, at a time to be decided by the company holding the speculative position. However, this problem has now been mitigated somewhat by improved standards on financial accounting for derivatives. International Standard IAS 39 now requires all derivatives to be measured at their fair values in each SOFP. This certainly improves the relevance of the SOFP, but the volatility of derivative values means that the description of a 'time-bomb' is still appropriate. Things can go wrong very quickly with derivatives, so the fact that they were measured at fair value in the previous SOFP is of little comfort to the investor who has seen his company suddenly lose a huge sum of money through losing control (e.g. Procter and Gamble lost $150m in 1994 when speculating on the spread between the German mark and the US dollar).

The opposite view is generally held by corporate treasurers who see derivatives as a means of reducing risk, whether currency risk, interest rate risk or other market risk. Many treasury departments are set up as cost centres and instructed not to engage in speculation. One oMen sees the statement in companies' Annual Reports that the company does not engage in speculation with derivative instruments. The situation is less clear-cut where the treasury is set up as a profit centre which may choose to take speculative positions within established limits. It is oMen in these circumstances that the distinction between hedging and speculation becomes blurred in the department's pursuit of profits, and once again the time-bomb can blow up with devastating consequences.

**Q26. With reference to purchasing power parity, explain how exchange rate fluctuations may lead to economic exposure.**

**Solution.**

Purchasing power parity (PPP) predicts that the exchange rates between two currencies depend on the relative differences in the rates of inflation in each country. Therefore, if one country has a higher rate of inflation compared to another, then its currency is expected to depreciate over time. However, according to PPP the 'law of one price' holds because any weakness in one currency will be compensated by the rate of inflation in the currency's country (or group of countries in the case of the euro).

Economic exposure refers to the degree by which a company's cash flows are affected by fluctuations in exchange rates. It may also affect companies which are not exposed to foreign exchange transactions, due to actions by international competitors.

If PPP holds, then companies may not be affected by exchange rate fluctuations, as lower currency value can be compensated by the ability to raise prices due to higher inflation levels. This depends on markets being efficient.

However, a permanent shiM in exchange rates may occur, not because of relative inflation rate differentials, but because a country (or group of countries) lose their competitive positions. In this case the 'law of one price' will not hold, and prices readjust to a new and long-term or even permanent rate. For example, the UK £ to USA $ rate declined in the 20th century, as the USA grew stronger economically and the UK grew weaker. The rate almost reached parity in 1985 before recovering. Since the financial crisis in 2009, it has fluctuated between roughly $1.5 to £1 and $1.7 to £1.

In such cases, where a company receives substantial amounts of revenue from companies based in countries with relatively weak economies, it may find that it is facing economic exposure and its cash flows decline over a long period of time.

**Q27.** Although not mandatory for external reporting purposes, one of the members of the BoD suggested that adopting a triple bottom line approach when monitoring the X-IT investment aMer its implementation, would provide a better assessment of how successful it has been.

**Discuss how adopting aspects of triple bo▮om line reporting may provide a be▮er assessment of the success of the organisation.**

**Solution.**

A triple bottom line (TBL) report provides a quantitative summary of performance in terms of economic or financial impact, impact on the environment and impact on social performance. TBL provides the measurement tool to assess a corporation's or project's performance against its objectives.

The principle of TBL reporting is that true performance should be measured in terms of a balance between economic (profits), environmental (planet) and social (people) factors; with no one factor growing at the expense of the others. The contention is that a corporation that accommodates the pressures of all the three factors in its strategic investment decisions will enhance shareholder value, as long as the benefits that accrue from producing such a report exceeds the costs of producing it.

**Q28. Takeover regulation generally offers the following conditions aimed at protecting shareholders: the mandatory-bid condition through sell out rights, the principle of equal treatment, and squeeze-out rights.**
**Required: Explain the main purpose of each of the three conditions.**

**Solution.**

Each of the three conditions aims to ensure that shareholders are treated fairly and equitably.

The mandatory-bid condition through sell out rights allows remaining shareholders to exit the company at a fair price once the bidder has accumulated a certain number of shares. The amount of shares accumulated before the rule applies varies between countries. The bidder must offer the shares at the highest share price, as a minimum, which had been paid by the bidder previously. The main purpose for this condition is to ensure that the acquirer does not exploit their position of power at the expense of minority shareholders.

The principle of equal treatment condition stipulates that all shareholder groups must be offered the same terms, and that no shareholder group's terms are more or less favourable than another group's terms. The main purpose of this condition is to ensure that minority shareholders are offered the same level of benefits, as the previous shareholders from whom the controlling stake in the target company was obtained.

The squeeze-out rights condition allows the bidder to force minority shareholders to sell their stake, at a fair price, once the bidder has acquired a specific percentage of the target company's equity. The percentage varies between countries but typically ranges between 80% and 95%. The main purpose of this condition is to enable the acquirer to gain 100% stake of the target company and prevent problems arising from minority shareholders at a later date.

**Q29. Explain the difference between APV and NPV as methods of investment appraisal and comment upon the circumstances under which APV might be a better method of evaluating a capital investment than NPV.**

**Solution.**

Both APV and NPV are discounted cash flow techniques but differ in the way project finance is incorporated into the process. With NPV, finance is usually incorporated into the discount rate which is then applied to project-only (i.e. excluding finance) cash flows. The clearest example of this is when a project (or company) WACC is used to discount project cash flows.

APV involves a two stage process dealing with project and financing flows separately. Project cash flows are discounted at an ungeared cost of equity to calculate a base case NPV. Financing side effects are then discounted at an appropriate rate – usually the pre-tax risk free rate.

APV may be a better technique to use than NPV when:
(i) There is a significant change in capital structure as a result of the investment.
(ii) The investment involves complex tax payments and tax allowances, and/or has periods when taxation is not paid.
(iii) Subsidised loans, grants or issue costs exist.
(iv) Financing side effects exist (e.g. the subsidised loan), which require discounting at a different rate than that applied to the mainstream project.

**Q30. Explain the major differences between Islamic finance and other conventional forms of finance such as those being considered by Strayer. Identify, and briefly discuss, two Islamic financial instruments.**

**Solution.**

Islamic finance rests on the application of Islamic, or Shariah, law.

The main principles of Islamic finance are that:
- Wealth must be generated from legitimate trade and asset-based investment. The use of money for the purposes of making money is forbidden.
- Investment should also have a social and an ethical benefit to wider society beyond pure return.
- Risk should be shared.
- Harmful activities (such as gambling, alcohol and the sale of certain foods) should be avoided.

The raising of term loan debt finance as proposed by organisations (where the lender would make a straight interest charge, irrespective of how the underlying assets fare) would violate the principle of sharing risk and of not using money for the purposes of making money. Under Islamic finance, the charging and receiving of interest (riba) is strictly prohibited. This is in stark contrast to more conventional, Western forms of finance.

One alternative form of finance would be Murabaha, a form of trade credit for asset acquisition. Here the provider of finance would buy the item and then sell it on to Strayer at a price that includes an agreed mark-up for profit. The mark-up is fixed in advance and cannot be increased and the payment is made by instalments.

Another form of finance would be Islamic bonds, known as sukuk. To be Shariah- compliant, the sukuk holders must have a proprietary interest in the assets which are being financed. The sukuk holders' return for providing finance is a share of the income generated by the assets. The key distinction between sukuk and murabaha is that sukuk holders have ownership of the cash flows but not the assets themselves.

**Q31. Explain the objectives of integrated reporting.**

**Solution.**
The objectives of integrated reporting include:

- To improve the quality of information available to providers of financial capital to enable a more efficient and productive allocation of capital.

- To provide a more cohesive and efficient approach to corporate reporting that draws on different reporting strands and communicates the full range of factors that materially affect the ability of an organisation to create value over time.

- To enhance accountability and stewardship for the broad base of capitals (financial, manufactured, intellectual, human, social and relationship, and natural) and promote understanding of their interdependencies.

- To support integrated thinking, decision making and actions that focus on the creation of value over the short, medium and long term.

**Q32. MMC is funded partly by equity and partly by debt. The yield on its five year debt is 5.2% and the yield on its ten year debt is 5.4% i.e. MMC faces an upward sloping yield curve.**
**Required:**
**Explain the possible reasons for an upward sloping yield curve.**

**Solution.**

A yield curve may be upward-sloping because of:

- **Future expectations.** If future short-term interest rates are expected to increase then the yield curve will be upward sloping.

  The greater the expected future rise in interest rates, the steeper the upward- slope of the yield curve will be.

- **Liquidity preference.** It is argued that investors seek extra return for giving up a degree of liquidity with longer-term investments.

  Other things being equal, the longer the maturity of the investment, the higher the required return, leading to an upward-sloping yield curve.

- **Preferred habitat/market segmentation.** Different investors are more active in different segments of the yield curve.

For example banks would tend to focus on the short-term end of the curve, whilst pension funds are likely to be more concerned with medium- and long- term segments.

An upward-sloping curve could in part be the result of a fall in demand in the longer-term segment of the yield curve leading to lower bond prices and higher yields.

**Q33. Elfu Co has estimated an annual standard deviation of $800,000 on one of its other projects, based on a normal distribution of returns. The average annual return on this project is $2,200,000.**
**Required:**
**Estimate the project's Value at Risk (VAR) at a 99% confidence level for one year and over the project's life of five years. Explain what is meant by the answers obtained.**

**Solution.**
99% confidence level requires the value at risk (VAR) to be within 2.33 standard deviations from the mean, based on a single tail measure.

Annual VAR = 2.33 × $800,000 = $1,864,000
Five year VAR = $1,864,000 × 5^(1/2) approx. = $4,168,000

The figures mean that Elfu Co can be 99% confident that the cash flows will not fall by more than $1,864,000 in any one year and $4,168,000 in total over five years from the average returns. Therefore the company can be 99% certain that the returns will be $336,000 or more every year [$2,200,000 – $1,864,000]. And it can be 99% certain that the returns will be $6,832,000 or more in total over the five-year period [$11,000,000 – $4,168,000]. There is a 1% chance that the returns will be less than $336,000 each year or $6,832,000 over the five-year period.

**Q34. Explain the different methods of dealing with a capital rationing problem, in the circumstances where**
**(i) capital is rationed in a single period, and**
**(ii) capital is rationed in several periods.**

**Solution.**

Shareholder wealth is maximised if a company undertakes all possible positive NPV projects.
Capital rationing is where there are insufficient funds to do so.

This shortage of funds may be for a single period only, or for more than one period.
A single period capital rationing problem is solved by ranking competing projects according to profitability index i.e. the NPV of the project divided by the capital investment needed in the restricted period.

The limited amount of capital available is then allocated to the project(s) with the highest profitability index, in order to generate the highest possible NPV per unit of investment.

A solution to a multi period capital rationing problem cannot be found using profitability indices. This method can only deal with one limiting factor (i.e. one period of shortage). Where there are a number of limiting factors (i.e. a number of periods of shortage) a linear programming model has to be formulated. The solution to the linear programming model will give the combination of projects to maximise the NPV generated.

**Q35. Explaining the features of a capital investment monitoring system and discussing the benefits of maintaining such a system.**

**Solution.**

A capital investment monitoring system (CIMS) monitors how an investment project is progressing once it has been implemented. Initially the CIMS will set a plan and budget of how the project is to proceed. It sets milestones for what needs to be achieved and by when. It also considers the possible risks, both internal and external, which may affect the project. CIMS then ensures that the project is progressing according to the plan and budget. It also sets up contingency plans for dealing with the identified risks.

The benefits of CIMS are that it tries to ensure, as much as possible, that the project meets what is expected of it in terms of revenues and expenses. Also that the project is completed on time and risk factors that are identified remain valid. A critical path of linked activities which make up the project will be identified. The departments undertaking the projects will be proactive, rather than reactive, towards the management of risk, and therefore possibly be able to reduce costs by having a better plan. CIMS can also be used as a communication device between managers charged with managing the project and the monitoring team. Finally CIMS would be able to re-assess and change the assumptions made of the project, if changes in the external environment warrant it.

**Q36. Discuss the aims of a free trade area, such as the European Union (EU), and the possible benefits to companies of operating within the EU.**

**Solution.**

A free trade area like the European Union (EU) aims to remove barriers to trade and allow freedom of movement of production resources such as capital and labour. The EU also has an overarching common legal structure across all member countries and tries to limit any discriminatory practice against companies operating in these countries. Furthermore, the EU erects common external barriers to trade against countries which are not member states.

Companies may benefit from operating within the EU in a number of ways as it currently trades within it. It should find that it is able to compete on equal terms with rival companies within the EU. Companies outside the EU may find it difficult to enter the EU markets due to barriers to trade. A common legal structure should ensure that the standards of food quality and packaging apply equally across all the member countries. Due diligence of logistic networks used to transport the food may be easier to undertake because of common compliance requirements. Having access to capital and labour within the EU may make it easier for the company to set up branches inside the EU, if it wants to. The company may also be able to access any grants which are available to companies based within the EU.

**Q37. Among the criteria used by credit agencies for establishing a company's credit rating are the following: industry risk, earnings protection, financial flexibility and evaluation of the company's management. Briefly explain each criterion and suggest factors that could be used to assess it.**

**Solution.**

**Industry risk** measures the resilience of the company's industrial sector to changes in the economy. In order to measure or assess this, the following factors could be used:

- Impact of economic changes on the industry in terms how successfully the firms in the industry operate under differing economic outcomes;
- How cyclical the industry is and how large the peaks and troughs are;
- How the demand shiMs in the industry as the economy changes.

**Earnings protection** measures how well the company will be able to maintain or protect its earnings in changing circumstances. In order to assess this, the following factors could be used:

- Differing range of sources of earnings growth;
- Diversity of customer base;
- Profit margins and return on capital.

**Financial flexibility** measures how easily the company is able to raise the finance it needs to pursue its investment goals. In order to assess this, the following factors could be used:

- Evaluation of plans for financing needs and range of alternatives available;
- Relationships with finance providers, e.g. banks;
- Operating restrictions that currently exist in the form of debt covenants.

**Evaluation of the company's management** considers how well the managers are managing and planning for the future of the company. In order to assess this, the following factors could be used:

- The company's planning and control policies, and its financial strategies;
- Management succession planning;
- The qualifications and experience of the managers;
- Performance in achieving financial and non-financial targets.

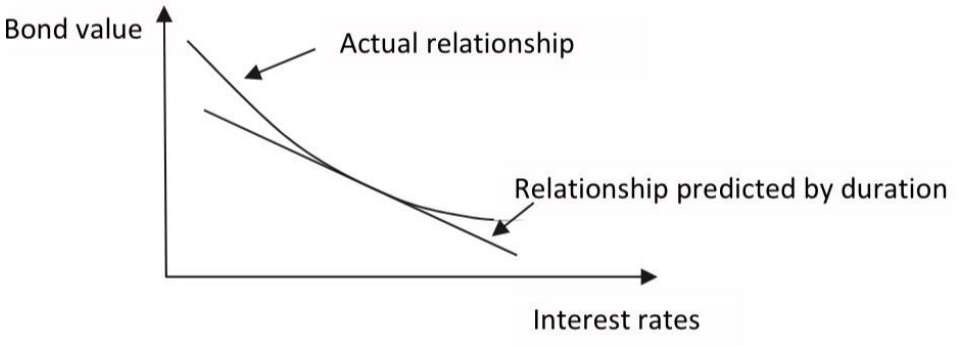
**Q38. Discuss how useful duration is as a measure of the sensitivity of a bond price to changes in interest rates.**

**Solution.**

The sensitivity of bond prices to changes in interest rates is dependent on their redemption dates. Bonds which are due to be redeemed at a later date are more price-sensitive to interest rate changes, and therefore are riskier.

Duration measures the average time it takes for a bond to pay its coupons and principal and therefore measures the redemption period of a bond. It recognises that bonds which pay higher coupons effectively mature 'sooner' compared to bonds which pay lower coupons, even if the redemption dates of the bonds are the same. This is because a higher proportion of the higher coupon bonds' income is received sooner. Therefore these bonds are less sensitive to interest rate changes and will have a lower duration.

Duration can be used to assess the change in the value of a bond when interest rates change using the following formula: $\Delta P=[-D\times\Delta i\times P][1+i]$, where P is the price of the bond, D is the duration and i is the redemption yield.




However, duration is only useful in assessing small changes in interest rates because of convexity. As interest rates increase, the price of a bond decreases and vice versa, but this decrease is not proportional for coupon paying bonds, the relationship is non-linear. In fact, the relationship between the changes in bond value to changes in interest rates is in the shape of a convex curve to origin, see below.

Duration, on the other hand, assumes that the relationship between changes in interest rates and the resultant bond is linear. Therefore duration will predict a lower price than the actual price and for large changes in interest rates this difference can be significant.

Duration can only be applied to measure the approximate change in a bond price due to interest changes, only if changes in interest rates do not lead to a change in the shape of the yield curve. This is because it is an average measure based on the gross redemption yield (yield to maturity). However, if the shape of the yield curve changes, duration can no longer be used to assess the change in bond value due to interest rate changes.

**Q39. Money laundering is a process in which assets obtained or generated by criminal activity are moved or concealed to obscure their link with the crime.**
**Required:**
**Explain what steps have been taken by global governments and other bodies to prevent international money laundering and terrorist financing.**

**Solution.**

The free movement of goods, services and capital across national barriers has long been considered a key factor in establishing stable and independent world economies. However, removing barriers to the free movement of capital also increases the opportunities for international money laundering and terrorist financing.

Bodies such as the international monetary fund (IMF) work in conjunction with national governments to establish a multilateral framework for trade and finance, but they are also aware of the possible opportunities this creates for criminals.

International efforts to combat money laundering and terrorist financing have resulted in:

- the establishment of an international task force on money laundering
- the issue of specific recommendations to be adopted by nation states
- the enactment of legislation by many countries on matters covering:
  - the criminal justice system and law enforcement
  - the financial system and its regulation
  - international cooperation.

**Q40. Discuss the benefits to company's shareholders of receiving repayments through a share buyback scheme as opposed to the other dividend schemes.**

**Solution.**

The main benefit of a share buyback scheme to investors is that it helps to control transaction costs and manage tax liabilities. With the share buyback scheme, the shareholders can choose whether or not to sell their shares back to the company. In this way they can manage the amount of cash they receive. On the other hand, with dividend payments, and especially large special dividends, this choice is lost, and may result in a high tax bill. If the shareholder chooses to re-invest the funds, it will result in transaction costs. An added benefit is that, as the share capital is reduced, the earnings per share and the share price may increase. Finally, share buybacks are normally viewed as positive signals by markets and may result in an even higher share price.

**Q41. Explain what is a dark pool network.**

**Solution.**
A dark pool network allows shares to be traded anonymously, away from public scrutiny. No information on the trade order is revealed prior to it taking place. The price and size of the order are only revealed once the trade has taken place. Two main reasons are given for dark pool networks: first they prevent the risk of other traders moving the share price up or down; and second they oMen result in reduced costs because trades normally take place at the mid-price between the bid and offer; and because broker-dealers try and use their own private pools, and thereby saving exchange fees.

Although the criticism against dark pool systems is that they prevent market efficiency by not revealing bid-offer prices before the trade, proponents argue that in fact market efficiency is maintained because a large sale of shares will not move the price down artificially and temporarily.

**Q42. Explain the insights which behavioural finance provides about investor behaviour.**

**Solution.**
Sewell defines behavioural finance as the influence of psychology on the behaviour of financial practitioners and the subsequent effect on markets. Behavioural finance suggests that individual decision-making is complex and will deviate from rational decision-making. Under rational decision-making, individual preferences will be clear and remain stable. Individuals will make choices with the aim of maximising utility, and adopt a rational approach for assessing outcomes.

Under behavioural finance, individuals may be more optimistic or conservative than appears to be warranted by rational analysis. They will try to simplify complex decisions and may make different decisions based on the same facts at different times.

**Q43. Briefly discuss the main advantage and disadvantage of hedging interest rate risk using an interest rate collar instead of options.**

**Solution.**
The main advantage of using a collar instead of options to hedge interest rate risk is lower cost. A collar involves the simultaneous purchase and sale of both call and put options at different exercise prices. The option purchased has a higher premium when compared to the premium of the option sold, but the lower premium income will reduce the higher premium payable. With a normal uncovered option, the full premium is payable.

However, the main disadvantage is that, whereas with a hedge using options the buyer can get full benefit of any upside movement in the price of the underlying asset, with a collar hedge the benefit of the upside movement is limited or capped as well.

**Q44. Explain what is meant by basis risk.**

**Solution.**
Basis risk occurs when the basis does not diminish at a constant rate. In this case, if a futures contract is held until it matures then there is no basis risk because at maturity the derivative price will equal the underlying asset's price. However, if a contract is closed out before maturity (here the June futures contracts will be closed two months prior to expiry) there is no guarantee that the price of the futures contract will equal the predicted price based on basis at that date.

**Q45. When examining different currency options and their risk factors, it was noticed that a long call option had a high gamma value. Explain the possible characteristics of a long call option with a high gamma value.**

**Solution.**

Gamma measures the rate of change of the delta of an option. Deltas range from near 0 for a long call option which is deep out-of-money, where the price of the option is insensitive to changes in the price of an underlying asset, to near 1 for a long call option which is deep in-the-money, where the price of the option moves in line and largely to the same extent as the price of the underlying asset. When the long call option is at-the-money, the delta is 0.5 but also changes rapidly. Hence, the gamma is highest for a long call option which is at-the-money. The gamma is also higher when the option is closer to expiry. It would seem, therefore, that the option is probably trading near at-the-money and has a relatively short time period before it expires.

**Q46. A member of Awan Co's treasury team has suggested that if option contracts are purchased to hedge against the interest rate movements, then the number of contracts purchased should be determined by a hedge ratio based on the delta value of the option.**

**Required:**
**Discuss how the delta value of an option could be used in determining the number of contracts purchased**

**Solution.**

The delta value measures the extent to which the value of a derivative instrument, such as an option, changes as the value of its underlying asset changes. For example, a delta of 0.8 would mean that a company would need to purchase 1.25 option contracts (1/0.8) to hedge against a rise in price of an underlying asset of that contract size, known as the hedge ratio. This is because the delta indicates that when the underlying asset increases in value by $1, the value of the equivalent option contract will increase by only $0.80.

**Q47. Discuss the key differences between a Salam contract, under Islamic finance principles, and futures contracts.**

**Solution.**

Islamic principles stipulate the need to avoid uncertainty and speculation. In the case of Salam contracts, payment for the commodity is made at the start of the contract. The buyer and seller of the commodity know the price, the quality and the quantity of the commodity and the date of future delivery with certainty. Therefore, uncertainty and speculation are avoided.

On the other hand, futures contracts are marked-to-market daily and this could lead to uncertainty in the amounts received and paid every day. Furthermore, standardised futures contracts have fixed expiry dates and pre-determined contract sizes. This may mean that the underlying position is not hedged or covered completely, leading to limited speculative positions even where the futures contracts are used entirely for hedging purposes. Finally, only a few commodity futures contracts are offered to cover a range of different quality grades for a commodity, and therefore price movement of the futures market may not be completely in line with the price movement in the underlying asset.

**Q48. Discuss the advantages of operating treasury activities through regional treasury functions compared with:**

- **Each country having a separate treasury function.**
- **Operating activities through a single global treasury function.**

**Solution.**

**Regional functions compared with national functions**

Organising treasury activities on a regional basis would be consistent with what is happening in the group overall. Other functions will be organised regionally. A regional treasury function may be able to achieve synergies with them and also benefit from information flows being organised based on the regional structure.

If, as part of a reorganisation, some treasury activities were to be devolved outside to a bank or other third party, it would be simpler to arrange for a single provider on a regional basis than arrange for separate providers in each country.

A regional function will avoid duplication of responsibilities over all the countries within a region. A regional function will have more work to do, with maybe a greater range of activities, whereas staff based nationally may be more likely to be under-employed. There may be enough complex work on a regional basis to justify employing specialists in particular treasury areas which will enhance the performance of the function. It may be easier to recruit these specialists if recruitment is done regionally rather than in each country.

Regional centres can carry out some activities on a regional basis which will simplify how funds are managed and mean less cost than managing funds on a national basis. These include pooling cash, borrowing and investing in bulk, and netting of foreign currency income and expenditure.

Regional centres could in theory be located anywhere in the region, rather than having one treasury function based in each country. This means that they could be located in the most important financial centres in each region or in countries which offered significant tax advantages.

**Regional functions compared with global function**

A regional function could employ experts with knowledge of the regulations, practices and culture of the major countries within the region. It may be more difficult for a global function to recruit staff with local expertise.

There may be practical issues why individual countries prefer to deal with regional functions rather than a global function, for example, a regional function will be based in the same, or similar, time zone as the countries in its region.

A regional function may have better ideas of local finance and investment opportunities. There may, for example, be better alternatives for investment of the surplus funds than the centralised function has been able to identify.

**Q49. Discuss how the mandatory bid rule and the principle of equal treatment protects shareholders in the event of their company facing a takeover bid, and discuss the effectiveness of poison pills and disposal of crown jewels as defensive tactics against hostile takeover bids.**

**Solution.**

Both the mandatory bid rule and the principle of equal treatment are designed to protect minority shareholders, where an acquirer has obtained a controlling interest of the target company. The mandatory bid rule provides minority shareholders with the opportunity to sell their shares and exit the target company at a specified fair share price. This price should not be lower than the highest price paid for shares, which have already been acquired within a specified period. The principle of equal treatment requires the acquiring company to offer the same terms to minority shareholders as were offered to the earlier shareholders from whom the controlling interest was acquired. Both these regulatory devices are designed to ensure that the minority shareholders are protected financially and are not exploited by the acquirer.

The purpose of both poison pills and disposal of crown jewels is to make the target company unattractive to the acquirer. Poison pills give existing shareholders in the target company the right to buy additional shares in their company at a discount once the acquiring company has bought a certain number of shares in the target company. The aim is to make the target company more expensive to purchase, as the acquirer needs to buy more shares. Disposal of crown jewels involves selling the target company's most valuable assets, and therefore making the target company less attractive to the acquirer.

The effectiveness of either defence tactic can be limited, as the company's management would need its shareholders to authorise such moves (although there are ways in which poison pills can be incorporated without gaining prior authorisation from shareholders). Shareholders may not be willing to do this as they normally get premiums on their shares during takeover battles. Additionally, disposing of key strategic assets could substantially weaken a company's competitive advantage and therefore its future potential. Such action may be detrimental to the company and therefore shareholders would probably not approve that course of action.

**Q50. Discuss how using real options methodology in conjunction with net present value could help establish a more accurate estimate of the potential value of companies.**

**Solution.**

Traditional investment appraisal methods such as net present value assume that an investment needs to be taken on a now or never basis, and once undertaken, it cannot be reversed. Real options take into account the fact that in reality, most investments have within them certain amounts of flexibility, such as whether or not to undertake the investment immediately or to delay the decision; to pursue follow- on opportunities; and to cancel an investment opportunity aMer it has been undertaken. Where there is increasing uncertainty and risk, and where a decision can be changed or delayed, this flexibility has value, known as the time value of an option.

Net present value captures just the intrinsic value of an investment opportunity, whereas real options capture both the intrinsic value and the time value, to give an overall value for an opportunity. When a company still has time available to it before a decision needs to be made, it may have opportunities to increase the intrinsic value of the investment through the strategic decisions it makes.

Investing in new companies with numerous potential innovative product pipelines may provide opportunities for flexibility where decisions can be delayed and the intrinsic value can be increased through strategic decisions and actions taken by the company. Real options try to capture the value of this flexibility within companies with innovative product pipelines, whereas net present value does not.

**Q51. Explain what porMolio restructuring and organisational restructuring involve.**

**Solution.**

Portfolio restructuring involves the acquisition of companies, or disposals of assets, business units and/ or subsidiary companies through divestments, demergers, spin- offs, MBOs and MBIs. Organisational restructuring involves changing the way a company is organised. This may involve changing the structure of divisions in a business, business processes and other changes such as corporate governance.

The aim of either type of restructuring is to increase the performance and value of the business.

Shareholders are interested in maximising returns from their investments, which companies achieve through maximising business value, whilst minimising the risks inherent in their investment activity. Shareholders who are closely linked to a particular business do not hold diversified investment portfolios, and therefore benefit from diversification of risk undertaken by a company, investing in many different areas. On the other hand, institutional shareholders and other shareholders, who hold diversified portfolios, would not benefit from a company undertaking risk management through diversification by becoming a conglomerate.

**Q52. Explain what a reverse takeover involves and discuss the relative advantages and disadvantages to a company, of obtaining a listing through a reverse takeover as opposed to an initial public offering (IPO).**

**Solution.**

A reverse takeover enables a private, unlisted company, to gain a listing on the stock exchange without needing to go through the process of an initial public offering (IPO). The private company merges with a listed 'shell' company. The private company initially purchases equity shares in the listed company and takes control of its board of directors. The listed company then issues new equity shares and these are exchanged for equity shares in the unlisted company, thereby the original private company's equity shares gain a listing on the stock exchange. OMen the name of the listed company is also changed to that of the original unlisted company.

**Advantages relative to an IPO**

1. An IPO can take a long time, typically between one and two years, because it involves preparing a prospectus and creating an interest among potential investors. The equity shares need to be valued and the issue process needs to be administered. Since with the reverse takeover shares in the private company are exchanged for shares in the listed company and no new capital is being raised, the process can be completed much quicker.
2. An IPO is an expensive process and can cost between 3% and 5% of the capital being raised due to involvement of various parties, such as investment banks, law firms, etc, and the need to make the IPO attractive through issuing a prospectus and marketing the issue. A reverse takeover does not require such costs to be incurred and therefore is considerably cheaper.
3. In periods of economic downturn, recessions and periods of uncertainty, an IPO may not be successful. A lot of senior managerial time and effort will be spent, as well as expenditure, with nothing to show for it. On the other hand, a reverse takeover would not face this problem as it does not need external investors and it is not raising external finance, but is being used to gain from the potential benefits of going public by getting a listing.

**Disadvantages relative to an IPO**

1. The 'shell' listed company being used in the reverse takeover may have hidden liabilities and may be facing potential litigation, which may not be obvious at the outset. Proper and full due diligence is necessary before the process is started. A company undertaking an IPO would not face such difficulties.
2. The original shareholders of the listed company may want to sell their shares immediately aMer the reverse takeover process has taken place and this may affect the share price negatively. A lock-up period during which shares cannot be sold may be necessary to prevent this. [NB: An IPO may need a lock-up period as well, but this is not usually the case.]
3. The senior management of an unlisted company may not have the expertise and/or understanding of the rules and regulations which a listed company needs to comply with. The IPO process normally takes longer and is more involved, when compared to a reverse takeover. It also involves a greater involvement from external experts. These factors will provide the senior management involved in an IPO, with opportunities to develop the necessary expertise and knowledge of listing rules and regulations, which the reverse takeover process may not provide.
4. One of the main reasons for gaining a listing is to gain access to new investor capital. However, a smaller, private company which has become public through a reverse takeover may not obtain a sufficient analyst coverage and investor following, and it may have difficulty in raising new finance in future. A well-advertised IPO will probably not face these issues and find raising new funding to be easier.

**Q53. Explain the potential advantages of undertaking the divestment by means of**
**(i) a sell-off and**
**(ii) a demerger**

**Solution.**

There are several advantages that are common to both a sell-off and a demerger. Both offer a way to restructure a company. Restructuring may be to dismantle a conglomerate enterprise in order to focus upon a core competence, to react to a change in the strategic focus of the company, or to sell off unwanted assets.

Both forms of restructuring may result in 'reverse synergy', where the separated elements of the business are worth more than the value of the old combined business.

The main difference between a sell-off and a demerger is that the sell-off involves the sale of part of the company to a third party, for cash or some other consideration. Thus control of these assets is lost. However, funds are raised which can be used to develop other parts of the business, or to make acquisitions.

A demerger need not involve a change in ownership. One or more new companies are created and the assets of the old company are transferred to these new companies.

**Q54. Discuss the advantages and disadvantages of organic growth and growth by acquisition.**

**Solution.**

**Organic growth** permits an organisation to carefully plan its strategic growth in line with specified objectives. However, when entering new markets there may be a substantial cost involved with researching markets and/or buying-in expertise.

Lead-times in establishing production facilities are relatively long in comparison with growth by acquisition, which may be a significant factor when trying to establish or to consolidate market share.

**Growth by acquisition** is oMen not as carefully planned, and may be a rapid reaction to a perceived market opportunity.

It permits quick access to new markets or new technology, or the elimination of a competitor.

Information about the financial and other attributes of a potential acquisition target is inevitably less complete than a company's own internal management information.

This makes the valuation of a potential acquisition target difficult, and projections of future cash flows less precise.

The potential for significant savings is oMen not fully known until aMer the acquisition, when attempts are made to rationalise and integrate the operations of the two companies.
Growth by acquisition may be the only way to achieve very rapid growth.

**Q55. Discuss the advantages and disadvantages of borrowing funds from the domestic banking system compared to the Euromarkets.**

**Solution.**

The Euromarkets can be used for very large borrowings, but if a company wants to borrow a large amount of money from domestic banks it might find that some banks are unwilling or unable to offer such large loans. Syndication might have to be used to spread the risk between several banks.

Domestic banking systems are normally subject to more regulation and reserve requirements than the Euromarkets, leading to wider spreads between borrowing and lending rates.

The cost of borrowing on domestic markets is oMen slightly more expensive than the Euromarkets, and may involve fixed or floating charges on corporate assets as security for loans.

Few Euromarket loans require security. Domestic market loans may be either fixed or floating rate, but bank loans are more likely to be at a floating rate.

An argument in favour of using the domestic banking system is that banks are specialists in analysing and monitoring debts. If large loans are agreed by banks this is a sign of good credit standing, and may facilitate access to cheaper funds on other capital markets.

**Q56. Explain briefly, in general terms, why many acquisitions in the real world are not successful.**

**Solution.**

Common reason why acquisitions are unsuccessful

- **Lack of industrial or commercial fit:** Failure can result from a takeover where the acquired entity turns out not to have the product range or industrial position that the acquirer anticipated.

- **Lack of goal congruence:** This may apply not only to the acquired entity but, more dangerously, to the acquirer, whereby disputes over the treatment of the acquired entity might well take away the benefits of an otherwise excellent acquisition.

- '**Cheap' purchases:** The 'turn around' costs of an acquisition purchased at what seems to be a bargain price may well turn out to be a high multiple of that price.

- **Paying too much:** The fact that a high premium is paid for an acquisition does not necessarily mean that it will fail. Failure would result only if the price paid is beyond that which the acquirer considers acceptable to increase satisfactorily the long term wealth of its shareholders.

- **Failure to integrate effectively:** An acquirer needs to have a workable and clear plan of the extent to which the acquired company is to be integrated. The plan must address such problems as differences in management styles, incompatibilities in data information systems, and continued opposition to the acquisition by some of the acquired entity's staff.

## Q57. Explain why synergy might exist when one another company.

**Solution.**

Synergy might exist for several reasons, including:

**Economic efficiency gains**

Gains might relate to economies of scale or scope.

Economies of scale occur through such factors as fixed operating costs being spread over a larger production volume, equipment being used more efficiently with higher volumes of production, or bulk purchasing reducing costs.

Economies of scope may arise from reduced advertising and distribution costs when companies have complementary resources. Economies of scale and scope relate mainly to horizontal acquisitions and mergers. Economic efficiency gains may also occur with backward or forward vertical integration which might reduce production costs as the 'middle man' is eliminated, improve control of essential raw materials or other resources that are needed for production, or avoid disputes with what were previously suppliers or customers.

Economic efficiency gains might also result from replacing inefficient management as the result of a merger/takeover.

**Financial synergy**

Financial synergy might involve a reduction in the cost of capital and risk.

The variability (standard deviation) of returns of a combined entity is usually less than the weighted average of the risk of the individual companies. This is a reduction in total risk, but does not affect systematic risk, and hence might not be regarded as a form of synergy by shareholders. However, reduced variability of returns might improve a company's credit rating making it easier and/or cheaper to obtain a loan.

Another possible financial synergy exists when one company in an acquisition or merger is able to use tax shields, or accumulated tax losses, which would otherwise have been unavailable to the other company.

**Market power**

A large organisation, particularly one which has acquired competitors, might have sufficient market power to increase its profits through price leadership or other monopolistic or oligopolistic means.

**Q58. Explain the circumstances in which the Black-Scholes option pricing (BSOP) model could be used to assess the value of a company, including the data required for the variables used in the model.**

**Solution.**

Using the BSOP model in company valuation rests upon the idea that equity is a call option, written by the lenders, on the underlying assets of the business. If the value of the company declines substantially then the shareholders can simply walk away, losing the maximum of their investment. On the other hand, the upside potential is unlimited once the interest on debt has been paid.

The BSOP model can be helpful in circumstances where the conventional methods of valuation do not reflect the risks fully or where they cannot be used. For example if we are trying to value an unlisted company with unpredictable future growth.

There are **five variables** which are input into the BSOP model to determine the value of the option.

Proxies need to be established for each variable when using the BSOP model to value a company. The five variables are: **the value of the underlying asset, the exercise price, the time to expiry, the volatility of the underlying asset value and the risk free rate of return.**

For the **exercise price**, the debt of the company is taken. In its simplest form, the assumption is that the borrowing is in the form of zero coupon debt, i.e., a discount bond. In practice such debt is not used as a primary source of company finance and so we calculate the value of an equivalent bond with the same yield and term to maturity as the company's existing debt. The exercise price in valuing the business as a call option is the value of the outstanding debt calculated as the present value of a zero coupon bond offering the same yield as the current debt.

The proxy for the **value of the underlying asset** is the fair value of the company's assets less current liabilities on the basis that if the company is broken up and sold, then that is what the assets would be worth to the long-term debt holders and the equity holders.

The **time to expiry** is the period of time before the debt is due for redemption. The owners of the company have that time before the option needs to be exercised, that is when the debt holders need to be repaid.

The proxy for the **volatility** of the underlying asset is the volatility of the business' assets.

The **risk-free rate** is usually the rate on a risk less investment such as a short-term government bond.

## Q59. Discuss whether or not an increase in dividends is likely to benefit the shareholders of a publicly quoted company.

**Solution.**

Differing views exist about the effect of dividends on a company's share price. Several authors, including Modigliani and Miller (M&M) have argued that dividend policy is irrelevant to the value of a company. Such arguments are formulated under very restrictive assumptions. If such conditions existed then shareholders would not value an increase in dividend payments. However, there are several real world factors that are likely to influence the preference of shareholders towards dividends or retentions (and hence expected capital gains). These include:

1. Taxation. In some countries dividends and capital gains are subject to different marginal rates of taxation, usually with capital gains being subject to a lower level of taxation than dividends.

2. Brokerage fees. If shareholders have a preference for some current income and are paid no or low dividends their wealth will be reduced if they have to sell some of their shares and incur brokerage fees in order to create current income. Shareholders, especially institutional shareholders, oMen rely on dividends to meet their cash flow needs.

3. The corporate tax treatment of dividends may favour a higher level of retention.

4. If the company needs to finance new investment it is usually cheaper to use retained earnings. This is because most forms of external finance involve issue costs, which, in the case of equity finance can be three percent or more or the funds raised.

5. Information asymmetry may exist between shareholders and directors. If the market is not strong form efficient shareholders may have less complete knowledge of the likely future prospects of the company than directors, which may influence the shareholders' desire for dividends or capital gains

The implications of an increase in dividends need to be considered by the company. Dividends are oMen regarded as an unbiased signal of a company's future prospects, an increase in dividends signalling higher expected earnings. A company should be careful to inform its shareholders of the reason for any increase in dividends.

A further factor is the use that the company can make of funds. If the company has a number of possible positive NPV investments then shareholders will normally favour undertaking these investments (at least on financial grounds), as they will lead to an increase in shareholder wealth. As previously mentioned internal finance is cheaper than external finance and, ceteris paribus, would lead to a preference for retentions. If, however, the company has relatively few projects and can only invest surplus cash in money market or other financial investments at an expected zero NPV, relative high dividends or share repurchase might be preferred.

**Q60. Explain the key factors, identified by researchers in the field of behavioural finance, that contribute to irrational and potentially detrimental financial decision making.**

**Solution.**

Pioneers in the field of behavioural finance have identified the following factors as some of the key factors that contribute to irrational and potentially detrimental financial decision making.

**Anchoring**

Investors have a tendency to attach or 'anchor' their thoughts to a reference point even though it may have no logical relevance to the decision at hand e.g. investors are oMen attracted to buy shares whose price has fallen considerably because they compare the current price to the previous high (but now irrelevant) price.

**Gambler's fallacy**

Investors have a tendency to believe that the probability of a future outcome changes because of the occurrence of various past outcomes e.g. if the value of a share has risen for seven consecutive days, some investors might sell the shares, believing that the share price is more likely to fall on the next day. This is not necessarily the case.

**Herd behaviour**

This is the tendency for individuals to mimic the actions (rational or irrational) of a larger group. There are a couple of reasons why herd behaviour happens. The first is the social pressure of conformity most people are very sociable and have a natural desire to be accepted by a group. The second is the common rationale that it's unlikely that such a large group could be wrong. This is especially prevalent in situations in which an individual has very little experience.

**Overreaction and availability bias**

According to the EMH, new information should more or less be reflected instantly in a security's price. For example, good news should raise a business' share price accordingly. Reality, however, tends to contradict this theory. OMen, participants in the stock market predictably overreact to new information, creating a larger than appropriate effect on a security's price.

**Q61. Explain how business risk and financial risk are related; and how risk mitigation and risk diversification can form part of a company's risk management strategy.**

**Solution.**

The owners or shareholders of a business will accept that it needs to engage in some risky activities in order to generate returns in excess of the risk free rate of return. A business will be exposed to differing amounts of business and financial risk depending on the decisions it makes.

**Business risk** depends on the decisions a business makes with respect to the services and products it offers and consists of the variability in its profits. For example, it could be related to the demand for its products, the rate of innovation, actions of competitors, etc.

**Financial risk** relates to the volatility of earnings due to the financial structure of the business and could be related to its gearing, the exchange rate risk it is exposed to, its credit risk, its liquidity risk, etc.

A business exposed to high levels of business risk may not be able to take excessive financial risk, and vice versa, as the shareholders or owners may not want to bear risk beyond an acceptable level.

Risk management involves the process of risk identification, of assessing and measuring the risk through the process of predicting, analysing and quantifying it, and then making decisions on which risks to assume, which to avoid, which to retain and which to transfer.

As stated above, a business will not aim to avoid all risks, as it will want to generate excess returns.

Dependent on factors such as controllability, frequency and severity of the risk, it may decide to eliminate or reduce some risks from the business through risk transfer.

Risk mitigation is the process of transferring risks out of a business through, for example, hedging or insurance, or avoiding certain risks altogether.

Risk diversification is a process of risk reduction through spreading business activity into different products and services, different geographical areas and/or different industries to minimise being excessively exposed by focusing exclusively on one product/service.

**Q62. List are the assumptions of Black & Scholes Model.**

**Solution.**

1. The option is a 'European' style option.
2. The share price follows a log-normal distribution and is continuously traded.
3. Unrestricted short selling of the underlying security is permitted.
4. There are no market frictions such as taxes or transaction costs.
5. No dividends are paid during the life of the option.

**Q63. Explain (in general terms and without presenting any calculations) how the Black Scholes option pricing model can be used to value the equity and the debt of a company.**

**Solution.**

**Use of the Black Scholes model in equity valuation**

The basic idea is that, because of limited liability, shareholders can walk away from a company when the debt exceeds the asset value. However, when the assets exceed the debts, those shareholders will keep running the business, in order to collect the surplus.

Therefore, the value of shares can be seen as a call option owned by shareholders – we can use the Black Scholes model to value such an option.

Of course it is therefore critical that we can correctly identify the five variables to input into the Black Scholes model.

For equity valuation, these are as follows:

t = time until debt is redeemed
r = risk free interest rate
s = standard deviation of the assets' value
Pa = fair value of the firm's assets
Pe = amount owed to bank.

Note that the value of Pe will not just be the redemption value of the debt. The amount owed to the bank incorporates all the interest payments as well as the ultimate capital repayment. In fact, the value of Pe to input into the Black Scholes model should be calculated as the theoretical redemption value of an equivalent zero coupon debt.

**Use of the Black Scholes model in debt valuation**

The Black Scholes model can also be used in debt valuation. The value of a (risky) bond issued by a company can be calculated as the value of an equivalent risk free bond minus the value of a put option over the company's assets.

Therefore, if the value of equity has already been calculated as a call option over the company's assets (as explained above), the value of debt can then be calculated using the put call parity equation.

**Q64. Briefly discuss the possible benefits to Parent Co of disposing Subsidiary Co through a management buy-out.**

**Solution.**

Management buy-out costs may be less for Parent Co compared with other forms of disposal such as selling the assets of the company or selling the company to a third party.

It may be the quickest method in raising funds for Parent Co compared to the other methods.

There would be less resistance from the managers and employees, making the process smoother and easier to accomplish.

Parent Co may retain a better relationship and beneficial links with Subsidiary Co and may be able to purchase or sell goods and services to it, as seems to have happened with the management service.

It may be able to get a better price for the company. The current management and employees possibly have the best knowledge of the company and are able to make it successful. Therefore they may be willing to pay more for it.

It may increase Parent Co's reputation among its internal stakeholders such as the management and employees. It may also increase its reputation with external stakeholders and the markets if it manages the disposal successfully and efficiently.