

## MARCH 2009 SOLUTIONS

### PAPER 3.1 - Securities Analysis and Portfolio Management

#### SECTION A

1.

- (i) D
- (ii) B
- (iii) C
- (iv) D
- (v) C
- (vi) - (Missing Question)
- (vii) D
- (viii) D
- (ix) C
- (x) D
- (xi) C
- (xii) A
- (xiii) B
- (xiv) D
- (xv) B
- (xvi) A
- (xvii) B
- (xviii) B
- (xix) A
- (xx) C

## SECTION B

2.  
(a)

Security	Possible Return R <sub>y</sub> %	Probability	PR <sub>y</sub> %
Y1	35	0.2	7
Y2	20	0.4	8
Y3	25	0.4	10
			25

Security	Possible Return %	Probability	PR <sub>z</sub> PR%
Z1	50	0.2	10
Z2	20	0.3	6
Z3	30	0.5	15
			31

$$\begin{aligned}
 R_p &= W_y \bar{R}_y + N_z \bar{R}_z \\
 &= 0.6(25) + 0.4(31) \\
 &= 15 + 12.4 \\
 &= 27.4\%
 \end{aligned}$$

(b) Portfolio diversification is the process of redeeming risk by increasing the number of separate investments in a portfolio.

For example, spreading investment and contingent risks among different companies in different fields of endeavour or Investing in the securities of one company that owns or has holdings in the other companies or Investing in a fund with portfolio containing many securities

Objectives of diversification are:

- (i) To minimize risks and maximize returns
- (ii) By spreading and committing one's funds in given several investments in such a way that if a given line is bad, there are some other lines of business to fall back on.

(c) Where all shareholders/Investors prefer a particular security to another security based on the same criterion/criteria, the preferred security is said to have a stochastic dominance over the less preferred security.

- (d)(i) Higher Tax Payer – Tax free investment
  - Investment whose return is rolled, so not taxable until later. One example required
  
- (ii) Non-Tax Payer - Investments whose return is paid gross
  - Investments where the tax element deducted can be reclaimed. One example required.
  
- (iii) Retired Coupled - Regular income will probably be more important than capital growth, or
  - Investments that will keep its value ahead of inflation and be relatively risk free. One example required.
  
- (iv) Young Person - High capital appreciation which will not be eroded by Inflation.

3. (a)(i)

Portfolio relative to:	Published Indices Portfolio	Other Portfolios	Benchmark
<b>Pros</b>	Easy to do Data readily available, and accurate	Gives an indication of the cost or benefit of a strategy, relative to those adopted by other funds	Benchmark portfolio can be constructed to reflect fund objectives  Can be helpful in aligning fund managers interests with liability requirements
<b>Cons</b>	Index may be inappropriate for investors' objectives	Comparison may be inappropriate if other funds have very different objectives	

**General cons** All methods look at past performance only, so are not a reliable guide to the future.

Assessments do not take account of risks taken by managers

(a)(ii)	2007	2008	Total	Actual-Expected
Actual	7.50%	9.50%	17.71%	
Index	7.50%	8.00%	16.10%	1.61%
Average	7.00%	8.00%	15.56%	2.15%
Benchmark	8.00%	6.40%	14.91%	2.80%

(b)(i) The gearing of investment trusts should enable them to outperform unit trusts in bull markets.

Investment trust schemes may be bought at a discount to net asset value and if the discount narrows this should be a source of outperformance relative to unit trusts.

Investment trust management charges are usually lower than unit trust. Investment trusts can invest in a wider range of assets than unit trusts. Investment trusts may have a better tax position than unit trusts.

(ii) The discount to net asset value per share is defined as:

$$\frac{\text{net asset value} - \text{market price}}{\text{net asset value}}$$

expressed as a %

(iii) This may become a premium because:

- (a) The value of assets may be historic and due for re-rating
- (b) Investors in the trust may be barred from direct entry to the markets in which the trust is invested and they may be prepared to pay a premium in order to gain the exposure they desire
- (c) Investors in the trust may anticipate the trust management adding value on top of the current market prices of the trusts investments
- (d) Pay a premium for geared exposure to a rising market.

4. (i) Sources of information are:

- a) Company accounts
- b) Company trading statement
- c) Visits to company
- d) Management meetings
- e) Financial press
- f) Trade papers
- g) Competitor intelligence
- h) Stock broker papers
- i) Stock exchange information
- j) Government sources of statutory information

(ii) Your role will involve stock analysis within your sector. Additionally, you will be involved in assessing the prospects for your sector within the overall economy.

You will attempt to establish whether a stock is, according to your analysis, under or over valued by the market.

Part of the assessment will involve construction of a model to help estimate future cashflows in earnings. Your success will depend upon the quality of your model and the quality of the data that goes into the model.

The modelling process will deliver data on a variety of financial features of the company and its market place. This will help identify the key drivers to profitability.

Further analysis can then be targeted at the most important areas.

Cashflow analysis can be used with economic projections to assess the robustness of the profit stream.

The output will be an indication of the fundamental value of a share given your assumptions and input data.

(iii) Potential for Differences

Model — No model can expect to be perfect. A subtle but important feature might be missing or not working properly.

Input Data — The model can be only as good as the information on which it is based. Again, something might be missing or incorrect.

Assumptions — Even the perfect model would give a share value different to that of the market if assumptions about future inflation, required rate of return or perceived level of risk are different to market expectation.

The risk for your company of continuing to increase exposure to the underperforming stock is essentially the risk of you being wrong and the issues associated with the underperformance that would arise.

(iv) Ask another analyst in the firm to review the stock and make a recommendation.

Cut your losses, sell the position and put it down to experience.

Seek a meeting with the company's management to discuss the share price weakness and what plans they may have to address it.

Examine if any derivative options are available to add value.

5. (a) Section 2 of Pension Reform Act 2004 states that the objective of the scheme shall be to:

- (i) Ensure that every person who worked in the Public Service of the federation, Federal Capital Territory or private Sector receives his retirement benefits as at when due
- (ii) Assist improvident individuals by ensuring that they save in order to cater for their livelihood during old age; and
- (iii) Establish a uniform standard set of rules, regulations and standards for the administration and payments of retirement benefits for the Public Service of the federation, Federal Capital Territory and the Private Sector.

(b) Withdrawal from Retirement Savings Account:

Section 3(2) of the Pension Reform Act 2004 states that withdrawal could be made under the following circumstances:

Any employee who:

- (i) Is retired on the advice of a suitable qualified physician or a properly instituted medical board certifying that the employee is no longer mentally or physically capable of carrying out the function of his office
- (ii) Is retired due to his total or permanent disability either of mind or body or
- (iii) Retires before the age of 50 years in accordance with the terms and conditions of his employment

(c) Functions of the Commission:

- (i) Regulate and supervise the scheme established under the Act
- (ii) Issue guidelines for the retirement of pension funds
- (iii) Approve, licence, regulate and supervise Pension Fund Administrators, Custodians and other institutions relating to pension matters
- (iv) Establish standards, rules and guidelines for the management of the pension funds
- (v) Ensure the maintenance of a National Data Bank on all pension matters

- (vi) Carry out public awareness and education on the establishment and management of the scheme
- (vii) Promote capacity building and institutional strengthening of pension fund administrators and custodians
- (viii) Receive and investigate complaints of impropriety levelled against any pension fund administrator, custodian or employer or any other staff or agent
- (ix) Perform other such duties which, in the opinion of the commission, are necessary or expedient for the discharge of its functions

Powers of the commission:

- (i) Formulate, direct and oversee the overall policy on pension matters in Nigeria
- (ii) Fix the terms and conditions of service including remuneration of the employees of the commission
- (iii) Request or call for information from any person or institution on matter relating to retirement benefit.
- (iv) Charge and collect such levy or penalties as may be specified by the commission
- (v) Establish or acquire offices and premises for the use of the commission in carrying out its functions
- (vi) Establish standards, rules and regulations for the management of the pension
- (vii) Investigate any pension fund administrator, custodian or other party involved in the management of pension funds.
- (viii) Impose administrative sanctions or fine on erring employers or pension fund administrators or custodians
- (ix) Order the transfer of management and custody of all pension funds or assets being managed by a pension fund administrator or custodian whose licence has been revoked or subject to insolvency proceedings to another pension fund administrator or custodian
- (x) Do such other things which are necessary to ensure efficient performance of its functions.

- (d) Distributable Income:
  - (i) The interpretation section of the Act defines distributable income to mean "all income earned by the contribution less reasonable charges and cost on investment transactions.
  - (ii) Programmed withdrawal means a product offered by a pension fund administrator for periodic payments to a beneficiary of a retirement savings account as specified in the Act.
  
- (e) Pension fund assets shall be invested in any of the following:
  - (i) Bonds, bills and other securities issued or generated by Federal Government and the CBN
  - (ii) Bonds, debentures, redeemable preference share and other debt instruments issued by corporate entities and listed on a stock exchange registered under Investment and Securities Act (ISA) 1999
  - (iii) Ordinary shares of pension limited company listed on a stock exchange registered under ISA 1999 with good track records having declared and paid dividends in the preceding five years
  - (iv) Bank deposit and bank securities
  - (v) Investments certificates of closed-end investment fund or hybrid investment funds listed on a stock exchange with good track records of earnings
  - (vi) Units sold by open-end investment funds or specialist open-end investment fund listed on the stock exchange by the commission.
  - (vii) Bonds and other debt securities issued by listed companies
  - (viii) Real Estate Investment and
  - (ix) Such other investments as commission may, from time to time prescribe

- 6.(a)(i) The following information would be required from the client:
- 1) Personal Situation: Information to cover sex, age, whether married, age of spouse? Any children, age?, e.t.c.
  - 2) Income of the client: Information to cover areas such as whether the client is employed or self employed? Security of employment? Current level or earnings? Security of earnings? Other sources of income?, e.t.c.
  - 3) Capital: Whether the client own his own house? Bank deposits and other cash instruments? Equities?
  - 4) Financial Commitments e.g. estimated annual expenditure on normal day to day expenses? Mortgage repayment or rent payment? Life assurance premium? Likely future commitments e.g. school fees, e.t.c.
- (ii) Investment consideration to be borne in mind:
- 1) Clients requirements from his investments such as
    - high immediate income
    - long term investment or
    - capital appreciation, e.t.c.
  - 2) The client's attitude to risk? Risk taker or risk averse?
- (b)(i) A balanced portfolio is a portfolio of investments which has a balance between fixed interest investments and equities. An investment is diversified in a wide range of industrial and geographical sectors so as to minimise unsystematic risks.
- (ii) Element of balanced portfolio:
- 1) Liquidity - investment in cash or near cash investment(s) i.e. as an emergency fund
  - 2) Security - secured income
  - 3) Capital growth - investments whose income and value are likely to grow in the medium to long term

- 4) Flexibility or Marketability – investments which, whilst providing reasonable income/growth prospects, can be realised without the risk of a serious loss in capital values.
- 5) Hedge against inflation i.e. capable of being hedged against inflation e.g. Real Estate.

(c)(i) Redeemable debenture stock:

Legally speaking, a debenture is a written acknowledgement of a debt incurred by a company, though the term is generally used to describe loans that are secured on the company's assets. Mortgage debentures are those with a fixed charge over the freehold or leasehold property of the borrower. Other debentures may have a fixed charge over other assets of the company or a floating charge over all of the assets.

Virtually all debentures are redeemable. Sometimes redemption must be on a specific date. In other cases, the company is able to redeem the stock at anytime between two specific dates or the stock is redeemed slowly out in a sinking fund.

(ii) Convertible unsecured loan stock:

A convertible loan stock is one which may at the option of the holder, be converted into the ordinary shares of the issuing company. Until conversion, the loan stock will possess all of the properties of any loan stock. Convertible loan stock is rarely secured and in the question we are informed that the stock is unsecured.

Convertible loan stock may be considered as deferred method of issuing securities.

(iii) Cumulative participating preference shares:

All preference shares are part of the share capital of the company and therefore differ from debenture and loan stock. The normal rights of cumulative participating shares would be as follows:

- 1) They are entitled to a fixed coupon rate dividend which is payable provided sufficient profits are available.
- 2) If in any year, there are insufficient profits, the dividend is carried forward and added to the dividends for later years when profits have become available.

- 3) If an ordinary dividend is paid, then the participating preference shares will be paid an additional dividend which varies with the size of the ordinary dividend.
- 4) The shares will have rights prior to those of ordinary shares (but not creditors) in the event of winding up or may share in any surplus of winding up.

7. (a)(i) The main causes of action are:

1) To take up the rights:

This means that the customer will obtain an additional 800 shares at a cost of ~~₦~~1,280. If this course of action is selected, it will be necessary to send the provisional allotment letter together with the customer's cheque to the company's registrars.

2) To sell off all the Rights:

It is possible for the rights given by the provisional allotment letter to be sold. The likely price obtainable will be about 80 kobo (i.e. the difference between the theoretical ex-right price of ~~₦~~2.40 and the rights price of ~~₦~~1.60) for each of the 800 shares to which the customer is entitled.

3) A partial sale of Rights:

The customer may sell part of his rights and take up the rest. This option may be attractive where the customer wishes to round up the holding to a convenient total number of shares or where the customer wishes to sell sufficient rights for the sale proceeds to pay for the rest.

(ii) The theoretical ex-rights price can be found as follows:

Number of shares	Price	Value
	₦	₦
2,000.00	2.72	5,440.00
<u>800.00</u>	1.60	<u>1,280.00</u>
<u>2,800.00</u>		<u>6,720.00</u>

Theoretical ex-rights price is found by dividing N6,720 by 2,800 units

$$= \frac{\text{₦}6,720}{2,800} = \text{₦}2.40$$

- (b) Companies may wish to make a rights issue:
- i) To reduce capital gearing levels
  - ii) To raise funds to pay for the acquisition of a new subsidiary, or possibly for a substantial tangible fixed assets (e.g. a building)
  - iii) In the case of banks, to satisfy the capital reserve requirements of the regulatory authorities
- (c) Their main rights are:
- i) To receive a copy of the annual report and accounts
  - ii) To receive notices of meetings and to attend, vote and speak at meetings
  - iii) To appoint a proxy to attend meetings and vote in a poll on their behalf
  - iv) To share in the profits of the company in form of dividend
  - v) To subscribe for any new share capital or other securities which may be converted into share capital in proportion to their existing holdings
  - vi) To transfer shares freely
- (d) The business usually conducted at an Annual General meeting is called ordinary business.
- It comprises of:
- i) The presentation of the financial statements
  - ii) Declaration of dividends
  - iii) Director's Report
  - iv) Auditor's Report
  - v) Election of Directors in place of those retiring
  - vi) Appointment and fixing of remuneration of Directors
  - vii) Appointment of members of the Audit Committee

**MARCH 2009 SOLUTION**  
**PAPER 3.2 - FINANCIAL FUTURES AND OPTIONS**

**SECTION**

**1.**

- (i) A
- (ii) A
- (iii) A
- (iv) C
- (v) B
- (vi) B
- (vii) B
- (viii) A
- (ix) A
- (x) C
- (xi) C
- (xii) B
- (xiii) A
- (xiv) B
- (xv) C

## SECTION B

2(a)(i) The put- call parity theorem is:

$$C + \frac{X}{(1+rf)^t} = S_0 + P$$

Where  $S_0$  = stock price = N115.0

C = Cost of call (N25)

X = strike price (N110)

$r_f$  = riskless free rate of interest = 12.5% per annum

t = time to maturity = 6 months = 0.5 year

$$25 + \frac{110}{(1.125)^{1/2}} = 115 + 7.5$$
$$25 + \frac{110}{1.060660172}$$

$$25 + 103.71 = 115 + 7.5$$

$$128.71 \neq 122.50$$

The above result as shown by the put-call parity theorem indicates a violation of the relationship because N128.71 does not equal N122.50.

Therefore there is a mispricing of about N6.21 it has not been correctly priced.

(ii) Implication of the pricing situation in 'a' above.

The mispricing established in 'a' above: i.e. N128.71  $\neq$  N122.50 is due to the violation of the put-call party relationship will create opportunity for arbitrage.

(iii) An investor can exploit the mispricing by buying the relatively cheap portfolio (stock-plus put position) presented on the right hand side and sell the relatively expensive portfolio (the call -plus bond position corresponding to the left-hand side), therefore, if you buy the stock, buy the put, write the call, and borrow N110 for 1 year (because borrow) money is the opposite of buying a bond), you should earn arbitrage profits.

2(b) Advantages of cash settlement of index options over other forms of option

Different index options are settled against different underlying prices. Cash settlements allow participants to take profits from unfavourable movement without having to deal physically in the underlying stocks.

Other forms of settlement may not be advantageous over cash in terms of:

- (i) Inconvenience
- (ii) Time
- (iii) Expenses
- (iv) Reduced contract efficiency
- (v) Potential market distortion

Generally, Regulators in the US stipulate cash settlement as an essential criterion for an exchange traded stock index contract.



3.

- (a) Justification or otherwise counter of the benefit of gearing in derivative market.

The investor buys a call. The call will be worth

$$\text{Max } [S_0 - X_1 \ 0]$$

Where  $S_0$  = stock price = 35.5

$$X = \text{strike price} = 25$$

$$\text{Pay off} = \text{Max } [S_0 - X_1 \ 0]$$

$$= [35.5 - 25.0]$$

$$= 10.5$$

$$\text{Profit on call} = \text{payoff} - \text{premium}$$

$$= 10.5 - 4.5$$

$$= 6.0$$

$$\text{Therefore Return } \frac{6}{4.5} \times 100 = 133.33\%$$

The above shows that an investment of ₦4.5 on a call generates a profit of ₦6.0 translating to a return of 133.33%.

Comparatively, if he had and not bought the call but had bought the shares

Then the return would be;

$$\frac{S_1 - S_0}{S_0} \times 100$$

$S_0$  - initial stockprice     $S_1$  = final stockprice

$$= \frac{35.5 - 20.5}{20.5} \times 100$$

$$= \frac{15}{20.5} \times 100$$

$$= 73.17\%$$

The return on the stock only is 73.17%.

Return with derivative  
133.33%

without derivative  
73.17%

Therefore, derivative provides larger return based on gearing.

(a) Will the investors' argument for gearing still be justified if the stock price falls to ₦15.5 at expiration.

$$\begin{aligned} \text{(i) Value of call} &= \text{Max } [S_0 - X_1, 0] \\ &= [15.5 - 25, 0] \\ &= 0 \end{aligned}$$

The call will expire worthless, the investor will abandon the call (the investment) and will abandon only lose the premium he has paid to buy the call

$$\begin{aligned} \text{Profit/loss} &= \text{value of call} - \text{Premium} \\ &= 0 - 4.5 \\ \text{Loss} &= -4.5 \end{aligned}$$

$$\text{Return} = \frac{-4.5}{4.5} \times 100 = 100\% \text{ loss}$$

(ii) Alternatively if he had bought the stock the return would be;

$$\begin{aligned} &= \frac{S_1 - S_0}{S_0} \times 100 \\ &= \frac{18.5 - 20.5}{20.5} \times 100 \\ &= \frac{2 \times 100}{20.5} = \frac{200}{20.5} \\ &= 9.75\% \end{aligned}$$

The investor will be justified because he can minimize his losses, since he has to invest a relatively small amount of money (₦4.5) to buy a call but which he eventually loses by 100%. However, buying of the stock requires an initial outlay of ₦20.5, which eventually produces a loss of 9.756%. This will eventually translate to a higher loss based on the time value of money.

(b) Advice to the investor based on the results on the result in 'a' and 'b' although gearing provides profit. It is also capable of magnifying losses. Investor should therefore use gearing with caution. Gearing is seen to be beneficial because it can give the investor the power to control a much more expensive asset for a low or nil cost but must be done with caution.

Therefore, only investors who understand this attribute should speculate with futures and options. It is easy to lose an entire life investment in the process.

4 (a) Price of the future contract on the index

$$F = S_0 e^{(r-q)T}$$

$F_0$  = future price = ?

$S_0$  = Current index price = 1250

$R$  = risk free rate = 12.5%

$q$  = dividend yield = 5%

$T$  = time to maturity = 6 months = 0.5 years

$$F = 1250 e^{(0.125 - 0.05)0.5}$$

$$= 1250 e^{(0.075)(0.5)}$$

$$= 1250(2.718281828)^{0.0375}$$

$$= 1250(1.038211997)$$

Future price = 1,297.78

(b) If the futures price is 1,350:

The expected trading strategy will be arbitrageous.

Since the price is not the same as the unbiased price of 1,297.78

i.e  $1350 > 1297.78$

i.e  $F_0 > S_0 e^{(r-q)T}$

It creates room for index arbitrage. Profit can therefore be made by buying the stocks underlying the index and shorting the futures contract. That is long the stock underlying the index and shorting the index futures.

(ii) If the futures price is N1000

i.e  $1000 < 1297.78$

$F_0 < S_0 e^{(r-q)T}$

An arbitrage profit is still possible by taking a reverse strategy to the above. That is shorting the stocks underlying the index and taking a long position in the future contract (because it is cheaper than the equilibrium price).

- (c) Percentage by which the index should change from 1250 before the futures price can become 1000  
From

$$F = S_0 e^{(r-q)T}$$

$$1000 = S_0 (2.718281828)^{(0.125-0.05)0.5}$$

$$1000 = S_0 (2.718281828)^{0.0375}$$

$$1000 = 1.038211997 S_0$$

$$S_0 = \frac{1000}{1.038211997}$$

$$S_0 = 963.19$$

The index should be 963.19 before the future price can be 1000.

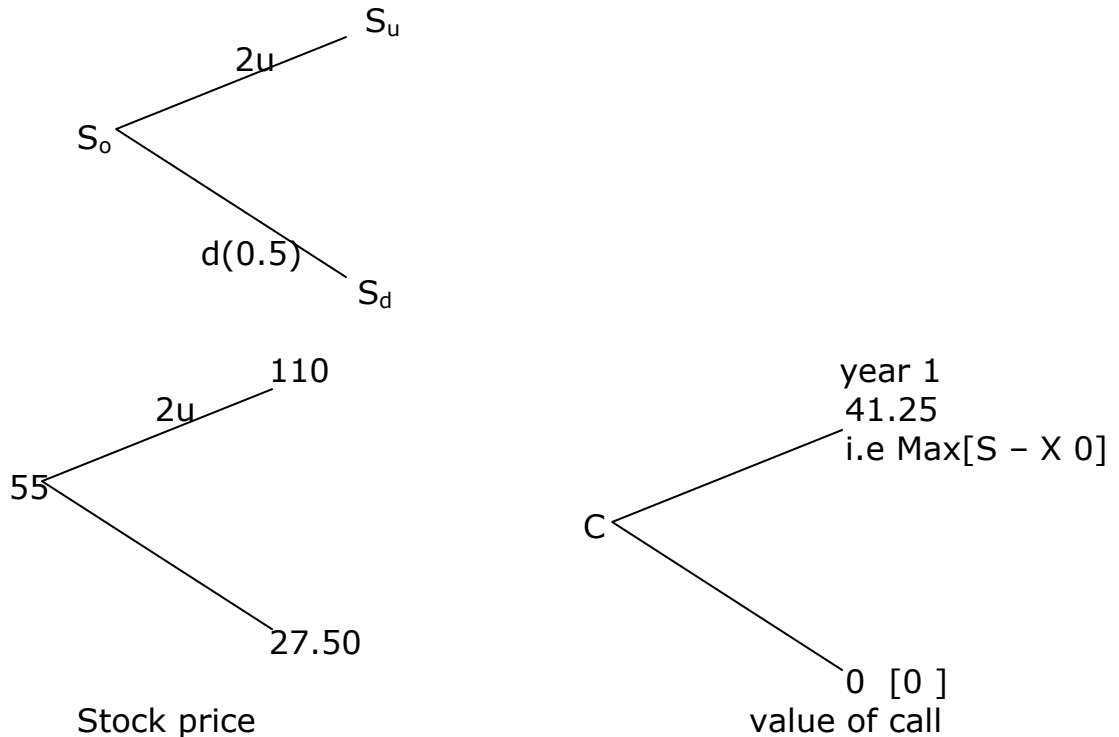
The expected percentage change from 1250 to 963.19 should be;

$$\frac{1250 - 963.19}{1250} \times 100$$

$$= -22.95\%$$

Therefore, the index will need to decline by 22.95% before its price can become 1000.

5(i) Binomial value trees or call option:



Therefore, if the stock price goes up by a factor 2 the stock price become N110 and the call option will expire in the money and generate a payoff of N41.25.

If the stock goes down by a factor ( $d=0.5$ ) then the stock will sell for N27.5 at the end of year, and the option will expire out of the money and thus expire worthless.

(ii) The hedge ratio:

$$H = \frac{C_u - C_d}{uS_0 - dS_0}$$

$H$  = hedge ratio

$C_u$  = call option value when the price goes up

$C_d$  = call option value when the price goes down

$uS_0$  = stock price when the price goes up

$dS_0$  = stock price when the price goes down

$$H = \frac{41.25 - 0}{2(55) - 0.5(55)} = \frac{41.25}{110 - 27.5} = \frac{41.25}{82.5}$$

$$0.5 = \frac{1}{2}$$

The hedge ratio is 0.5 or  $\frac{1}{2}$ . This means that a balanced portfolio will require that investor build a portfolio consisting of 1 share of stock of NB and two call options.

(iii) Arbitrage Portfolio Pay off:

	Stock price	Value of call (c)		Portfolio Value
Portfolio when:	S	C	2C	S - 2C
Price Goes up	110	41.25	82.5	27.5
Price Goes down	27.5	0	0	27.5

The above table shows the riskless portfolio value of ₦27.50. This is based on the hedge ratio of 1 share of stock of the NB and 2 calls.

(iv) Explanation of the Arbitrage Portfolio value

It shows that regardless of the direction in which the price of the stocks goes up or down, the portfolio will generate a riskless profit of ₦27.50.

This has been achieved based on the combination of 1 share of stock and 2 calls as obtained from the value of the hedge ratio. Any other portfolio built cannot guarantee any form of arbitrage portfolio under the given condition.

- 6.(a) (i) Number of Contracts require to hedge the 250million stock portfolio

$$\text{Number of Contracts} = \frac{\beta_P \times V_P}{V_F}$$

$\beta_P$  - beta of stock portfolio = 0.65

$V_P$  - value of the stock portfolio = ₦250 million

$V_F$  - value of a single future contract

$$(100 \times 2500) = \text{₦}250,000$$

$$\text{Number of Contracts} = \frac{0.65 \times 250,000,000}{250,000}$$

$$= 650 \text{ contracts}$$

The Company should therefore short 650 futures Contract to effectively hedge the ₦250million stock portfolio.

- (ii) Number of Contracts to hedge the ₦200million Bond portfolio

$$\text{Number of Contracts} = \frac{D_P \times V_P}{D_F \times V_F}$$

$D_P$  = Duration of the bond portfolio

$V_P$  = Value of the Bond portfolio

$D_F$  = Duration of the futures contract

$V_F$  = Value of a single future contract

$$= \frac{6 \times 200,000,000}{8.5(100,000 \times 10.75)}$$

$$= \frac{1,200,000,000}{9,137,500}$$

$$= 131.33$$

$$= 131 \text{ Contracts approx.}$$

The Company should 131 bond future Contract to hedge the bond portfolio.

- (b) Profit / Loss for a Speculator

$$\text{Tick Movement} = 24.50 - 22.50 = 2.00$$

Total no of ticks or tick size

$$1 \text{ tick} = 1 \text{ cent} = \$ 0.01$$

Therefore X ticks = 2.00  
No of ticks = 200 ticks

Profit = ticks x tick value x 1 Contract  
= 200 x 10  
= 2,000

7(a)(i)

**Risk Neutral Valuation:**

The risk neutral valuation principle states that any risky security that is dependent on a stock price can be valued on the general assumption that the world is risk neutral. It thus means that for the purpose of valuing an option (or any other derivative) the following assumption can be made:

- (i) The expected return from all traded securities is the risk free rate of interest.
- (ii) The future cash flows can be valued by discounting their expected values at the risk free rate of interest.

(ii)

**Index Arbitrage:**

Index arbitrage refers to the monitoring of futures price on a stock index along with the level of the underlying index. The standard spot-future parity relation is the basis for the common trading strategy called index Arbitrage.

The trader watches out for the violation of the parity and then trades as appropriate basically to exploit the arbitrage opportunity that may be created by the misalignment or violation.

(b) Relationship between Basis Risk and hedging in a future Contract.

Basis represents the difference between the futures price and spots price. Before maturity the futures price for later delivery may be substantially different from the current spot price. However, the convergence property ensures that the futures price approaches the spot price as maturity approaches, such that at maturity the basis becomes zero.

$$F_T - P_T = 0$$

Basis Risk however is the risk due to the uncertainty in the movement in the spread (Basis) between a futures price and a spot price. The basis risk is high before maturity because it can rise or decline. Therefore, investors try to adopt appropriate hedging strategy to buffer the basis risk with the aim of letting the basis become zero. Gains and losses on the futures and the commodity position will exactly cancel out.

Generally, speculators hedging with basis risk try to profit from the movement in the basis based on the direction of the futures or spot price.

(c) When the use of a spread strategy will become Profitable.

A Spread position exists when an investor takes a long position in a futures contract of one maturity and a short position in a contract of a different maturity in the same commodity.

Profit will accrue if the difference in the futures prices between the two contracts changes in the expected direction. If the futures price on the contract held for long increases by more (or decreases by less) than the futures price on the contract held short.

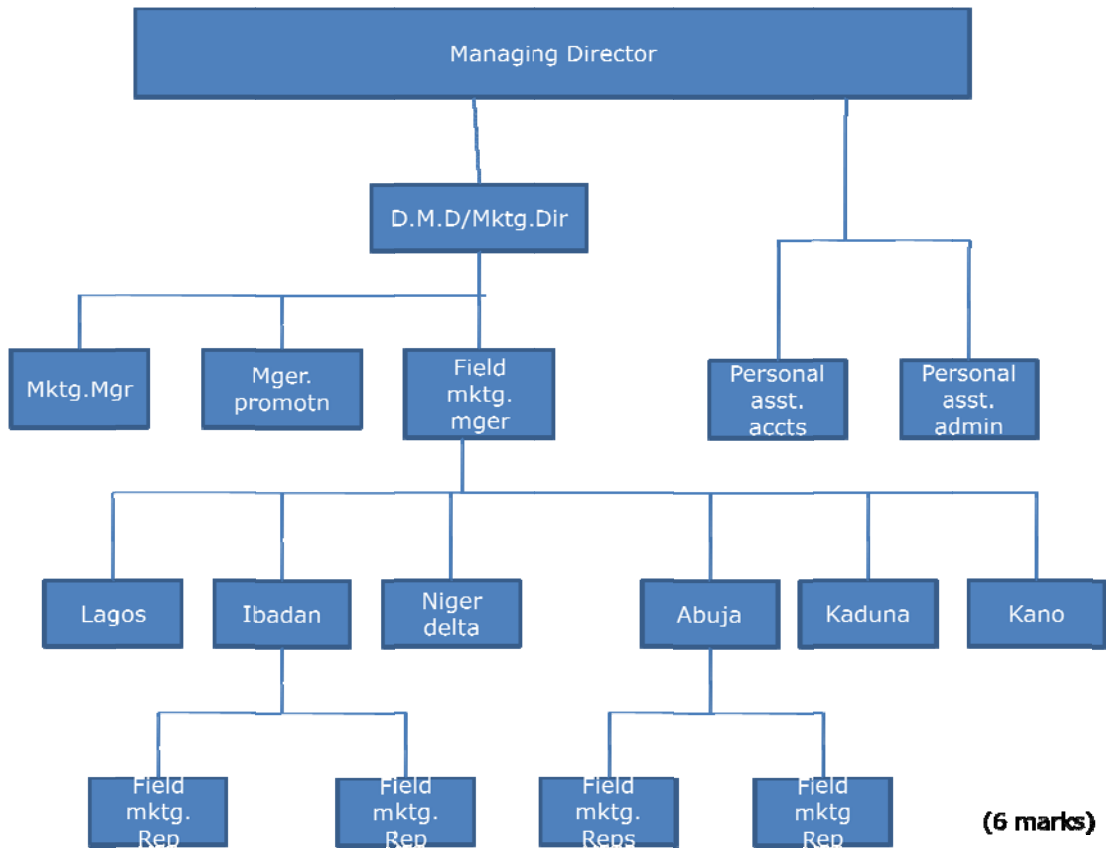
Generally, spread strategy attempt to exploit movements in relative price structures rather than profit from in the general price level.

**MARCH 2009 SOLUTIONS**  
**PAPER 3.3 - MARKETING OF FINANCIAL SERVICES**  
**SECTION**

- 1.
- i) B
  - ii) C
  - iii) A
  - iv) B
  - v) C
  - vi) C
  - vii) C
  - viii) D
  - ix) A
  - x) C
  - xi) B
  - xii) C
  - xiii) A
  - xiv) A
  - xv) A
  - xvi) A
  - xvii) D
  - xviii) D
  - xix) C
  - xx) C
  - xxi) A
  - xxii) D
  - xxiii) A
  - xxiv) B
  - xxv) A
  - xxvi) B
  - xxvii) B
  - xxviii) A
  - xxix) C
  - xxx) D

## SECTION B

2(a) (i)



(ii) The managers for accounts and admin should report directly to the D.M.D/M.D.

(b) Yes

(i) The selection of Olusola the managing director did not follow substantive selection process.

(ii) The selection of personality of Olusola status ought to have gone through interviewing at least.

- (C) - Identified prospects and customers
- Differentiated customers in terms of their needs and value to the company
  - Interacted with individual customers to improve the firm's knowledge of individual needs and build stronger relationship
  - Customized product/service and message to each customer
  - Reduced the rate of customer defection
  - Made low-profit customers more profitable or terminated them
  - Focusing disproportionate effort on high value customers

(d) (i) People  
Continuous training and development should not be limited to field sales representatives only. The firm should be marketing oriented more so the entire staff. All staff needs to be trained and developed to make them competent and efficient.

- (ii) How  
Need to make workers happy with their jobs through:
- High pay
  - Promotion
  - Personal growth and sense of accomplishment
  - Re-imburement of expenses will increase effectiveness of the field sales force

- (iii) Why
- Because they work round the clock (irregular working hours)
  - Stay away from home
  - Confront aggressive situations and competitions

- (iv) Impact
- Having efficient, effective, motivated and customer-conscious employees
  - Make workers happy with their jobs

(v) Place

- order to afford proper and effective coverage of sub-territories and clients there in, efforts should be geared towards measuring In territorial area that can be covered adequately by what number and measurable ability of what salesperson(s).
- Large territories of Lagos, Abuja and Niger Delta should be brokened to several sub-territories depending upon their present sizes.

The oil rich states of Edo, Delta, Akwa Ibom

Niger-Delta territory should be divided into six respective states of Edo, Delta, Akwa Ibom, Bayelsa, Cross river and Rivers territories.

Lagos and Abuja should be divided into not less than 3 territories.

- (a) Effective coverage
- (b) Efficient sales force performance
- (c) Expansion of the market
- (d) Increased orders and revenue

3. (i) (a) Marketing mix is the set of controllable tactical marketing tools – product, price, place and promotion that the firm blends to produce the response it wants in the target market.

(b) The following are the variables relevant to service marketing:

- Process: The process is concerned with the way the service is delivered to the customer taking into consideration of inseparability characteristics and customer participation-ATM, recharged cards and cheque books.
- Physical Evidence: This could include the decoration in branch facilities layout and provided comfort used to tangibilize the service, they are physical clues enabling customers to evaluate the service.
- People: This consists of the providers (service personnel) of the service, the company's personnel and the recipients of the service (the customers).  
It tells on having motivated and customer conscious employees.  
The company should motivate the employees through good salaries, commissions and non financial incentives.  
This will boost employee competence and improve service – business-client relationship.

(ii) Determinants of service quality are:

- Reliability: this is the ability to perform the promised service dependently and accurately.
- Responsiveness: the willingness to help customers and to provide prompt service.
- Assurance: the knowledge and courtesy of employees and their ability to convey trust and confidence
- Empathy: the provision of caring, individualized attention to customers.
- Tangible: the appearance of physical facilities, equipment, personnel and communication materials to boost relationship between the clients and the company.
- Accessibility: this expresses service to be provided at convenient locations and times with little waiting.
- Security: this stresses the possibility of the service to be used without much or bailable risk.

- Communication: this is a means of information flow between the service providers and their esteemed customers. This must be described clearly, accurately and timely.
- Credibility: customers should be able to trust the service provider and its staff integrity, trust, dependability etc are the keys to credibility.

4. Marketing research can be defined as the systematic gathering, recording, and analyzing of data about problems relating to the marketing of goods and services.

Financial institutions need marketing research for the following reasons:

- (i) Identify all problems affecting their marketing efforts
- (ii) Evaluate and present solution(s) to the problem so identified
- (iii) Understand activities of competitors and develop strategies to beat and/or meet them
- (iv) Monitor changes in the external environment of financial institutions
- (v) Discover opportunities and threats
- (vi) Discover competitive competencies of other financial institutions and exploit them fully
- (vii) Correct all internal marketing weakness and maintain its strength
- (viii) Access all marketing facilities within the control of managers to spot strength and weaknesses

5. (a) Basic decisions in engaging international marketing are:

- (i) The need to appraise the international marketing environment such as social, cultural, legal/political, religion, government policy and so on.
- (ii) The comparative advantage analysis must be done
- (iii) Which international marketing to enter proper segmentation of the market.
- (iv) Decision on which market programme to adopt
- (v) Organization of the international market entry options
- (vi) How much commitment in each market in terms of market potential and cost of entry.

(b) Benefits of international marketing include the following:

- (i) Improved earnings
- (ii) Expanded market coverage with attendant sales improvement
- (iii) Improved image for the institution
- (iv) Competitive advantages
- (v) Effective utilization of resources; human, material, finances

6. (i) Types of buying situations:

- Straight buy: this is a routine buying or rendering involving no modification.
- Modified rebuy: a business where buyer often modify product specifications, prices, terms or suppliers
- New task: this is a buying situation in which the buyer purchases a product or service for the first time
- Systems buying: this is the buying completely assembled and packaged product capable of solving a problem from a single seller

(ii) Participants involved in the buying decision:

- Users: these are the people who directly or indirectly consume the product. They define product specification that must be followed by the buyers. They initiate buying proposal.
- Influencers: many of them are expert technical personnel who through their knowledge help to define specifications and provide information for evaluating alternatives.
- Buyers: these possess the formal authority to select supplier, shape specification, negotiating and arranging terms of purchase.
- Deciders: deciders possess the uniform power to select and approve suppliers able to meet the defined specification.
- Gatekeepers: they could be technical sales persons or personnel secretaries controlling information to users, deciders, influencers and buyers.

- (7) Macro-Environment Forces:
- (i) Demographic environment: This refers to the characteristics of populations, including such factors as size, distribution, and growth. Because people constitute markets, demographics are of special interest.
  - (ii) Economic environment: People alone do not make a market. They must have money to spend and be willing to spend it. Economic environment is a significant force that affects the marketing activities of just about any organization. A marketing program is affected by economic factors such as the current and anticipated state of the business cycle, as well as inflation and interest rates.
  - (iii) Competition: A major influence of a company's competitive environment on its marketing program is competition. A firm generally faces three types of competition:
    - (a) Brand competition: i.e. from marketers of directly similar products
    - (b) Substitute products: i.e. that satisfies the same need
    - (c) Company rivalry: rival for the customers' limited buying power
  - (iv) Social and cultural environment: The task facing marketing executives is becoming more complex because our socio-cultural patterns; lifestyles, values, and beliefs are changing much more quickly than they used to.
  - (v) Political/Legal environment: The political and legal environment on marketing can be grouped into the following categories:
    - (a) Monetary and fiscal policies
    - (b) Social legislation and regulations
    - (c) Governmental relationships with industries
    - (d) Legislation related specifically to marketing
  - (vi) Technology: This has a tremendous impact on our lifestyles, consumption patterns and our economic well being.

Technological breakthroughs can affect markets in three ways;

- (a) By starting entirely new industries e.g. computers, lasers, and robots
- (b) By radically altering, or virtually destroying, existing industries
- (c) By stimulating markets and industries not related to the new technology

**MARCH 2009 SOLUTIONS**  
**PAPER 3.4 - REGULATIONS AND PRACTICE OF STOCKBROKING**

**SECTION A**

**1.**

- (i) D
- (ii) A
- (iii) B
- (iv) B
- (v) C
- (vi) E
- (vii) D
- (viii) A
- (ix) D
- (x) E
- (xi) E
- (xii) D
- (xiii) E
- (xiv) D
- (xv) E
- (xvi) B
- (xvii) C
- (xviii) D
- (xix) A
- (xx) A
- (xxi) E
- (xxii) B
- (xxiii) A
- (xxiv) True
- (xxv) True

- (xxvi) True
- (xxvii) False
- (xxviii) ~~48,640~~
- (xxix) 415.38% or 415.38 points
- (xxx) The trust deed

2. (a) (i)

COMPANY	SHARE CAPITAL ₦(m)	PAT ₦(m)	MKT PRICE	SHARE CAPITAL (NV)	EPS	P/E RATIO
AFPRINT	1000	1500	5.00	2000	0.75	6.67
PRESCO	2800	6720	6.00	5600	1.20	5.00
FIN BANK	25000	32000	7.00	50000	0.64	10.94
UNITY BANK	26000	23000	5.00	52000	0.44	11.30
PREM-BREW	580	160	1.20	1160	0.14	8.70
CCNN	3540	6765	4.30	7080	0.96	4.50
J.BERGER	3540	25960	11.00	7080	3.67	3.00
TANTALISER	6000	17320	4.30	12000	1.44	3.00
FIDSON	5000	10000	4.00	10000	1.00	4.00
ABC	2120	563	0.80	4240	0.13	6.00
NEIMETH	1200	1309	3.00	2400	0.55	5.50
CHAMS	4230	2538	1.20	8460	0.30	4.00
TOTAL UNION HOMES	10459	2E+05	33.00	20918	11.00	3.00
	3900	17364	7.00	14884	1.17	6.00

		(₦)
(ii)	Amount available for investment	<u>500,000,000</u>
	Share of equity Investment (30%)	<u>150,000,000</u>

FUND ALLOCATION

COMPANY SELECTED	MKT PRICE	FUND ALLOCATED (₦)
JULIUS BERGER	11.00	25,849,913.83
TANTALISER	4.33	10,175,466.08
TOTAL	33.00	77,549,741.50
CHAMS	1.20	2,819,990.60
FIDSON	4.00	9,399,968.67
CCNN	4.30	10,104,966.32
PRESCO	6.00	14,099,953.00
	<u>63.83</u>	<u>150,000,000.00</u>

- (iii) This case tries to define the channel of communication between a quoted company and the exchange.

The quoted company has to provide the investing public with information. These types of information include interim reports, year - end account, proposed resolution to be passed at general meetings of the company and any other information that could be required by the exchange.

All correspondence from the company to the market through the exchange must be under the signature of the company Secretary.

The company secretary is the only recognized person or office within the company that relates with the exchange. Therefore,

all correspondence must come from his office. This so for the following reasons:

- The company secretary sits on the board and takes all records of proceedings at such meeting.
- The company secretary is the only person on the board who presumably does not have any interest in the company. He is an impartial member of the board,
- It does not participate in the decision making function of the board but rather guide the board within the context of the law.
- The appointment of the company secretary is with the approval of majority of the board or as the Article of Association of the company permits.
- In the event of crisis, the company secretary is summoned by the exchange to provide all the necessary answers to questions that would be raised.

In the light of this, the chairman should be guided that the company secretary is right to ask that his office should be informed of any correspondence with the exchange.

In addition, the company secretary should not only be informed, such correspondence should originate from his office under his signature.

- (b) (i) The completion board meeting is a meeting of all parties to the issue and the directorate of the company in which all the other document will be signed.

By signing, all the signatories have undertaken to be held individually and severally responsible for all the information contained in the prospectus and all the other documents.

- The stockbroker before the Completion Board Meeting makes an application to the Exchange for the issuance of a Certificate of Exemption attaching a sample copy of all the documents to be signed.

The certificate of exemption is a certificate issued to the issue to publish the abridge version of the prospectus.

- After the completion board meeting, the stockbroker will submit to the Stock Exchange 50 copies of the hardcover for distribution to the branches of the Exchange and council members.

(ii) List of document to be sent to the exchange before the listing of securities are:

- A copy of the allotment publication
- Evidence that share certificates have been dispatched to the successful shareholders
- Evidence that all monies for unsuccessful applicants have been returned
- That the balance of the security unallotted have been warehoused where there is no standby underwriting
- A signed declaration of compliance
- A signed general undertaking

3. (a) It is only a qualified stockbroker and authorized dealer that is allowed to trade on the floors of the Nigerian Stock Exchange .

Remote trading is not an exception.

NSE trading rules and practices:

- That is only a stockbroker being in the employment of stockbroking firm that can practice
  - A stockbroker must have valid practicing license issued by the Institute
  - Must have current registration of Securities and Exchange Commission (SEC)
- (b) Rule 15 of the Securities and Exchange Commission (SEC):
- Every stockbroker employed in an institution involved in capital market activities shall be sponsored for registration by that institution
  - Only a registered stockbroker by SEC is qualified to trade on the floors of the Nigerian Stock Exchange
- (c)
- stockbroker must be registered with SEC
  - should be bonafide member of Chartered Institute of Stockbrokers with a valid practicing license issued by the Institute
  - Shall be a valid representative of stockbroking firm who is a member of the Nigerian Stock Exchange

Any firm that violated the rules and regulations of SEC, NSE, and CIS by allowing unauthorized clerk to trade via remote trading shall have its firm sanctioned by the regulatory authorities.

4. (a) The Nigerian Stock Exchange and the Chartered Institute of Stockbrokers is never an academic exercise. They have regulatory and controlling powers to sanction dealing members and authorized dealing clerks.

(b) To become a participant in required in article 10 CSCS, the person must have met the following standards:

- i) The person has sufficient financial ability to meet its obligation in respect of its daily activities/transactions.
- ii) the person has appropriate personnel, organizational, technical and accounting precondition for the use of CSCS services.

(c) Cessation to act for the participation includes:

- i) If the participant gives written notification to CSCS that it no longer wishes to be a participant.
- ii) If participant ceases to exist as a legal entity.
- iii) If bankruptcy or liquidation proceeding begins against the participant.
- iv) If the participant is expelled according to the Article 21 of CSCS rules.

5. (a) When a client of a stockbroking firm uses a margin account, he is borrowing money from the firm to buy securities. When purchasing securities on margin he could use a combination of his own funds and the funds borrowed from the stockbroking firm.

When a client purchases securities, he may pay for the securities in full or borrow part of the purchase price from the stockbroking firm. If a client chooses to borrow funds from his firm, he will open a margin account with the firm. The securities purchased are the firm's collateral for the loan to him. If the securities in his account decline in value, so does the value of the collateral supporting his loan, and, as a result, the firm can take action, such as issue a margin call and/or sell securities or other assets in any of his accounts held with the firm, in order to maintain the required equity in the account.

Whether or not the stockbroking firm chooses to issue a margin call, the firm has the right to liquidate securities in the client's account in order to meet its equity requirements for customer margin accounts.

Should a firm actually issue a margin call, it may give the client a very limited time to satisfy the call. This time may be decreased from the amount of time that a firm may normally allow, in the event the markets are experiencing unusually volatile conditions.

- (a) Before trading stocks in a margin account, a customer should carefully review the margin agreement provided by his firm. He should consult his firm regarding any questions or concerns he may have with his margin accounts. It is important that he/she fully understands the risks involved in trading securities on margin.

The risks of trading securities on margin include the following:

- (i) A customer can lose more funds than he deposits in the margin account. A decline in the value of securities that are purchased on margin may require the customer to provide additional funds to the firm that has made the loan to avoid the forced sale of those securities or other securities or assets in his account(s).
- (ii) The firm can force the sale of securities or other assets in client's account(s). If the equity in his account falls below the maintenance margin requirements or the firm's higher "house" requirements, the firm can sell the securities or other assets in

any of his accounts held at the firm to cover the margin deficiency. The client also will be responsible for any short fall in the account after such a sale.

- (iii) The firm can sell the securities or other assets without contacting the client. Some investors mistakenly believe that a firm must contact them for a margin call to be valid, and that the firm cannot liquidate securities or other assets in their accounts to meet the call unless the firm has contacted them first. This is not the case. Most firms will attempt to notify their customers of margin calls, but they are not required to do so. However, even if a firm has contacted a customer and provided a specific date by which the customer can meet a margin call, the firm can still take necessary steps to protect its financial interests, including immediately selling the securities without notice to the customer.
- (iv) A customer is not entitled to choose which securities or other assets in his account(s) are liquidated or sold to meet a margin call. Because the securities are collateral for the margin loan, the firm has the right to decide which security to sell in order to protect its interests.
- (v) The firm can increase its "house" maintenance margin requirements at any time and is not required to provide the customer advance written notice. These changes in firm policy often take effect immediately and may result in the issuance of a maintenance margin call. A customer's failure to satisfy the call may cause the firm to liquidate or sell securities in his account(s).
- (vi) A customer is not entitled to an extension of time on a margin call. While an extension of time to meet margin requirements may be available to customers under certain conditions, a customer does not have a right to the extension.

**6.(a)**

- (i) There is no doubt that there is positive correlation between the economic downturn and prices of stocks.
- (ii) When the economy is booming or buoyant, there would be liquidity, upward trend in investment activities; injection of money into the economy.
- (iii) Whereas, when the economy is down, there would be liquidity problem, downward trend in the investment activities, deficit financing resulting into falling of stock prices.

**(b)**

- (i) Demand and supply of the stocks
- (ii) Market hear say
- (iii) Speculative activities
- (iv) Liquidity position
- (v) Performance of the companies
- (vi) Sectoral trend