

Paper 3.1 SECURITIES ANALYSIS AND PORTFOLIO MANAGEMENT

1

(i) C

(ii) D

(iii) B

(iv) A

(v) C

(vi) D

(vii) D

(viii) B

(ix) C

(x) B

(xi) A

(xii) B

- (xiii) (i) Investment objectives of a 25-year old investor:
Assumptions: (a) A steady job
(b) He is a valued employee
(c) Has insurance
(d) Has enough cash reserves
(e) Investment goal is to have a retirement fund
- Objectives: (1) Investment with capital appreciation even if with low return
(2) Mixed portfolio bag of fairly high risk
(3) Long tenured investment
- (ii) Investment objectives of a 65-year old investor:
Assumptions: (a) Has insurance
(b) Has enough cash reserves
- Objectives: (1) Investment of low risk
(2) Constant return
(3) Spread of return to meet income needs
(4) Short tenored investment

1 mark each for at least 2 assumptions each and 1 mark each for 2 investment characteristics

(xiv) (i) An Indenture is a legal agreement that lists the obligations of the issuer of a bond to the bondholder withholding bond schedules, call provisions and sinking fund.

- (ii) * Dates of Repayment
- * Interest Payable
- * Call provisions
- * Sinking Fund

1 mark for definition, ½ mark each for the 4 points.

(xv) (a) Market Order – An order to buy or sell a security immediately at the best price available

(b) Balanced Fund – A mutual fund with 3-part investment objectives.

- (1) Conserve Principal
- (2) Pay Current Income
- (3) Increase both principal and Income.

This can be achieved with mixed investment portfolio.

(c) Best Efforts Basis - Where an Issuing House is raising capital for an Issuing Company without commitment to full subscription and without underwriting.

1 mark each

(xvi) Bond ratings provide a very important service in the market for fixed income securities because they provide the fundamental analysis for hundreds of issues. The rating agencies conduct extensive analyses of the intrinsic characteristics of the issue to determine the default risk for the investor and inform the market of the analyses through their ratings.

2(a)(i)

Correlation:

$$\begin{aligned}
 &= (0.60 \times 0.12) + (0.30 \times 0.8) + (0.10 \times 0.4) \\
 &= 0.072 + 0.024 + 0.004 = 0.100 \\
 &= 10\%
 \end{aligned}$$

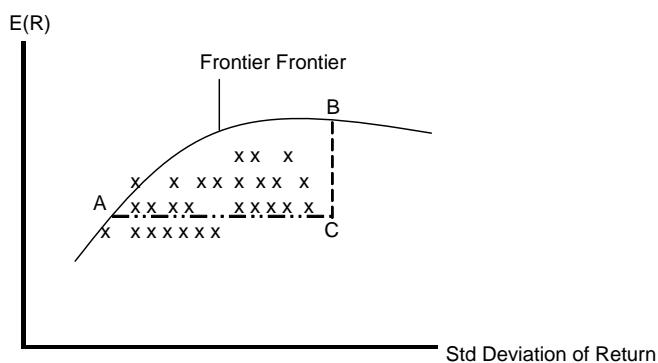
Workings 2 marks, Ans, 1 mark

ii. Standard Deviation:

$$\begin{aligned}
 &= (0.6)^2(0.20)^2 + (0.3)^2(0.10)^2 + (0.10)^2(0.03)^2 \\
 &\quad + 2(0.6)(0.3)(0.2)(0.1)(0.25) + [2(0.6)(0.1)(0.2)(.03)(-0.08) \\
 &\quad + [2(0.3)(0.1)(0.1)(0.03)(0.15)] \\
 &= 0.015309 + 0.0018 + (-0.0000576) + 0.000027 \\
 &= (0.0170784)^{1/2} \\
 &= 0.1306 \\
 &= 13.06\%
 \end{aligned}$$

Workings 3 marks, answers 3 marks

(b)



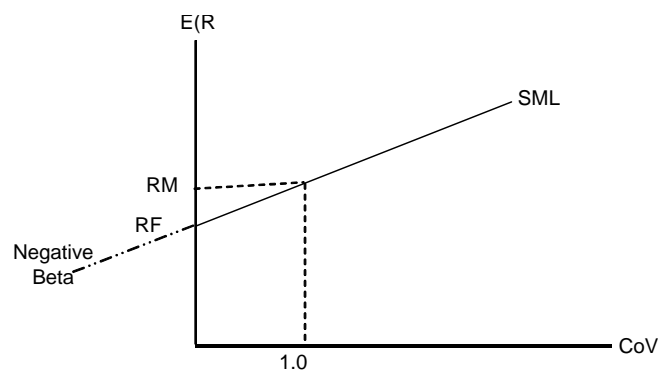
The slope of the Efficient Frontier (EF) curve decreases steadily as we move upward. Adding equal increments of risk as we move up the EF gives diminishing increment of Expected Return.

An individual investor's utility curves specify the trade off he is willing to make between expected Return and Risk. Two investors will choose the same portfolio from efficient set only if their utility curves are identical.

The Optimal portfolio is the efficient portfolio that has the utility for a given investor;

Drawing 2 marks, Explanation 2 marks.

- 2(c) (i) Beta can be viewed as standardized measure of systematic risk. It relates the covariance to variance of market portfolio. Market portfolio therefore has beta of 1. Therefore, if an asset has a beta greater than 1, it has a high risk compared to the market risk.



- (ii) Any three of the following are criticisms of beta as used in CAPM.

1. Theory does not measure up to practice.

In theory, a security with a zero beta should give a return exactly equal to the risk-free rate. But actual results do not come out that way, implying that the market values something besides a beta measure of risk.

2. Beta is a fickle short-term performer.

Some short-term studies have shown risk and return to be negatively related.

3. Estimated betas are unstable.

Major changes in a company affecting the character of the stock or some unforeseen event not reflected in past returns may decisively affect the security's future returns.

4. Beta is easily rolled over.

By changing the market index against which betas are measured, one can obtain quite different measures of the risk level of individual stocks and portfolios. As a result, one would make different predictions about the expected returns, and by changing indexes, one could change the risk-adjusted performance ranking of a manager.

Other criticisms include:

- * It does not recognize the regression line.
- * Problems of time interval
- * Efficient of market proxy

- 3(i) Open-end fund and closed-end fund: Both are investment companies. Open-end funds often refer to as Mutual Funds differ in its operations compared to Close-end funds.

Closed-end investment company operates like any other investment company. It stocks trades on the floor like any other company. Prices are largely determined by demand and supply. If you want to buy or sell your investment at the closed-end company after the IPO, you do that in the secondary market. They are usually sold at a discount over their NAV.

Net Asset Value of Closed-end = Market Value of the fund portfolio less Funds expenses divided by the numbers of total fund share outstanding

For an individual investor, his value of investment is the Number of Shares held Multiply by NAV.

Open-end fund of Mutual Fund continue to sell or buy shares after their IPO. They sell additional at NAV or buy back (redeem) shares at NAV.

- ii. Closed-end funds generally invest in securities that are relatively illiquid because their shares are traded in the secondary market with a continuous flow of cash throughout the season unlike Open-end funds who have to sell new IPO to increase investment.
- iii. a. Helps to determine investment objectives and constraints.
b. Diversify client's portfolio to avoid unsystematic risk.
c. Maintain a portfolio that is within the desired risk class of clients.
d. Attempt to achieve a risk-adjusted performance level that is superior to client's benchmark.
e. Administer the account, keep records of costs, provide timely information and reinvest dividends if desired.
f. Maintain ethical standards at all times.

- * Less portfolio risk with a larger stock for a limited stock portfolio.
- * Bigger investor demand for large capitalisation stock.
- * Better earnings per share and/or dividend growth record.
- * Higher earnings per share and/or dividend growth expectations.
- * More highly rated management.
- * Better cost/income ratio.
- * Higher returns on capital employed record.
- * Better record of delivering shareholder value e.g. through eps growth, share buybacks, special dividends, earnings enhancing acquisitions.
- * You expect that the larger company's future earnings will be better than market expectations and/or the smaller stock's earnings will be less than market expectations.
- * The companies may not be in the same sector and so are not necessarily comparable.

5(a) Three factors that must be estimated for any valuation model are:

- (i) The expected stream of returns - which is specified for bonds in terms of interest (coupon) and principal payments, but is uncertain for common stocks as dividends are not contractual or precisely predictable.
 - (ii) The time pattern of expected returns - specified for bonds, in terms of semi-annual interest payments and principal payments annually (sinking fund) or at maturity, but is uncertain for common stocks because although dividends may be paid annually, a stock is in effect "perpetual." Maturity value of a bond is known, while the sale price for stock involves an estimate of earnings in that year and P/E that will then prevail, the concept of a terminal PIE is used.
 - (iii) The required rate of return on the investment adjusted for risks is uncertain for both stocks and bonds. For bonds, this generally depends upon the prevailing risk-free rate. For common stocks, given the security market line prevailing at a point in time, and the estimate of the stock's beta with the market portfolio of risky assets, it is possible to derive the return that should be required for the investment.
- (b) The problem in using a dividend valuation model is that growth is a changing phenomenon and cannot be projected to infinity, as indicated in each of the following three types of companies:
1. Constant growth in dividends is unrealistic for a corporation that is subject to cyclical swings in its business.
 2. Maturing companies might be experiencing a slowing in the rate of growth of dividends, although some such companies maintain dividend growth by increasing the payout ratio, but this is a short-term phenomenon.
 3. Small, rapidly growing companies are not able to sustain above average rates of growth indefinitely.

6(i)

- Can invest small sums
- Diversification possible with small sums
- Specialist expertise
- Simpler to arrange (e.g. salesman/bank teller)
- Tax advantages in some cases

- Smoothed investment return (with profits)

6(ii)

Investment trust	Unit trust
Closed fund	Open fund
Price may be above or below net asset value of underlying assets	Always priced at net asset value
Company is governed by company law	Trust is governed by trust law
Price may be more volatile due to discount varying over time	No discount, so volatility follows underlying assets only
Can borrow (gearing possible)	Not permitted to borrow
Shares traded on a stock exchange	Units bought/sold by trust manager

(iii) **Discount** - The discount will vary over time, due to market sentiment about the managers and their investment style.

Marketability - Investment trust shares are often less liquid than the underlying investments, whereas the unit trust manager guarantees that units will always be marketable (with a few exceptions, e.g. property unit trusts).

Unquoted investments - Investment trusts typically have higher holdings in unquoted or unmarketable assets, for which market values are not readily available.

Gearing - Investment trusts are often geared, so they will have a higher volatility than the value of the underlying assets.

Closed vehicle - When demand is rising for a particular investment trust, new shares cannot be created unlike in a unit trust where the manager would issue new units. The converse also applies when a trust falls out of favour. This creates additional volatility.

7. (i) Discounted Dividend Model

This method values the share as the discounted value of the future dividends. Dividend growth, the required rate of return and timing assumptions are needed.

Price Earnings Ratio

With an estimated value for future earnings per share and an appropriate price earnings ratio, a price can be calculated by multiplying the two together. The price earnings ratio is best estimated using known results for similar companies

Dividend Yield

In a similar way to the method involving the price earnings ratio, estimated dividends can be divided by an appropriate dividend yield to give an estimate of the share price.

Net Asset Value

The net asset value is a measure of the price based essentially on the realisable value of the assets. This method can be useful when a company is not making profits.

Value Added Methods

A share price can be calculated by adding together the accounting value or book value of a share and the "added value" being generated by the assets tied up in the company. The economic added value can be calculated as:

net operating profit after tax - (company's weighted
average cost of capital x capital retained for shareholders)

(ii) Discounted Dividend Model

- _ assumptions needed for required rate of return and dividend growth
- _ level and shape over time of assumptions crucial to correct valuation

Price Earnings Ratio

- _ need reliable estimate of earnings (finding suitable peer group to set price earnings ratio challenging - company may be abnormal for good reasons)
- _ consistency required between figures for meaningful results

Dividend Yield

- _ need reliable estimate of dividends
- _ dividend yield too must be reliable and free from distortions due to recent abnormal distributions

Net Asset Value

- _ heavy reliance on correct valuation of assets (not necessarily appropriate to use accounting figures) particularly if using statistic to estimate break-up value of assets

Value added methods

- _ need to determine average weighted use of capital
- _ book value needs to be determined by suitable method

(iii) (a) The group would be best valued as the sum of the value of its parts.

Because assumptions are required to estimate the value, it would be very difficult to get meaningful results without breaking the company up into the different business units. This is likely to be straightforward as available information will be broken up in a similar way.

(b) Property company assets are dominated by the properties under management and the intellectual capital built up in the employees managing the portfolio.

On wind-up, the property would be expected to have a broadly unchanged value.

A common valuation method used for valuing property company shares would be based on the net asset value of the company.

Paper 3.2 FINANCIAL FUTURE AND OPTIONS

1a. The value of the put option will increase as volatility increases, because it makes it more likely for the price of the underlying asset to fall below the exercise price.

b. Annual volatility is given by:

$$\sqrt{N} \times \text{Daily Volatility}$$

$$= \sqrt{250} \times 1.4 = 22.14\%$$

c. American option are more valuable than European option because it can be exercised at any time.

d. It is the risk that at expiration the price of the futures contract is not the same as the price of the underlying asset. Basis risk creates an imperfect hedge.

e. Coupon swaps convert interest flows from *fixed* rate to *floating* rate basis, or the reverse, in the same currency. Basis swaps convert interest flows from a floating rate calculated according to one formula to a floating rate according to another (e.g. 6 month NIBOR to 3 month NIBOR).

f. There will be maintenance margin call when the price drops to:

$$\frac{(\text{OP}) (1-\text{IM})}{1-\text{MM}} = \frac{50 (1-0.50)}{1 - 0.25} = \frac{25.0}{0.75} = \text{¥}33.33$$

Note:

OP = original price

IM = initial margin

MM = maintenance margin

g. A 3x6 FRA expires in 90 days (3months) and is based on 90-day NIBOR.

h. The rate of return is given by:

$$\frac{I}{T} \frac{I_n}{BV} \frac{EV}{0.5} = \frac{1}{0.5} \frac{100}{90} = 21.07\%$$

i. To prevent arbitrage, the following must hold:

$$(\$/\text{£}) (\text{£}/\text{¥}) (\text{¥}) = 1$$

$$\text{Let } \text{£}/\text{¥} = K. \text{ Then:}$$

$$(1.4570) (K) (128.17) = 1$$

$$K = \text{£}/\text{¥} = 1/186.74 = \text{¥}/\text{£} = 168.74$$

j. The hedge ratio of the straddle is the sum of the hedge ratio of individual options:

$$0.4 + (0.6) = -0.2$$

k. The convergence prosperity of futures and forwards trade means that the price of forwards and spot will be the same at maturity. It is also referred to as decay in value

l. To create a synthetic stock, you simply make the stock price (S) the subject of the formula:

$$C + Ee^{-rT} = P + S$$

$$\therefore S = C + Ee^{rT} - P$$

This means the combination of long call, long PV of exercise price and short put.

m. The speculative value is the current market value of the warrants less the intrinsic value.

$$\text{Intrinsic value} = \text{Max} (\text{N}45 - \text{N}35) = \text{N}10$$

$$\text{Speculative} = \text{N}19 - \text{N}10 = \text{N}9$$

n. Market conversion price (i.e. conversion parity price) =

N960 ÷ N40 =	N24
Less current VPS	15
Market conversion premium	9

Thus, market conversion ratio = $9/15 \times 100 = 60\%$

o. A long hedge is appropriate when a company knows it will have to purchase an asset in the future. It can also be used to offset the risk from an existing short position.

2

a. (i) The notional value of 10 contracts is $10 \times 250 \times 950 = 2,375,000$.

With an initial margin of 10% of the notional value, this results in an initial margin of: $2,375,000 \times 0.10 = 237,500.00$

(ii) With continuous interest rate of 6%, our account balance after the first week is given by: $237,500e^{0.06 \times 1/52} = 237,774.20$

We will get a margin call if the initial margin falls by 20%. We calculate 80% of the initial margin as: $237,500 \times 0.8 = 190,000$

10 long futures contracts obligate us to pay 2,500 (10 x 250) times the forward price at expiration of the futures contracts. Let X represent the required value of the index. Then the following equation must hold:

$$237,774.20 + (x - 950) (2500) \geq 190,000$$

$$237,774.20 + 2500X - 2,375,000 \geq 190,000$$

$$2500X \geq 2,327,225.80$$

$$X \geq 930.89$$

Therefore, the greatest index futures price at which we will receive a margin call is 930.89.

b) One futures contract has the value of $250 \times 875 = 218,750$. Therefore, the number of contracts needed to cover the exposure of 800,000 is: $800,000 \div 218,750 = 3.65714$.

Furthermore, we need to adjust for the difference in *beta*. Since the beta of our portfolio exceeds 1, it moves more than the index in either direction. Therefore, we must increase the number of contracts.

The final hedge quantity is: $3.65714 \times 1.1 = 4.02286$. We should therefore short sell 4.02286 contracts of index future or 4 whole contracts.

As the correlation between the index and our portfolio is assumed to be 1, we have no basis risk and have perfectly hedged our position and transformed it into a risk-less investment. Therefore, we expect to earn the risk free interest rate as a return over one year.

3(a) The conversion value (CV) is the current market value of the shares into which the bond can be converted.

$$CV = VPS \times CR$$

$$\begin{aligned}
 \text{CR} &= \text{Conversion ratio} \\
 &= \frac{\text{Face value}}{\text{Conversion price}} \\
 &= \frac{\text{N}1,000}{\text{N}80} = 12.50 \text{ shares} \\
 \text{CV} &= \text{N}70 \times 12.50 = \text{N}875.00
 \end{aligned}$$

b) The minimum value of the convertible is given by the higher of:

- * The conversion value and
- * The straight value.

The straight value or floor value or investment value is given by the present value of the relevant cash flows associated with the bond assuming it is non-convertible. This is computed as follows

Item	Year	CF	PVF at 8.023%	PV
Coupons	1-15	60	8.5475	512.85
Face value	15	1000	0.3142	<u>314.20</u>
				<u><u>827.05</u></u>

The straight value is approximately ~~N~~827.00

The minimum value is therefore the higher of ~~N~~950 and ~~N~~827 or ~~N~~950.

The actual value of a convertible bond will be greater than the minimum value or formula value because of the option to convert. On the last day for conversion however, the actual value will equal the formula value.

c) The market conversion price (MCP) is the effective price per share paid by buying the convertible and converting it to shares.

$$\begin{aligned}
 \text{MCP} &= \frac{\text{Market price of convertible}}{\text{CR}} \\
 &= \frac{\text{N}950}{12.50} = \text{N}76
 \end{aligned}$$

d) The market conversion premium per share is the excess paid per share by buying the convertible and converting versus buying the shares outright. It is computed as:

$$\text{MCP} - \text{VPS} = 76 - \text{N}70 = \text{N}6 \text{ per share}$$

The market conversion premium is the percentage pay-up for buying the convertible and converting it to shares versus buying the shares. It is computed as:

Market conversion premium ratio

$$= \frac{\text{Market conversion premium per share}}{\text{VPS}}$$

$$= \frac{\text{N}6}{\text{N}70} \times 100 = 8.57\%$$

- e) Premium payback period (PPP) is the length of time, in years, it would take to earn back the conversion premium, given a higher income yield on the bond than on the share.

$$\text{PPP} = \frac{\text{Market conversion premium per share}}{\text{Favourable income differential per share (FIDPS)}}$$

$$\text{FIDPS} = \frac{A - B}{\text{CR}}, \text{ where}$$

$$A = \text{Coupon interest from bond} = \text{N}60$$

$$B = (\text{Conversion ratio}) \times \text{DPS} = 12.50 \times \text{N}3 = \text{N}37.50$$

Thus, the FIDPS is

$$= \frac{60 - 37.50}{12.50} = \text{N}1.80$$

$$\text{PPP} = \frac{\text{N}6}{\text{N}1.80} = 3.33 \text{ years}$$

- f) The premium over straight value is given by:

$$\text{Premium over straight value} = \frac{\text{Market price of convertible}}{\text{Straight value}} - 1$$

$$= \frac{\text{N}950}{\text{N}827} - 1 = 14.86\%$$

This is interpreted as a measure of downside risk for the convertible on assumption that, if the share price deteriorates, the convertible would not trade below its straight bond value.

The higher the premium over straight value, all other factors constant, the less attractive the convertible.

4

a) This question deals with the application of Black and Scholes option pricing model to options on currency. The following valuation model will be used:

$$C = Se^{-qT} N(d_1) - Ee^{-rT} N(d_2)$$

$$d_1 = \frac{\ln(S/E) + (r - q + 0.5s^2)(T)}{\sigma\sqrt{T}}$$

$$d_2 = d_1 - s \sqrt{T}$$

Put - Call parity

$$C + Ee^{-rT} = P + Se^{-qT}$$

Where

S = Spot exchange rate

E = Exercise exchange rate

r = Domestic risk-free interest rate

q = Foreign risk-free interest rate

T = Time (years)

Alternative versions of this formula leading to the same results are available and allowed.

There are two expiry dates we need to consider, 3 months where we wish to have a call option to allow us to buy WA\$150 million, and 9 months where we want to put option on WA\$450.

Relevant input are

	3 months	9 months
Spot rate (S): ₦/WA\$*	0.6900	0.6900
Risk-free rate:		
- Domestic (r)	4.6%	4.7%
- Foreign (q)	2.7%	3.1%

*Note that the exchange rate to be used must be direct to naira and is computed as follows:

$$\text{WA}\$/\text{₦} = 1.4493$$

$$\text{₦}/\text{WA}\$ = \frac{1}{1.4493} = 0.6900$$

Monthly volatility = 635%, hence annual volatility = $6.35\% \times \sqrt{12} = 22.00\%$.

Hence the inputs are:

	3 months	9 months
Exercise rate (E) - (at the money)	0.6900	0.6900
Spot rate	0.6900	0.6900
r	4.6%	4.7%
q	2.7%	3.1%
T	0.25	0.75
š	22.0%	22.0%

Note: Exchange rates must be stated in *direct* quote format

3 month call

$$d_1 = \frac{\ln\left(\frac{0.69}{0.69}\right) + (0.046 - 0.027 + (0.5)(0.22)^2)(0.25)}{(0.22)(0.25)}$$

$$= 0.982$$

$$d_2 = d_1 - s\sqrt{T}$$

$$= 0.982 - (0.22)(0.25) = -0.0118$$

$$N(d_1) = N(0.982) = 0.5359 + 0.82(0.5398 - 0.5359) = 0.5391$$

$$N(d_2) = N(-0.0118) = 1 - N(0.0118)$$

$$= 1 - [0.5040 + 0.18(0.5080 - 0.5040)] = 1 - 0.5047 = 0.4953$$

$$C = Se^{-qT} N(d_1) - Ee^{-rT} N(d_2)$$

$$= 0.69e^{-0.027 \times 0.25} (0.5391) - 0.69e^{-0.046 \times 0.25} (0.4953)$$

$$= 0.3695 - 0.3378 = 0.0316 \text{ or } 3.16 \text{ Kobo}$$

i.e. three month call option will cost 3.16 per WA\$ or ₦3160 per contract.

9 month put

We first value an equivalent call.

$$d_1 = \frac{\ln\left(\frac{0.69}{0.69}\right) + (0.047 - 0.031 + (0.5)(0.22)^2)(0.75)}{(0.22)(0.75)} = 0.1582$$

$$d_2 = 0.1582 - (0.22)(0.75) = -0.0323$$

$$N(d_1) = N(0.1582) = 0.5596 + 0.82(0.5636 - 0.5596) = 0.5629$$

$$N(d_2) = N(-0.0323) = 1 - N(0.0323)$$

$$= 1 - [0.5120 + 0.23(0.5160 - 0.5120)]$$

$$= 1 - 0.5129 = 0.4871$$

$$C = 0.69e^{-0.031 \times 0.75} (0.5629) - 0.69e^{-0.047 \times 0.75} (0.4871)$$

$$= 0.3795 - 0.3245 = 0.0550$$

We can now make use of the put-call parity to derive the corresponding value of put:

$$C + Ee^{-rT} = P + Se^{-qT}$$

$$0.0550 + 0.69e^{-0.47 \times 0.75} = P + 0.69e^{-0.0371 \times 0.75}$$

$$0.7211 = P + 0.6711$$

$$P = 0.0500 \text{ or } 5 \text{ kobo}$$

i.e. a nine month put option will cost 5kobo per WA\$ or ₦5000 per contract

b) Hedging seeks to eliminate loss potential but, as a consequence, must give up the profit potential and is achieved by taking account of the option delta (delta hedging) as follows:

$$\frac{\text{Value of exposure}}{\text{Value of one contract}} \times \frac{1}{\text{option data}}$$

The option delta being

- for calls $N(d_1)$
- for puts $N(-d_1)$

To eliminate exchange risk we need to delta hedge, hence

$$\text{No. of 3 month calls} = \frac{150}{100,000} \times \frac{1}{0.5629} = 2,665$$

$$\text{No. of 9 month puts} = \frac{450M}{100,000} \times \frac{1}{*0.4371} = 10,295$$

(*0.4371 = 1 - 0.5629)

Cost of hedge

<u>Contract</u>	<u>No</u>	<u>Unit cost</u> ₤m	<u>Total cost</u> ₤m
3 month calls	2,665	3.160	8.42
9 month puts	10,295	5.000	<u>51.48</u>
			<u>59.90</u>

5

a) Before entering into futures or forward contract, hedgers have exposure to price changes in the underlying assets. To hedge this risk, Hedgers enter into contracts that closely offset this price risk. The problem is that for most hedgers there is not a contract that exactly marches their exposure. Perhaps, the commodity they use is a different grade or needed in a different location than specified in the contract. So difference in prices between the actual asset the company is exposed to and the asset in the contract may exist and change over time. Likewise, a portfolio manager hedging a stock portfolio

may hold a portfolio that is not perfectly correlated with the index future he is using to hedge with. To minimize basis risk, it is necessary to find the contract whose price is most highly correlated with the price of the asset to be hedged.

- b) The fourth factor affecting the price of a stock index futures contract is the risk-free interest rate, usually measured by the Treasury bill rate. Futures prices increase with increases in the risk-free interest rate. Investors can create portfolios with identical levels of risk by either investing directly in a diversified equity portfolio or purchasing an equivalent position in stock index futures and placing the remainder in risk-free assets.

The stock portfolio earns the price appreciation of the stocks plus their dividend yield; the futures portfolio earns the price appreciation of the futures plus the risk-free interest rate.

Since futures are marked to the market, the futures price will equal the spot price of the stocks at the futures contract's expiration date. Market forces (arbitrage activity) results in stock index futures being priced such that price is equal to the future value of the current spot price, using the "cost of carry" as the discount rate. The cost of carry is the risk-free interest rate minus the dividends yield on the stock portfolio.

If the risk-free interest rate subsequently increases, it becomes more profitable to purchase the futures/Treasury bill combination than to invest directly in the stocks themselves, because of the higher return on the Treasury bills now available. As a result, the price of the futures contract will be bid up until it is again equal to the future value of the current spot price of the equivalent stock portfolio. There is a direct and positive relationship between the risk-free interest rate and futures price.

6

- a) The law of one price suggests that identical goods selling in different countries should sell at the same price, and that exchange rates relate these identical values. This leads on to purchasing power parity theory, which suggests that changes in exchange rates over time must reflect relative changes in inflation between two countries. If purchasing power parity holds true, the expected forward exchange rate (F) can be forecast from the current spot rate (S) using the following formula:

$$\frac{1 + i_F}{1 + i_D} = \frac{S}{F} (DC/FC), \text{ where:}$$

- i_F = foreign inflation rate
- i_D = domestic inflation rate

This relationship has been found to hold in the longer-term rather than the shorter-term and so tends to be used for forecasting exchange rates several years in the future, rather than for periods of less than one year. For shorter periods, forward rate can be calculated using interest rate parity, which suggests that changes in exchange rates reflect differences between interest rates between countries.

b) Determine the 3-month and 6-month risk-free rates in Britain, using the formula:

$$F = S e^{(r_D - r_F) T} \quad (\text{DC/FC})$$

Where:

- F = Forward rate
- S = Spot rate
- r_D = Domestic interest rate
- r_F = Foreign interest rate
- T = Duration of the forward contract

Note: Dollar is taken as the domestic currency because the exchange rates given are all direct to dollar.

3 -Month rate:

$$1.6755 = 1.6830 e^{(0.05163 r_F)(0.25)}$$

$$0.99554 = e^{(0.05163 r_F)(0.25)}$$

$$\ln(0.99554) = (0.05163 r_F)(0.25) \text{ or } r_F = 6.951\%$$

6- Month rate:

$$1.6683 = 1.6830 e^{(0.05103 r_F)(0.5)}$$

$$0.99127 = e^{(0.05103 r_F)(0.5)}$$

$$\ln(0.99127) = (0.05103 r_F)(0.5) \text{ or } r_F = 6.857\%$$

ii) Determine the forward rate: With continuous compounding the forward rate between period T_1 , and period T_2 is given by:

$$\frac{r_2 T_2 - r_1 T_1}{T_2 - T_1}$$

$$= \frac{(0.06857)(0.5) - (0.06951)(0.25)}{0.5 - 0.25} = 6.763\%$$

7.

(a) Expectation hypothesis:

This hypothesis is based on the fact that the future expected prices are known. Hence the future price and the expected price will be the same. In this case there will be no profit to both short or long position. The expectation hypothesis is of little use as it is not realistic

(b) Normal backwardation.

This theory is one of the major hinges on which futures and forwards contract relies. It is based on the position that there are natural hedgers that would want to hedge the

future risk by entering into a contract now. Because he is risk adverse he is ready to pay some risk premium to encourage the counterparty who is a speculator to enter into a contract. The speculator on the other hand will only enter into a contract if he believes he will profit from the deals. The consequence of this relationship is that future prices must be lower than the expected spot price. The difference represents the speculator profit.

The theory of normal backwardation thus suggest that the future price will be bid down to a level below the expected spot price, and will rise over the life of the contract until the maturity date, at which point the two prices will converge

(c) Contango

This is the opposite side of normal backwardation. Instead of the hedgers trying to sell in the future he is buying in the future and would want to pay something higher than the expected future price to encourage a speculator to enter the opposite side of the trade.

The speculator makes a profit equal to the expected future price less spot price since the spot price will be lower at settlement date. The contango theory therefore is to the effect that future price must be higher than expected spot price.

(d) Net Hedging Hypothesis

The net hedging position is to the effect that in every market there are bounds to be natural hedgers from both sides of sale and buy. The theory posit that the strength of the opposing hedgers determine whether the buyer or the seller will be paying more. This is a compromised view that is based on supply and demand of the hedgers. Once the net hedging position is determined the result will either be a normal backwardation market or contango. The strong side must pay a premium to induce speculators to enter into enough contracts to balance the natural supply of long and short hedgers.

PAPER 3.3 MARKETING OF FINANCIAL SERVICES

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

SOLUTION 2

(a)

- To increase profitability, of the bank
- To increase the image of the bank
- To open more outlets and become the market leader
- To meet unfulfilled customer needs
- To use qualified, experienced and courteous workers (5 marks)

(b) (i) Relationship Marketing may be defined as the practice of building a long-term satisfying relations with key parties — (customers, suppliers, distributors etc) in order to retain a long-term preference and business. (3 marks)

(ii) Internal marketing is the task of a firm successfully recruiting, training and motivating able qualified and experienced employees who want to serve the customers well. (3marks)

(c) The major problem was in the recruitment of staff which was based on corruption, nepotism and favouritism that led to people who failed to do their work well because there is one "Godfather" to protect him/her if he is found wanting. This led to inefficiency and poor customer service. (5 marks)

(d) Magnificent can introduce e-banking services, Automatic Teller Machine services to reduce delay in serving customers, loans should be granted to customers. They could also give financial and managerial advice to customers. (4 marks)

(e) The promotional means available to magnificent include advertising, sales promotion, public relations and publicity and point-of-purchase activities, exhibitions, conferences and presentations. (5 marks)

SOLUTION 3

Objectives

Candidates will be required to demonstrate understanding of the relationship between pricing and profitability of the firm. The implication of wrong pricing methods should also be discussed. The limitations imposed by the government guidelines and restrictions on pricing should also form part to the introductory part of the answer to this question. Aside the introduction, the factors below should form the bulk of the answer to the question.

Definition: Pricing is the amount of money in exchange for which a producer is willing to perform a service.

(A) The factors affecting pricing decisions are:

- (i) Cost of funds;
- (ii) Government regulations;
- (iii) Activities of competing firms;
- (iv) Risk attached to funds;
- (v) Volatility of the money and capital market e.g. economic policies and political stability;
- (vi) International exposures

7 Marks

(B) Pricing options available to an institution are:

- (i) Cost of mobilizing funds plus expected returns;
- (ii) Competitive pricing i.e pricing in accordance with prevailing market rate.
 - a. Premium/skimming pricing that is pricing based on being pioneer and enjoying monopoly;
 - b. Penetration pricing i.e. designed to achieve accommodation and increase market share;
- (iii) Risk-based pricing.

8 Marks

Candidates will be required to explain how relevant these options are in practice.

Total 15 Marks

SOLUTION 4

Candidates are expected to discuss in details the following points:

- Transparent pricing
- Define your vision and mission — strategic vision
- Use Tangible Questions
- Deploy appropriate technology and improve process
- Establish communication links to improve feedback
- Achieve place utility — branch network
- High quality staff who know their onions
- Use Retainership
- Relationship marketing
- Deploy TQM techniques
- Buried financial brands
- Product bundling and branding
- Create awareness — Promotion
- Customers convenience — Car park etc.

SOLUTION 5

Mark Scheme

- (a) (i) Definition of Public Relation 3 marks
(ii) Importance as a tool 7 marks
- (b) Methods of Public Relation 5 marks
Total 15 marks

- (a) (i) Public Relations (PR) may be define as the activities of a company or an organization to build and maintain a good and productive relations with its numerous publics.
- (ii) Importance
- It is used to build up a good original image of the company and its products.
 - It is used to handle and explain damaging (potential damaging) rumours stories or events
 - PR may have a strong influence on public awareness at a much lower cost and it has more credibility than advertising.
 - It may help to give information about the company and its products to the public
 - It may help to increase sales of product or service.
- (b) The tools used include:
- Press release: Putting newsworthy information in the news media (newspapers, television, radio etc).
 - Lobbying: Dealing with politicians and government functionaries in order to promote favourable policies and regulations and defeat unfavourable ones.
 - Counseling: Advising corporate top management about relevant public issues and company position and image.
 - Event management: Sponsoring of sports events and donations made at fund- raising rallies.
 - Corporate communications: Promoting understanding of the organization with internal.

SOLUTION 6

Mark Scheme

- Definition of marketing budget = 3 marks
At least 3 advantages x 2 marks = 6 marks

At least 3 disadvantages x 2 marks = 6 marks
Total 15 marks

Definition:

Marketing budgets are planning and control tools used by the marketing department. It shows the marketing objectives in quantified terms such as market share or distribution targets.

Advantages for the use of budgets

1. they set targets which give staff guidelines for action
2. targets motivate staff as they try to achieve them
3. having budgets enables measurement
4. the process of setting budget means that thought has gone into plans.
5. it controls expenditure
6. it monitors performance against targets

Disadvantages for the use of budgets

1. budgets can be inflexible
2. opportunities may be missed as managers apply budget units strictly
3. some budget holders may feel that they must use the all available spending
4. the process of preparing budgets is time consuming.

SOLUTION 7

Candidates should examine the various stages of the PLC and carefully investigate various strategies for the product, its brand, pricing, promotion, distribution etc.

Introduction stage

- Product strategy is to ensure standard of quality for consumers acceptance.
- Promotion is to create consumer awareness of the brand.
- Pricing strategy will follow either penetration or skim pricing
- Sufficient distribution should be ensured by convincing and attracting distribution to carry the brand.

Growth Stage

- The product strategy is build brand loyalty among the consumers who have tried the product.
- Advertising objective is to educate and inform consumers on specific benefits.
- Price used in the introduction stage will change, price will be decreased if skim pricing was used in the introduction stage and vice versa for penetration pricing.
- Distribution will be intensified but discounts will be cut back.

Maturity Stage

Sales begin to level off because of more intense competition, technological advances etc

- Reposition the product to revitalize it secure new markets
- Advertising campaign shifts from informational to imagery in an attempt to differentiate the product from competing brands.
- Minor changes may be made in packaging or product design

Decline stage

- Decision to totally redesign the product or withdrawal
- Withdrawal might be preceded by harvesting strategy if the brand is to be remodified, the strategy is to reintroduce the product.
- Trade discount and advertising allowances may be given to distributors to hold them on. Consumers may be offered coupons and promotion prices to induce them to buy.

PAPER 3.4 REGULATIONS AND PRACTICE OF STOCKBROKING

1

- (i) E
- (ii) C
- (iii) C
- (iv) A
- (v) D
- (vi) A
- (vii) B
- (viii) B
- (ix) E
- (x) A
- (xi) B
- (xii) D
- (xiii) D
- (xiv) C
- (xv) C
- (xvi) B
- (xvii) E
- (xviii) B
- (xix) D
- (xx) B
- (xxi) 29.94
- (xxii) 70 kobo

- (xxiii) Hostile acquisition generally involves poorly performing firms in mature industries and occurs when the board of directors of the target company is opposed to the sale of the company. The acquiring firm has two options to proceed with the acquisition – a tender offer or a proxy fight.
- (xxiv) Term to maturity of a bond is the number of years over which the issuer has promised to meet the conditions of the obligation.
- (xxv) Stop loss order is an order given to limit the loss due to unfavourable price movements in the market.

(a)(i) Total Number of Shares to be listed

HARKINS Number of Shares: 2,000,000,000 (1mark)

HULKINS Number of Shares:
 $\frac{8}{10} \times 1,900,000,000 = 1,520,000,000$ (1mark)

HOGANS Number of Shares
 $\frac{7}{10} \times 1,400,000,000 = \frac{980,000,000}{4,500,000,000}$ shares (1mark)

(ii) Capitalisation value

4.5 billion Shares at N3.50 = N15.75 billion

(iii) Interest Value:

$$\frac{8}{10} \times 107,000,000 \times 3.50$$

= N299.6 million

(iv) Motives behind M&A

- (1) Economics of scale: This refers to the fact that the combined company can often reduce duplicate departments or operations, lowering the costs of the company relative to the same revenue stream.
- (2) Synergy: Better use of complimentary resources.
- (3) Taxes: A profitable company can buy a loss maker to use the target loss as their advantage by reducing their tax liability.
- (4) Resource transfer: Resources are unevenly distributed across firms and the interaction of target and acquiring firm resources can create value through combining scarce resources.
- (5) Increased Market share, which can increase market power.
- (6) Geographical or other diversification.

(b) For these preference shares, the extracts tell us that the issue may be redeemed prior to May 1, 2013 but they are not to be refunded- that is, they cannot be called using a lower cost of funds such as a new bond issue with a lower coupon rate than the issue itself.

3(a) Article 165:

A person shall be an Authorized clerk if:

- (1) He has qualifications and has undergone training recognised and prescribed by the Exchange
- (2) He is registered with The Nigerian Stock Exchange
- (3) He is not less than 21 years old of good character and integrity.
- (4) He has agreed to comply with such other requirements for membership as council may prescribe from time to time: and
- (5) Be recommended by a dealing member who will be liable for all transactions made on its behalf on the Exchange by the Authorized clerk.

3(b) Any five of the listed instances

A member or registered student shall be liable to disciplinary proceedings if:

- (i) in the course of carrying out his professional duties or otherwise, has been guilty of misconduct.
- (ii) he has performed his professional work or the duties of his employment negligently, to such an extent or on such number of occasions as to bring discredit to himself, to the Institute, to his employer, or to the profession.
- (iii) he has committed any breach of the Charter or any bye-law or regulations made under them in respect of which he is bound.
- (iv) he has been disciplined by any other professional body recognized by statute or pursuant to some other disciplinary process.
- (v) he is a "specified person" in relation to a corporate body against which a disciplinary order has been made and which has become effective or which has been disciplined by a regulatory authority or pursuant to some other disciplinary process.
- (vi) in the case of a Stockbroking firm or other body corporate, any member has in the course of business of that firm committed any breach of the Charter, bye-laws or regulations made under them in respect of which he is bound.
- (vii) he has made an assignment for the benefit of creditors, or has made an arrangement for the payment of a compensation to creditors, or has had an interim order made by the court in respect of him, or is a specified person in relation to a firm which has made such an assignment or compensation or been wound up, or entered into a voluntary arrangement, administration or liquidation, or other similar or analogous event has occurred in relation to him under applicable legislation.
- (viii) he has failed to satisfy a judgment debt without reasonable excuse for a period of three months (and the fact that he did not have sufficient funds to

discharge the debt shall not be a reasonable excuse for this purpose) whether or not the debt remains outstanding at the time' of the bringing of the disciplinary proceeding hereunder.

- (ix) he does anything contrary to the Stockbrokers' Oath of Allegiance to which he had subscribed.

4.

(a)(i) e-Dividend is the direct credit of dividend payments to the nominated bank accounts of shareholders within 24 hours of declaration.

(a)(ii) Parties involved for a successful implementation of the scheme are:

- (i) The paying companies
- (ii) Registrars
- (iii) Shareholders

- (iv) The banks
- (v) Nigerian Interbank Payment System
- (vi) CSCS

(b) Implications of e-dividend

1. It promotes greater capital market transparency.
2. Postal delays in receipt of dividend warrants will be eliminated.
3. The issue of stolen dividend warrants will be avoided.
4. High cost of producing dividend warrants for millions of shareholders will be saved.
5. Reduction in the number of people that go to registrars for enquiries about their dividends.
6. e-Dividend will ride in tandem with the prevailing economic order characterized by e-banking, e-bonus etc.
7. e-Dividend will enhance immediate access to dividend income, hence promoting capital market liquidity.
8. It enhances the confidence of both local and foreign investor in the Nigerian capital market.
9. It promotes the reduction in the size of unclaimed dividends.
10. It cultivates banking culture as every investor must operate a bank account.
11. e-Dividend makes dividend reconciliation very easy.

5.

Return Monies

Every Registrar shall return surplus monies due to subscribers or purchasers of securities within 5 working days of allotment of securities or at such other time as may be approved by the SEC.

Mode of Return

- 1) All return monies shall be paid by special crossed cheque unless the subscriber requests in writing to be paid by open cheque.
- 2) Such monies shall be returned by registered post or through a reputable courier service.

Custody and Transfer of unclaimed monies

- 1) All unclaimed monies shall be kept in a special bank account and the Registrar shall inform the Issuer and the SEC accordingly.
- 2) An evidence indicating account into which the cheque for return monies was paid shall be submitted to the SEC by the Registrar.
- 3) A statement of the amount of return monies shall be submitted by the Registrar to the SEC with a tabular record of the affected persons, their respective addresses and amount due each such person within 10 working days.
- 4) All unclaimed return monies shall after 6 months be transferred by the Registrar into an investors protection fund.
- 5) The investor concerned shall thereafter apply to the fund to recover the amount due to him.

6(a) Nominee account

This is an account of assets/securities held by an agent (e.g. a stockbroker) on behalf of the original investor. A nominee account should be kept separate from the broker's own affairs so that bankruptcy or other disasters affecting the broker does not affect the nominee account. There is, however, no certain way of ensuring that the broker has actually placed anything in the nominee account.

(b) Ethical funds

These are funds which invest only in assets which do not break their stated rules of ethicality. For example, a fund which will not invest in any company involved with tobacco, alcoholic drinks, etc.

Because they avoid investing in non-ethical sectors, it is likely that they will always underperform the ordinary funds in the long term since the latter can always make the same investments as the ethical funds while the ethical funds will always miss out on booms in non-ethical sectors.

(c) Open-ended investment companies (OEICs)

These are open-ended funds governed by the company law. They are intermediate between unit trusts and investment trusts. There is one price for buyers and sellers (no bid-offer spread), so management charges may be higher instead.

They can have many share types for easy switching between funds. One OEIC can have, for example, shares in an equity fund, shares in a bond fund and shares in a cash fund.