

SEPTEMBER 2007 PROFESSIONAL EXAMINATION SOLUTION
PAPER 3.1 - SECURITIES ANALYSIS AND PORTFOLIO MANAGEMENT

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- a. (i) Growth stocks are stocks of companies whose financial performance and earnings exceed the industry average and the economy in general. The profits are typically re-invested to expand the business and minimal dividends if any, are paid to stockholders. Stockholders gain because the share price goes up as the company grows.
- (ii) Preferred stocks are securities that represents an ownership interest in companies and give their owners a prior claim over ordinary/common shareholders with regard to dividend payments and any distribution of assets should the firm be liquidated. Preferred stock normally is entitled to dividend payments at a specified rate. These dividends must be paid in full before the payment of a ordinary share dividend.
- (iii) Cyclical stocks are stocks of companies, whose performance increases and decreases along with business cycles. When the business cycle is in an upturn, the value of the stocks of companies related to the particular industry would appreciate rapidly, offering windfall gains. Commodities, airlines, durable goods manufacturers fall in this category. However, these stocks lose value during downturn in business cycles.
- (iv) Short selling refers to the selling of shares that are not owned. The bears are the short sellers who sell now in the hope of buying at a lower price in the future to make profits. The short sellers have to cover up their positions.
- b. Where banks provide funds for investors to buy investment in a capital market.
- c. Unit Trust is a managed fund investment. The purchasers of units in a unit trust is a unit holder and a beneficiary of a trust fund and his interest is safeguard by a Trustee. Unit holders can sell off their investment for cash. A unit trust is constituted by a trust deed between the trustee and funds manager. They are guided by trustee investment Act.
- Investment Trusts are not trusts but companies which are guided by CAM Act. Investment Trusts are closed-end fund while Unit trust is an open-ended fund
- d. This is an application of the constant dividend growth model.
 $P_0 = D_1 / (r - g) = \$1.50 / (.08 - .04) = \$37.50 < \$40$. The stock is overpriced.

e.

$$\begin{aligned}
 P_1 &= \text{N}11.90 \\
 P_0 &= \text{N}9.70 \\
 D &= 18\text{k} \\
 K_e &= (D_1 + P_1 - P_0) / P_0 \\
 &= (18 + 1190 - 970) / 970 \\
 &= 24.54\%
 \end{aligned}$$

f. (i) Cash flow from operations (CFO) also called net operating cash flow is the cash generated or used by a business over a specified period of time derived by adjusting aftertax profit for noncash charges and noncash receipts. CFO can be calculated using either the direct or the indirect method. By the direct method:

$$\text{CFO} = \text{Collections from customers} - \text{Payments to suppliers and employees, etc.} - \text{Tax payments} - \text{interest payments}$$

The basic idea behind Free Cash Flow (FCF) is to provide a value for the cash left after the firm has accounted for used up capital the new investment required to finance expansion. There are various equivalent methods to arrive at FCF:

$$\begin{aligned}
 \text{FCF} &= \text{CFO} - \text{Cash for PPE (New and replacement)} \\
 &= \text{Net Operating Income before replacement of depreciated Assets} - \text{Replacement of Depreciated Assets} - \text{New PPE Investment} \\
 &= \text{Earnings Before Interest and Taxes} - \text{Taxes} + \text{Depreciation} - \text{New PPE Investment}
 \end{aligned}$$

(ii) Primary earnings per share is earnings available to common shareholders divided by the number of shares currently outstanding. No account is taken of the dilution associated with convertible securities and warrants.

Fully diluted earnings per share is earnings available to common shareholders divided by (the number of shares currently outstanding plus the additional number of shares if all convertible securities and warrants were exercised), ignoring the possibility that some or all of the convertible securities and warrants may not be exercised.

g. Warrants are issued by the company issuing the stock. As a result, when an investor exercises a warrant and buys the stock, the company issues new stock increasing the number of shares outstanding. The proceeds from the sale of stock represents a cash inflow to the company.

Exercise of a call option involves only a transaction between two parties with either a cash settlement or an exchange of stock taking place. There is no impact on the number of shares outstanding.

Terms and conditions for call options are governed by standardized contracts. Standard options contracts have features such as regular expiration dates, the absence of dividend payout protection, and possibility of early exercise (American option). Most call option contracts have term to maturity when originally written of nine months and less. Warrant contracts are non-standardized and can have a wide variation in possible features. When originally offered warrants are almost always long dated, with maturities around five years being common.

h. Any arrangement with respect to property of any description including money, the purpose of which is to enable persons taking part in the arrangement to participate in sharing profit or income arising from the acquisition of such property. Examples Unit Trust, Investment Trust, Mortgage Trust, Equity Trust.

i. Conversion Value = 10 000 x N8 = N80 000

Conversion Price = Purchase Price / No of shares the bonds convert to
= N100, 000 / 10, 000 = N10

Conversion Premium= (Conversion Price – Market Price) / Market Price
(N10 – N8) / N8 = 25%

j.

- i) Anyone is connected with the company by being a director, manager
- ii) Anyone who has access to sensitive information which is not available to the generality of the investors

k.

<u>Year</u>	<u>Payment</u>	<u>PV factor (10%)</u>	<u>Present Value</u>
1	5500	.9091	5000
2	5500	.8264	4545
3	5500	.7513	<u>4132</u>
			<u>13, 677</u>

- 2(i) The principal aim of an investing institution is to meet its liabilities as they fall due.
- They need to minimise actuarial risk.
 - They need to consider their liabilities.
 - Nature (fixed, real or varying).
 - Currency.
 - Term.
 - Level of uncertainty both in amount and timing.
 - They need to be aware of the investment strategy which will most closely match their liabilities by nature, currency and term.
 - Even if we do or cannot adopt such a strategy, alternate strategies should be evaluated against this benchmark position.
 - Uncertain liabilities means the institution will need to hold marketable assets.
 - Institutions may also need a strategy that will satisfy the requirements of regulators.

Subject to these points, an institutional investor will seek to maximise the investment return. (N.B. no marks without "subject to these points").

- The need to do this may come from competitive reasons, in order to continue to attract new business, to maximise shareholders returns or to minimise the cost of providing for the liabilities.
- The attempt to maximise return may involve departing from the benchmark position and hence conflict with the minimisation of risk.
- The size of the assets relative to the liabilities will determine the risk involved.
- Risk tolerance will depend on the nature of the institution and on the constraints of its governing body and documentation.
- The expected long term return on the various asset classes will depend both on the long term performance of the asset and on the timing of purchase and sales.
- It is difficult to allow for the timing factor in formulating a strategic policy.
- Investors preference for income or capital growth from their investment are governed by two main factors: tax and cash flow requirements.
- An institution will prefer to receive as much of its total return as possible in the lower form.
- Investors currently with low cash flow requirements may prefer low yielding investments to avoid the expense and uncertainty of reinvesting income.
- Conversely, investor who need current income may prefer high yielding investments to avoid the expense of realising assets.
- If an institution cannot accept large fluctuations in asset values then they may have a preference for high yields because in general, high

yielding assets are less volatile than low yielding assets because of their shorter duration.

- Volatility may be a problem because the need to demonstrate solvency dislike by retail customers
- The investment needs can also be shaped by the strategy followed by other funds and by the existing asset portfolio.

(ii) **Changing the strategic asset allocation**

Tactical switches, involving short term switching between investments in pursuit of higher returns, will be made when one asset class appears to be cheap or dear relative to another in comparison to their long term relationship.

Examples of relationships looked at include:

compare gilts and equities via the yield gap = equity dividend yield - gilt redemption yield

compare equities and index-linked via real yield gap (as above, but use real yields)

compare property against dividend yields or gilt yields

compare yields on corporate bonds against gilts to see if margin compensates for risk and unmarketability

similar comparisons on overseas investments, but must take into effect currencies

The main problems when making large changes to the asset allocation are:

- (a) The possibility of shifting market prices (both on sale of existing portfolio and purchase of new assets).
- (b) The time needed to effect the change and the difficulty of making sure that the timing of deals is advantageous.
- (c) The dealing costs involved
- (d) The possibility of the crystallisation of capital gains leading to a tax liability.

3. (i) There are three phases, the building, operating and transfer. Any delay in building will shorten the time for operation of the bridge, since the transfer will occur at an agreed date. The operation will be cash flow negative, at least until the bridge comes into operation.

Treating the phases separately

Build: Inflation - of material costs, of wages, degree of engineering difficult which may add to build costs or delays, cost of loan capital, trend in interest rates anticipated for cash flow discounting.

Operate: Volume of traffic, any pattern likely to affect the volume, e.g. new developments, dependence on particular industries, alternative transport means (new roads, use of trains), inflation — of upkeep costs, whether materials or staff, of toll costs (what will be allowable?), interest costs on negative cash flows.

Transfer: Will a transfer fee be paid to the company (need fee basis, e.g. it is fixed in absolute or real terms — implies an inflation estimate needed). Will there be a final maintenance charge prior to transfer (on what basis will that be determined?).

- (ii) A prospective shareholder's view would differ as follows:

Rather than choose a central view of variables, an additional risk premium for uncertainty is likely to be applied (although, paradoxically, construction companies tend to be valued by stock market analysts on their order book rather than on their profits).

The analyst will not have access to detailed information on the project and so will apply simpler criteria. The time horizon of the analyst will be shorter, and will concentrate more on the short term influences of the build constituent of the exercise.

The appraisal will judge the impact as one element of the total appraisal of the company, so the scale of this project as a proportion of the total size of the company will be important.

The principal criteria will be the time involved in the build process, the material and wages costs, and the financial terms of the contract award (if known). Otherwise, the analyst is likely to make a judgement of the degree of competition during the tendering phase.

4. (i) These are both methods of raising equity capital by issuing shares to the public in a previously unquoted company.

The issues may be at fixed prices or alternatively by tender.

An offer for sale is an offer to the public and to investing institutions to purchase shares which are already in issue. It can take the form of a fixed price or an invitation to tender. In an offer for sale, the company is not issuing more shares but making existing shares more widely marketable and giving existing shareholders the opportunity to sell or cash in some or all of their shareholding. In other words, no new capital is being raised.

In an offer for subscription, the shares are offered directly to the public usually via newspaper advertisements. The shares offered for subscription are not already in issue. Usually a minimum subscription level is specified which if not achieved, the company can withdraw the offer. In this case new capital is being raised and all the company's shares (new and existing shares) will now be listed on the stock market if the offer succeeds.

- (ii) (a) The amount of sub-underwriting commission;

The terms of the sub-underwriting agreement; for example, do the sub-underwriters participate pro-rata in the purchase of shares not taken up by the public or do they only participate when the number not taken up reaches a certain level.

How likely is it that the shares will be left with the subunderwriters?

A rights issue is normally a significant event for a company and may be associated with the purchase of another company or business. We would need details of why the issue is being made and we would need to review our analysis of the company to reappraise its valuation. This should determine whether or not we think the shares are cheap at the rights issue price.

The likelihood of the shares being left with the sub-underwriters will depend on

- the rights issue price relative to the market price
- the size of the issue
- the immediate prospects for the whole market.

The deeper the discount, the less likely it is that shares will be left with the sub-underwriters.

The bigger the issue the greater the chance that not all the shares will be taken up

A short term fall in the market may drag the share price down to or below the rights issue price resulting in shares being left with the sub-underwriters.

Other factors to consider:

- the reaction of the market to the issue
- our current portfolio exposure to this company / industry and how this could change if we accepted the underwriting
- what we plan to do with our rights
- liquidity restrictions and our current total exposure on underwriting new issues
- the standing of the issuing house and the need to maintain a good relationship with them.

- (b) By agreeing to act as sub-underwriter we are effectively selling a put option which could be priced using option pricing theory.

The key parameters would be the market price, the rights issue price, the volatility of the share, the period until the issue closes, details of any dividends expected during the period until the issue closes and the risk free rate of return.

Other factors to consider are

- details of the prices of any traded put options on the stock
- the general level of liquidity of the stock and the ability to hedge the potential to the stock through derivatives
- the "normal" level of commission
- the terms of the sub-underwriting agreement
- whether the pension fund would wish to be a long term shareholder in the company
- the basis of commission offered, i.e. whether it is on a take it or leave it basis or negotiable.

- (iii) Using the formula

Theoretical ex rights price can be determined by considering the position of a shareholder who has two shares

- the value of two shares plus the cash outlay to buy one extra share must equal the value of three shares at the theoretical ex rights price.

Allowing for the fact that the shares will be ex dividend when the issue closes and that the new shares don't qualify for the next dividend the theoretical ex-rights price currently anticipated is

$$(2 * 195.2 + 180) / 3 = 190.1k$$

If the market price remains at its current level then depending on the level of transaction costs it is possible that shares could be purchased more cheaply through the market rather than through taking the rights.

The likelihood is that some shares would be subscribed for and some could be left with the sub-underwriters.

5. (i) (a) Personal Investment by an individual

Advantages

- easy diversification with small amounts
- specialist expertise gained at reasonable cost
- holdings are divisible
- no tax on capital gains within approved investment trusts or authorised unit trusts
- lower dealing costs
- more marketability

Disadvantage

- loss of control

(b) Large institutional investor

Advantage

- quick way to gain exposure to new areas e.g. emerging markets where expertise is yet to be built up

Disadvantages

- loss of control
- extra management charges for clients
- may not be so tax efficient, e.g. withholding tax

(ii) (a) A unitised fund holds the following portfolio:

Stock	Nominal Holding	Mid Price Kobo	Mid Value
A	50	400	200
B	100	800	800
C	70	500	350
D	90	300	270
E	50	600	300
F	40	1000	400
G	80	700	560
H	20	600	120
			3000

Mid value of assets N3,000

Offer value of assets $N3,000 \times 1.0075 \times 1.005$
 $= N3037.6125$

→ bid price is 3.0376125

Offer price is bid price plus 5% = N3.18949325

(b) Move to a bid basis.

Bid value of assets = $N3,000 \times 0.9925 = N2977.5$

Hence bid price on bid basis would be: = N2.9775

Offer price/bid basis would be $2.9775 \times 1.05 = N3.126375$

- (c)
- If someone else is buying units at the same time and hence no units need to be cancelled.
 - If the Investment Manager operates a box system and the box is willing to take the units. This may be because:
 - (1) The manager is optimistic that cash flow will be positive again soon, i.e. a buyer will emerge in time and/or
 - (2) the manager is bullish on the stocks in general and is happy to invest the firm's capital in the units.
 - If the unit holder is willing to redeem his units slowly over a period of time in line with cash flow into the fund.
 - If the unit holder is willing to take stock instead of cash (and the manager is willing to part with stock).

- In this case a mid basis valuation and a bid unit price on this valuation basis is appropriate. A small admin or handling charge may be levied in this case.
 - Note stamp duty may apply if the Inland Revenue deems that a transfer of beneficial ownership has occurred. However this would be the responsibility of the person who receives the stock.
- (d)
- Is overall size of portfolio significant enough to be worth the trouble?
 - Look at portfolio of stocks.
 - Are they all names which you are happy to hold?
 - Compare it to the existing portfolio.
 - How would the distribution of the fund alter if the stocks are accepted?
 - Is this a desirable switch/alteration from the point of view of the existing unit holders?
 - If so, the existing unit holders will effectively get a free switch for their fund?
 - If you are happy to proceed in principle decide which stocks to keep and which are unacceptable.
 - Unacceptable stocks should be sold.
 - Do a basket trade to minimise costs/maximise cash and invest proceeds.
 - Establish whether or not stamp duty will be liable on transferred stock.
 - Value stocks being retained on transfer date, at the same time of day as the unit price is struck.
 - Price fund on a mid basis and allocate units at the offer price on this basis.
 - If transaction is significant the initial charge may be reduced or eliminated.

6a

- i. Investors should invest in a portfolio of securities that is diversified or eliminates most of the unique risk from their portfolio.
- ii. When prices are going up (bull market) investors should invest in shares with a high beta which in a bear market, investors should invest in low beta securities.

6b

- i. A market where securities prices quickly and fully reflect all available information. It will adjust itself to any outside influence that tends to manipulate the share prices

- ii. - No transaction cost on trading on securities
 - Information is freely available to all market operators
 - All investors have the same time horizon
 - All investors have homogenous expectations especially as regards current and future prices of securities.

- iii. this can be categorized into three
 - Weak firm: Shares are adjusted to their historical prices
 - Semi strong: Is concerned that all prices truly reflect available information
 - Strong firm: It is concerned if securities reflect full information about the company whether it is available to the general public or few individuals.

- iv. - Constant education to operators and dealers on the danger of moving up prices arbitrarily by the capital market operators
 - To keep an eye on company that may desire to offload his shares. Companies desiring to go for IPO must often manipulate prices by creating artificial scarcity if the shares.
 - Increase in share price can be reduced from its present 5% to 3%
 - Identity of large buyers may be obtained

7a

- i. When the scale of investment are different i.e. initial cash outlays.
- ii. When the patterns of cash flow are different. If a project though more profitable but produce higher cash inflow at the later years than the earlier stage, NPV will favour it against IRR.
- iii. When the life of the project are different

7b

- i. Accounting Rate of Return:
 - It ignores time value money
 - It uses subjective accounting profits rather than cash flow
 - It does not consider the earning life of the investment project
 - It ignores the fact that profit from different projects may accrue at an uneven rate
 - It is subjective in determining company's target ARR.

- ii. Pay back Period
 - it ignores time value money
 - it does not consider total profit of a project
 - it does not consider return on investment
 - It does not consider the fact that profits from different projects may accrue at an uneven rate.
 - It is subjective in determining company's pay back period

7c

Year	Discount Fact 10%	Project Y		Project K	
		Cash flow	PV	Cash flow	PV
0	1.0000	(8500)	(8500)	(5200)	(5200)
1	.9091	5720	5200	2220	2180
2	.8264	6130	<u>5066</u>	4870	<u>4025</u>
			<u>1766</u>		<u>843</u>

IRR of Project Y

Year	Cash flow	Try 20%		Try 23%	
		DF 20%	PV	DF 23%	PV
0	(8500)	1.0000	(8500)	1.0000	(8500)
1	5720	.8333	4766	.8130	4650
2	6130	.6944	<u>4257</u>	.6610	<u>4257</u>
			<u>523</u>		<u>407</u>

$$\text{IRR} = 20\% + [523 / (523 - 407)] (23\% - 20\%) = 21.69\%$$

IRR of Project X

Year	Cash flow	Try 30%		Try 33%	
		DF 30%	PV	DF 33%	PV
0	(5200)	1.0000	(5200)	1.0000	(5200)
1	2220	.7692	1708	.7519	1669
2	4870	.5917	<u>2882</u>	.5653	<u>2753</u>
			<u>(610)</u>		<u>(778)</u>

$$\text{IRR} = 30\% + [610 / (610 - 778)] (33\% - 30\%) = 40.89\%$$

7d.

- i. Perfect capital Market
 - Information is costless
 - Investors behave rationally
 - Investors can borrow without restriction
 - No transaction cost on buying and selling securities
- ii. The average expected future operating income of firms are represented by subjective random variables
- iii. Firms can be classified into homogenous Risk classes

7e.

Source	₦m	Proportion	After tax cost %	Weight cost %
Ord. shares	820	.3710	20	7.42
Ret. Earnings	620	.2805	20	5.61
Pref. Shares	320	.1448	16	2.32
Debt	<u>450</u>	<u>.2036</u>	10	<u>2.04</u>

2210

17.39

7f.

Net operating Income	N150, 000
Less interest (N650, 000 x 15%)	<u>97, 500</u>
Net income per share holder	<u>52, 500</u>

Market value of equity = 52, 500 / .17 =	308, 823
Market value Dept	<u>650, 000</u>
Market value of firm	<u>958, 823</u>

$$K = N/V = 150, 000 / 958, 823 = 15.64\%$$

**SEPTEMBER 2007 PROFESSIONAL EXAMINATION SOLUTION
PAPER 3.2: FINANCIAL FUTURES AND OPTIONS**

1

- (a) The intrinsic value of an option is the amount that would be realized if it were exercised immediately
- (b) Portfolio insurance refers to a collection of techniques for managing the risk of an underlying portfolio. The goal is to ensure that the value of the portfolio does not drop below a specified level, while at the same time allowing for its value to increase.
- (c) Change in option value = ΔC

$$= (\text{Delta} \times \Delta S) + (1/2 \text{ Gamma}) (\Delta S)^2$$

$$= (0.5 \times 10) + (1/2 \times 0.03 \times 10^2)$$

$$= 6.5$$
- (d) It is a computer-assisted monitoring of relative prices of financial assets; it sometimes includes computer submission of buy and sell orders to exploit perceived arbitrage opportunities.
- (e) It is also called a put swaption.
- (f) The time value of an option is equal to the market value less the intrinsic value. In this case, the time value

$$= 3.27 - (90-87) = N 0.27$$
- (g) The swap rate is the fixed rate that the fixed-rate payer agrees to pay over the life of the swap.
- (h) From put-call parity:
 Call = Put + Stock - PV of Exercise

$$= 2.25 + 60 - 55e^{-0.50(0.5)} = N 0.27$$
- (i) Differences in transaction costs give rise to quasi- arbitrage. Small retail customers face full transaction costs while large financial institutions have much lower transaction costs.
- (j) This trader loses if the price falls. The maximum loss would be incurred if the futures price falls to zero, and this loss would be ~~N~~97.50/lb x 25000 lbs or ~~N~~2,437,500.00
- (k) This is the revealing of information about futures cash market prices through the futures market.
- (l) The futures price is given by:

$$\frac{B_0(T_1)}{B_0(T_1)} = \frac{0.9833}{0.9955} = N 0.9877$$

- (m) There will be a margin call if the price falls below: $212 - (10 \times 8) = N210$
- (n) This is a strategy designed to control a continuing risk on an indefinite basis rather than hedge for a specific future date.
- (o) An investor who is short the bond market benefits if interest rates increase. The party to an interest rate swaps that benefits if interest rates increase is the fixed-rate payer. Thus, a fixed-rate payer is said to be short the bond market.

- 2 (i) (a) The writer of the option has no credit exposure to the purchaser of the option as she usually receives the option premium upfront. If the premium is paid in instalments over time then the writer has a credit exposure to the purchaser.

By contrast, the purchaser of an option always has a credit exposure to the writer as she is dependent on him for receipt of any profit on the option.

- (b) The party with the long position always has a potential, if not current, credit exposure to the party with the short position and vice versa as forwards can quickly move from being an asset on one's balance sheet to being a liability.

- (ii) (a) Third party guarantees and letters of credit could be used to Reduce the probability of default.

Limiting one's dealings to counterparties with a minimum credit rating, like A+, is another way of reducing the probability of default.

This however reduces the number of counterparties one can deal with.

- (b) The underlying exposure can be reduced by daily marking to market (margining).

The party with credit risk exposure receives collateral (usually cash and/or government securities) from the other party.

- (iii) In essence, the investment bank is holding a zero coupon bond as security for cash lent.

The investment bank has two credit exposures: one to the pension scheme (it may default on its obligations to buy the zero coupon bond

back for cash plus interest) and one to the issuer of the zero coupon bond.

The credit risk of the investment bank will increase if the value of the zero coupon bond falls below the cash + interest to be collected from the pension scheme.

If the zero coupon bond defaults the pension scheme is still obliged to buy it back at the price agreed.

The exposure on the zero coupon bond becomes an issue if the pension scheme defaults at the same time as the zero coupon bond defaults.

The credit risk could be reduced by:

- Insisting on AAA rated government issuers for the zero coupon bond.
- Insist that the value of the zero coupon bond always exceeds the value of the cash + interest by a minimum margin say, 2%.
- Insist on marking credit exposure to market when the value of the zero coupon bond falls below the value of the cash + interest + the margin.

3a. (i) Delta

$$= \frac{\text{Change in call option price}}{\text{Change in price of the shares}}$$

Delta measures the gradient of the option value line at any point in time or price point. As the share price falls towards zero, delta should also fall towards zero. The delta calculation can be used to determine the **amount** of the **underlying shares** or other instruments that the writer of the option position **should hold** in order to hedge the risk of the option position.

(ii) Theta

Theta represents a change in an option's **price** (specifically its time premium) over **time**. The time premium element of an option's price will diminish towards zero. At the money options have the greatest time premium and thus the greatest Theta. Theta can be used to judge how the **option price** will **reduce** as **maturity approaches**.

(iii) Vega

Vega represents the sensitivity of an option's price to change in its implied **volatility**. It is measured as the change in the value of an option from a 1% change in its volatility. The Black-Scholes model is very dependent upon the accurate estimation of an option price's

volatility, and Vega is a measure of the **consequences of incorrect estimation**. Long-term options have larger Vegas than short-term options; the longer the time period until expiration, the more uncertainty there is about the expiry price. Vega can be used to determine changes in value of both **put and call options**; these will **increase as volatility increases**, since there is an expectation of a potentially higher share prices.

- b. Using the Black-Scholes model, the delta of a call option can be estimated as $N(d_1)$.

$$D1 = \frac{\ln(S/E) + r + (\sigma/2)^2 T}{\sigma\sqrt{T}}$$

$$\begin{aligned} S &= 200, \\ E &= 220 \\ T &= \frac{3}{12} = 0.25 \\ r &= 0.06 \\ \sigma &= \sqrt{225} = 15 \quad 0.15 \end{aligned}$$

Thus, d_1 is computed as follows:

$$\begin{aligned} d_1 &= \frac{\ln\left(\frac{200}{220}\right) + 0.06 + \frac{(0.15)^2}{2} (0.25)}{(0.15) \sqrt{0.25}} \\ &= -1.0333 \\ N(d_1) &= 1 - N(1.0333) \\ N(1.0333) &= 0.8485 + 0.33(0.8508 - 0.8485) = 0.8493 \\ &\therefore N(-1.0333) = 1 - 0.8493 = 0.1507 \end{aligned}$$

The delta value is therefore 0.1507

We need the following number of contracts to hedge the position
Number of contracts is given by:

$$\begin{aligned} &\frac{\text{Number of shares}}{\text{Delta of option} \times \text{size of contract}} \\ &= \frac{100,000.00}{0.1507 \times 1000} = 664 \text{ contracts} \end{aligned}$$

c

The hedge is likely to need constant adjustment because of the volatility of the share price. Even a small change in the share price could produce a large in the delta value. In practice therefore it may be difficult to maintain the hedge.

6. (i) The main problems in moving monies between markets for both long and short term switches are as follows:
- the costs (commission, bid-offer spread, purchase taxes, etc.) in switching between markets and reversing the switch within a few months can be significant
 - short term switches may upset a strategic profile of stocks in a market
 - the operational aspects of carrying out a decision can be slow with the consequent loss of some of the benefits of the decision
 - the back office may be over stretched leading to a higher risk of errors if several stocks are being bought and sold at once
 - lack of liquidity and depth in the underlying markets can reduce flexibility
 - the taxation impact of selling shares which have shown significant appreciation in price may be unacceptable in terms of cost

For a short term switch, bid/offer spreads, commissions and any lack of liquidity and depth will cost the manager four-fold in a round trip between two markets.

Using stock index futures the manager can adjust and subsequently re adjust the portfolio's exposure between the two markets at a significantly lower cost.

No tax is crystallised on equity capital gains and the long term profile of the fund remains in tact.

The investment decision can be executed immediately to catch all the anticipated movements in both markets whereas otherwise some of the benefits of the decision could be lost because of the time taken to process sales in the underlying stocks in the relevant markets.

In the case of a short term switch there would be of the order of four contract notes to be processed for each stock in one of the markets (assuming say 25 stocks are held in each market this would run to 100 contract notes to be processed); using index futures only four contract notes need to be processed.

Futures markets are often more liquid than the market in the underlying stocks so it is possible to deal in size without moving the market. Stock index futures avoid the need to trade the underlying stocks and thereby avoid the movement in the market prices of stock associated with trading large volumes.

In a very large investment house it may be virtually impossible to make substantial asset allocation switches without the use of futures.

For a long term switch between markets, stock index futures can also be very useful.

The switch can be achieved by selling stock index futures in the market the manager wishes to reduce his exposure to (say the US) and buying stock index futures in the market to which the manager wished to increase his exposure (say Nigeria).

With this strategy, the manager is protected from falls in the US market because losses on the underlying are made up by gains on the short position.

Gains on the Nigerian market accrue to the fund through the long futures position. Having locked in his strategic asset profile the manager can now comfortably proceed with stock switching and unwind the futures positions appropriately as he proceeds. The fact that the manager does not have to sell large volumes of stock quickly, should allow the manager to do individual stock deals on more advantageous terms.

This strategy allows the manager to ensure he locks in his long term view without losing the market opportunity while trying to fine tune his stock selection and switching process.

As equity transactions are spread over a longer time period the pressure on the back office is reduced.

- (ii) The swap in question would often be considered as two separate total return swaps (TRSs), one paying equity total return in exchange for NIBOR, the other receiving gilt return in exchange for NIBOR. This is also a helpful way of viewing the transaction, except there is a reduction in funding cost (see below).

In the absence of distortions caused by tax, transaction costs and credit risk adjustments, a contract which swaps one market return (equity or gilt) for another (NIBOR) would have zero cost. This is because each TRS can be replicated by going long of the first asset and funding the cost at NIBOR, as in fact is normally done as a hedge.

In practice, it is usually necessary to take into account the implied tax position of the average investor with regard to dividends. This sort of adjustment is unlikely to be much in this instance but it is a feature of competitive pricing.

Transaction costs represent the cost of setting up and running the hedge to your firm, together with a profit margin.

For the equities, the basket could be replicated exactly by purchasing the individual shares in the relevant proportions and borrowing the purchase cost.

There would be a purchase and re-sale bid-offer spread.

For the gilts, the replication would be by selling, with another bid/offer spread, but additionally there would be the cost of borrowing the bonds during the life of the TRS. In the repo market, this is normally effected by a reduction in the funding rate paid on the cash raised.

The balance of the two NIBOR rates, plus the bid/offer spreads, would result in a cost to the counterparty. This margin could be reduced if your firm is already short of equities or long of gilts.

We should also consider how in reality the TRSs are to be replicated. Buying and selling shares in bulk is expensive. It might be possible, if the basket of equities closely tracks, say the FTSE100 index, to use the FTSE future as a hedge.

However, there are problems with using futures: basis risk (timing of purchase and sale vs fair value of the future) and tracking risk.

It is also sometimes possible to trade in forward contracts for certain asset baskets. In addition, however, futures and forwards pay no income, so there is a problem of estimating dividends. This is a major risk in equities. It may be that there is synergy with the options desk, whose problem is often the opposite (trying to exclude the value of dividends from their hedge).

Given this risk, you might conclude that it is not worth using futures or forwards to hedge. But if other similar firms do, to be competitive on pricing you might have to. There is also a saving on balance sheet usage if a future is used instead of the cash market.

Allowing for credit risk seldom affects the pricing. This is because the market norm is to use collateral, which adjusts within the TRS reset period for the accrued total return to date by means of a cash balance (if equities fall substantially, the total return receiver might have to pay a net balance to the payer!). Over-collateralisation (haircuts) would be recommended for risky or lesser known counterparties.

However, if no collateral were to be paid then some adjustment to the funding rates would be required, resulting in a higher margin paid by the counterparty.

It is not a trivial exercise to assess this accurately for a two asset TRS. In theory, a two-factor model could be used to project the pattern of future credit risks.

Finally, a suitable profit margin should be added to reflect (i) the cost of capital used in the trade and (ii) the degree of mismatch risk undertaken with the hedge.

- 7** (i) The principle of hedging against interest movements is that, for two portfolios Π_1 and Π_2 , the original and hedging portfolios respectively, we need $\Delta\Pi_1 = \Delta\Pi_2$. We can only achieve this using duration analysis if we specify that the underlying interest rate (yield) changes Δy_1 and Δy_2 are proportional. It is usual to assume that $\Delta y_1 = \Delta y_2$, i.e. the yield curve moves in parallel.

Then, since the modified duration $w_i = -\frac{1}{P_i} \frac{dP_i}{dy_i}$ and for amounts X_i of a bond in portfolio i with small changes ΔP_i , $\Delta\Pi_i = X_i \Delta P_i$, we thus have:

$$X_1 P_1 w_1 \Delta y_1 = X_2 P_2 w_2 \Delta y_2$$

and so a good hedge is:

$$X_2 = X_1 \cdot \frac{P_1 w_1}{P_2 w_2}$$

It is not necessary to include all the above theory in any answer.

Hence for this question, considering the amount of cheapest-to-deliver gilt required to hedge the corporate bond:

X_{gilt} is equal to

$$10,000,000 \times \frac{107.50}{119.30} \times \frac{4.41 \left(1 + \frac{0.0584}{2}\right)}{6.88 \left(1 + \frac{0.0462}{2}\right)}$$

= N5,810,318 converting (Macaulay) duration from the question to modified duration.

This hedge amount assumes that the two yields curves, corporate and gilt, move in parallel equal amounts during the life of the hedge.

To obtain the number of futures, we can take one of two approaches.

- (a) The price of the future could replace the price of the cheapest-to-deliver bond in the above formula. This assumes that the duration of the future is the same as that of the cheapest-to-deliver (i.e. ignores convexity) and gives the solution:

$$XFuture = XGilt \times \frac{119.30}{117.40} = \text{£}5,904,352$$

or 59 contracts (each Gilt contract being N100,000).

- (b) The more usual (correct?) method is to adjust the holding by the conversion factor:

$$XFuture = XGilt \times 1.0164 = \text{N}5,905,607$$

or 59 contracts again. Methods (a) and (b) only differ significantly when the cheapest-to-deliver price is very different from the future's price, but (b) is always more precise. Note that method (b) does not in fact use the future's price at all.

Both (a) and (b) assume that there will be no basis movement between futures and cheapest-to-deliver between now and the delivery date of the future.

(ii)

- The hedge only works for small Δy , as w changes with y and we are effectively approximating to a curve with a straight line. For a large shift in yields, the convexity (second-order) effects will become significant.

Some form of dynamic hedging is normally used, i.e. re-adjusting the hedge occasionally. There is a cost to this, though, which can be measured in option theory terms, since the convexity effect acts like a short or long option position.

- The hedge is only one factor (a simple yield curve shift). If the maturity of the two bonds is mismatched, as in the question where durations are very different between the two, there will be a sensitivity to a tilt in the yield curve which is not allowed for in the hedge.

The hedge takes no account of credit risk. The corporate bond yield will move independently from market movements due to variations in expectations of default risk (known as the yield spread, or credit spread). Interest-rate hedging cannot remove the risk of default.

- Adverse basis risk may arise if the future is sold when cheap or repurchased when expensive. Basis risk is the movement of futures against "fair value" due to supply and demand effects.
- Futures gains and losses must be settled as a cash margin. If the futures position goes far away from the entry price, a large interim cash balance will be generated without an equivalent counterpart from the bond. This has to be funded.

SEPTEMBER 2007 PROFESSIONAL EXAMINATION SOLUTION
PAPER 3.3: MARKETING OF FINANCIAL SERVICES

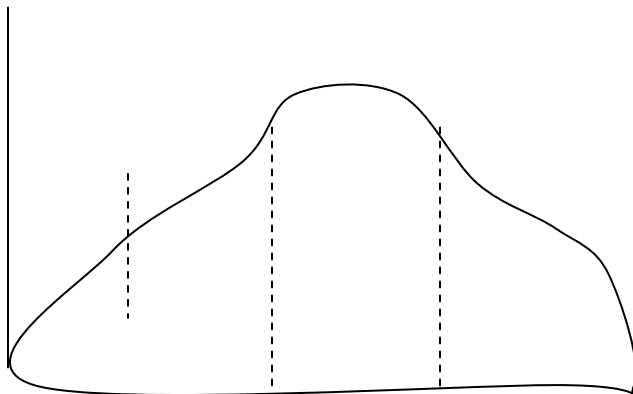
1

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

- 2(a)i. Apex decided not compete in the mortgage market because
- New entrants with lower overheads are offering lower interest mortgage that are difficult to compete with.
 - Customers are changing their habits, they are now shopping around for mortgage and moving their mortgage during the life of the mortgage.
 - Other financial services business is growing and is proving more profitable.
- ii. Whether Apex is right or not depends on the following.
- How market conditions seem to indicate need for a change of strategy.
 - The business is moving away from unprofitable sectors into different, more profitable areas.
 - Any change of strategy is risky.
 - Apex may lose its traditional base by cutting back on mortgage business this may change its customer base and its market image.
- (b) **The marketing mix will help them to achieve the following marketing objectives**
- To increase sales volume
 - To become the largest long-term savings company in the industry.
 - To increase the product range as well as increasing the distribution channels.
 - To attract more customers through the internet.

- (c) **The future marketing strategy for the business should be:**
- Determine the overall company objectives
 - Analyse the existing business
 - Analyse the markets
 - Analyse available resources
 - Taken together this information should enable the business to find a "best fit" marketing strategy.
- (d) Good side of diversification
- Seems to be shifting emphasis away from traditional activity, but shifting away from one business is always risky.
 - Reorganizing changing marketplace, market oriented approach.
- (e) Bad side of diversification:
- Competition for new products may increase if other mortgage providers do the same thing
 - At the moment they are a major brand for mortgage lending. The change may damage this brand identity.

3. The Traditional Curve

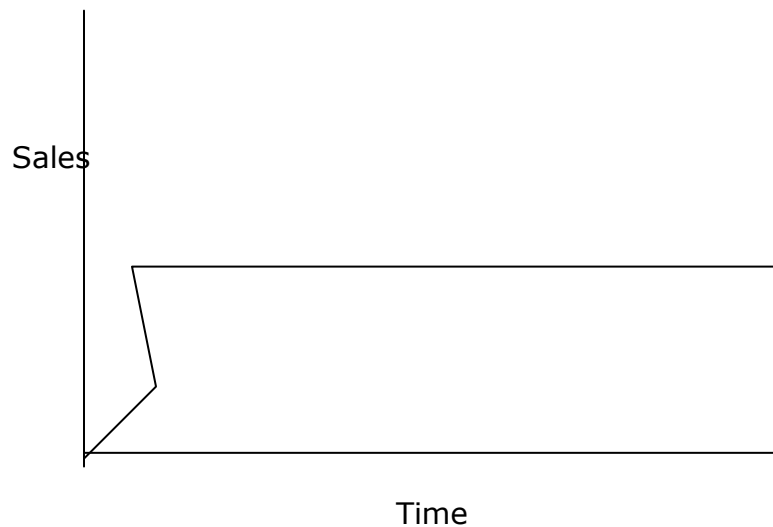


The traditional curve pattern depicts the distinctive periods of introduction, growth maturity and decline as shown above.

Marketer's Responsibilities:-

At the early part of this stage develop new market for the product and advertise aggressively. Develop new product through adjustment of the existing one where and when the decline continues withdraw the product from the market.

Boom/ Classical Curve



The classic or boom PLC curve shows on extremely popular and essential.

- 4 Sales Orientation:
Sales orientation involves the use of high pressure and aggressive selling techniques, over-stating services merits, criticizing competitive service brands and selling one self.

Customer Orientation:

Training the staff to study customer problems in terms of needs and wants and proposing solution. Letting them imbibe the willingness to help customers and to provide prompt services. Teaching to possess courtesy and to convey trust and confidence

To provide caring and individualized attention to customers.

Matching Customer and Staff

The customers and staff should look alike especially in perceived characteristics such as age, religion, belief and dressing.

Knowledge of the company:-

They should know about the company's size policies, structure, history and achievement in order to put confidence in them.

Knowledge of the company's services:-

This is designed to enable them to acquire services brands' knowledge and make them capable of demonstrating the benefits derivable from demanding the service by customers.

Technical Knowledge:-

Considerable technical knowledge about the brand of service will enable demonstration of the use or operation and cautions required in demanding and using the services.

Procedural Knowledge:-

This training teaches the method of processing and delivery of services and allowances offered.

Professional Knowledge:-

This improves and updates selling techniques such as Cold canvassing, effective demonstration, comparing company's services with those of its competitors, encouraging patronage, building relationship and overcoming typical customers' objections and closing the sales

- 5(a) The Boston consulting group (BCG) matrix is concerned with high reactive market share embodied with high profit potentials while high market growth requires a high investment.

Business units or products are classified into four (4) fields and the position of each unit in the field is analysed so that resources can be adequately and appropriately allocated.

Market	Relative market share	
Growth rate	High	Low
High	Stars	Question marks
Low	Cash cows	Dogs

The Boston consulting group (BCG) model

- i. Stars: They are the market leaders with a high growth rate and a high market share. It is question mark that has grown to be successful.
- ii. Cash cows are stars of yester years, are businesses whose annual growth rate has fallen to less than 10% but still have the largest relative market share. A cash cow produces a lot of cash for the company.
- iii. Question markets (problem child) are businesses with high growth market share but low relative market share. It requires a lot of cash to overtake the market leader.
- iv. Dogs are businesses with weak market share in low growth rate market. They typically generate low profit or losses.

(b) **The company determines what objective, strategy and budget to assign to each SBU.**

- i. The company might decide to build market shares for question marks by allocating more money to be spent on plant, equipment and personnel to keep the fast growing market to become a star.
- ii. They might hold on to preserve the SBU's market share appropriate for strong cash cows if they continue yielding large positive cash flows.
- iii. Cash cows enjoy economies of scale and higher profit margins as the market leader. The company needs not have to finance a lot of expansion capacity. Harvest by increasing the SBU's short term cash flow regardless of long term effect. Implement continuous cost retrenchment.
- iv. Dogs often consume more management time so they need to be phased down or out. It could be divested or liquidated so that the resources could be better used elsewhere.

- 6(a) - Reliability: ability to perform promised services dependably and accurately.
- Responsiveness: willingness to help customers and provide prompt service
 - Assurance: Well trained and courteous staff and their ability to convey trust and confidence in customers mind
 - Empathy: ability to provide earring individualized attention to customers
 - Tangible: Provision of physical facilities, such as equipment, personnel and communication materials.

(b) Guarantee for high quality service requires the identification of gaps existing in providing high quality service and bridging the gaps.

i. **Gap Between Customers Expectation And Management Perception**

Management must have ability to perceive correctly the need and wants of customers that will meet their expectations so that they can bridge the gap.

ii. **Gap Between Management Perception And Service Quality:**

Management can bridge the gap between their perception and services quality specifications by following the perceived needs and wants with performance standard and satisfying goods and services

iii. **Gap Between Services Quality Specifications And Service Delivery**

Management can bridge this gap, if they have a well trained, willing, promising and promote services minded staff

- iv. **Gap Between Services Delivery And External Communications:** management ability to take precautions that customers expectation will not be affected by statements made by company staffs, representatives and the company's adverts which may turn out to be false.
- v. **Gap Between Perceived Service And Expected Service:** Assuring and reassuring customers that the expected services is offered and to curb misconception.

7(a) Advertising is any paid form of non personal presentation and promotion of ideas products or services by an identified sponsor.

REASONS FOR ADVERTISING)

- 1 To inform to increase awareness of consumers
- 2 To persuade by inducing trial of new products or inducing new trails to purchase a product.
- 3 To remind consumers to intensify usage of products/services
- 4 It vein forces consumer brand loyalty
- 5 It helps to conform product/services imagery and boosts the company's image as well.

(b) **Differences Between Advertising And Sales Promotion.**

While both advertising and sales promotion aim at increasing sales, they have some differences

ADVERTISING	SALES PROMOTION
1 It lasts over a long period of time	1. It lasts for a short period of time
2. It has a definite marketing objectives	2. It varies in their specific objectives
3. Advertising offers reason to buy	3. Sales promotion offers incentive to buy
4. Advertising seeks to increase consumer awareness of their needs and wants and how particular product can satisfy these needs	4. sales promotion seeks to increase the volume of products sold by reducing selling price or free gifts given.

SEPTEMBER 2007 PROFESSIONAL EXAMINATION SOLUTION
PAPER 3.4: REGULATIONS AND PRACTICE OF STOCKBROKING

- 1a. Smurfing is the act of splitting a large financial transaction into smaller transactions to avoid scrutiny by regulators or law enforcement. Typically each of these smaller transactions is below some limit, a limit above which financial institutions must file a report with a government agency.
- b. Treynor Index is a measure of a portfolio's excess return per unit of risk, equal to the portfolio's rate of return minus the risk-free rate of return, divided by the portfolio's beta. It is useful for assessing the excess return from each unit of systematic risk, enabling investors to evaluate how structuring the portfolio to different levels of systematic risk will affect returns.
- c. Workout Quote is a qualified quotation whereby a broker/dealer estimates the price on a trade that will require special handling owing to its size or to market conditions.
- d. Duopsony is a market situation in which only two buyers create the entire demand for a commodity supplied by many sellers
- e. Commingling is a breach of trust in which a fiduciary e.g. bank, stockbroker, mixes funds and/or securities that he holds in the care of a client with his own funds and/or securities, making it difficult to determine which funds and/or securities belong to the fiduciary and which belong to the client. This raises particular concerns where the funds are invested, and gains or losses from the investments must be allocated. In such circumstances, the law usually presumes that any gains run to the client and any losses run to the fiduciary who is guilty of commingling.
- f. Gogo (Fund): This is a mutual fund that has an investment strategy that focuses on high-risk securities in an attempt to capture above average returns. A go-go fund's aggressive approach usually involves holding large positions in growth stocks.

Go-go funds entice investors by promising large, abnormal returns created from shifting portfolio weights around speculative information. While investors may experience superior profits, they are also bearing a great deal of risk.
- g. Nostro Account: An account that a bank holds with a foreign bank. Nostro accounts are usually in the currency of the foreign country. This allows for easy cash management because currency doesn't need to be converted.
- h. Value Paradox: The value paradox refers to the fact that very useful goods (e.g., water) can have very low prices, whereas goods that are not necessary for survival (e.g., diamonds) can command high prices.

- i. Drop-Dead Fee is a fee that must be paid if a deal falls through because of financing issues.
- j. Demutualization
Demutualization is the transformation of a stock exchange to a quoted company. The stock exchange becomes like any other quoted company whose shares are freely traded.
- k. Cash payments for securities sold is only allowed up to a maximum of N50,000 (Fifty Thousand Naira). On the other hand, cash payment for securities to be purchased is also allowed up to maximum of N50,000 (Fifty Thousand Naira).
- l. The basic provision of SEC Rule 100 and Article 102 of NSE Rules and Regulation is the "Know your client or customer" concept. Market operators are obligated to establish sufficient knowledge about any person – individual or cooperate – before entering into any business relationship with him.

2a(i)

<u>Consideration:</u>	₦
100,000 First Bank Plc at 37.20	3,720,000.00
50,000 Guaranty Trust Bank Plc 28.50	1,425,000.00
120,000 Japaul Oil at 4.70	564,000.00
326,000 Eternal Oil at 12.00	3,912,000.00
72,000 Union Bank Plc at 36.50	<u>2,628,000.00</u>
	12,249,000.00

<u>Commission:</u>		
1st	250,000 X 2.75%	6,875.00
2nd	250,000 X 2.5%	6,250.00
3rd	500,000 X 2.25%	11,250.00
4th	2,000,000 X 2.0%	40,000.00
5th	2,000,000 X 1.5%	30,000.00
	above 7,249,000 X 1.0%	<u>72,490.00</u>
		166,865.00
SEC Fee	1%	122,490.00
Stamp Duty	0.0075%	9,186.75
VAT	5%	8,343.25
CSCS	0.105%	<u>12,861.45</u>
		<u>12,568,746.45</u>

a(ii). ₦12,568,746.45 – ₦11,000,000 = ₦1,568,746.45

a(iii)

<u>Consideration:</u>		₦
100,000 First Bank Plc at 40.40		4,040,000.00
50,000 Guaranty Trust Bank Plc 32.00		1,600,000.00
120,000 Japaul Oil at 6.02		722,400.00
326,000 Eternal Oil at 18.00		5,880,000.00
72,000 Union Bank Plc at 40.00		<u>2,880,000.00</u>
		15,110,400.00
Less:		
<u>Commission:</u>		
1st 250,000 X 2.75%	3,750.00	
2nd 250,000 X 1.25%	3,125.00	
3rd 500,000 X 1.00%	5,000.00	
4th 2,000,000 X 0.75%	1,500.00	
above 12,110,400 X 0.5%	<u>60,552.00</u>	87,427.00
NSE Fee + VAT 0.525%		79,329.60
CSCS + VAT 0.4725%		71,396.64
Stamp Duty 0.075%		11,332.80
VAT 5%		<u>4,121.35</u>
		<u>14,856,542.61</u>

a(iv) Capital gain = Sales value – Purchase value

₦14,856,542.61 – ₦12,568,746.45 = ₦2,288,408.61

Workings: additional notes

Commission Charges operating as at October 20, 2006

	Consideration N	Cumulative Consideration	Rate	Commission Payable N	Cumulative Commission N
First	250,000.00	250,000.00	2.75%	6,875.00	6,875.00
Next	250,000.00	500,000.00	2.50%	6,250.00	13,125.00
Next	500,000.00	1,000,000.00	2.25%	11,250.00	24,375.00
Next	2,000,000.00	3,000,000.00	2.00%	40,000.00	64,375.00
Next	2,000,000.00	5,000,000.00	1.50%	30,000.00	94,375.00
Above	10,000,000.00		1.00%		

Commission Charges operating as at June 5, 2007

	Consideration N	Cumulative Consideration	Rate	Commission Payable N	Cumulative Commission N
First	250,000.00	250,000.00	1.50%	3,750.00	3,750.00
Next	250,000.00	500,000.00	1.25%	3,125.00	6,875.00
Next	500,000.00	1,000,000.00	1.00%	5,000.00	11,875.00
Next	2,000,000.00	3,000,000.00	0.75%	15,000.00	26,875.00
above	3,000,000.00		0.50%	15,000.00	

- 2(b)** If a broker does not affix contract stamps on the contract notes, he will be guilty of an offence on conviction and he will not have any legal claim to any commission, charge or brokerage on the transactions.

3

Positive Implications of e-Bonus

1. The cost of producing and distributing share certificates will be eliminated
2. The problems associated with unclaimed bonus certificates will be eliminated also
3. Investors can quickly enjoy benefits arising from bonus shares declaration instead of waiting many months before share certificates are sent.
4. It enhance market transparency and confidence
5. Loss of bonus certificates arising from postal inefficiencies will cease
6. It simplifies share transmission and nominal transfers
7. Theft of bonus certificates will be eliminated
8. It brings the Nigerian stock market nearer to the desired state of dematerialization
9. It eliminates the cumbersome and time-consuming process of share verification.
10. Market liquidity will greatly increase as more quantities of stock arising from bonuses hit the market shortly after declaration
11. Stocks account reconciliation will be easier for shareholders as their entire holdings can be ascertained at a glance.
12. The cost and the need for certificate storage facilities will be eliminated

NEGATIVE IMPLICATIONS OF E-BONUS

1. Ignorant investors may be short-changed by fraudulent stockbrokers, who may sell their bonus shares without their knowledge.
2. It may be difficult to address the structural problem of investors who do not have CSCS Accounts as yet.

3. Where an investor once maintained many accounts with different stock broking firms, his e-Bonus may be sent to a stock broking firm he no longer maintains a cordial relationship with or a dormant stock broking firm, thus giving rise to the cumbersome process of Inter-member transfer.
4. As bonus shares hit the market soon after declaration, the supply side of the market will increase and price drops may be experienced, thus militating against rapid price gains associated with bonus declarations.

4(a) Stock prices turn before the economy for two reasons:

- (i) Investors attempt to estimate future earnings and thus current stock prices are based upon future earnings and dividends, which in turn are determined by expectations of future economic activity.
- (ii) Stock market reacts to various economic series that are leading indicators of the economy e.g. corporate earnings, profit margins and money supply.

The reason for the strong relationship between the aggregate economy and the stock market is obvious, if one considers that stock prices reflect changes in expectations for firms the results for individual as they affect the overall performance of the economy

- Earnings of firms will increase in an expansion.
- P/E ratio remains constant or increases due to higher expectations.
- There will be an increase in stock prices.

5(a) The Nigerian Investment promotion Act No. 16 of 1995

- The Act provides that a non-Nigerian may invest and participate in the operation of any enterprise in Nigeria (section 17) and that a foreign enterprise may buy the shares of any Nigerian enterprise in any convertible foreign currency through the Nigerian Stock Exchange.
- The Act also protects the foreign investments from forced acquisition/nationalization by any government of the Federation (section 25), in addition to providing for an unencumbered repatriation of capital, profits and dividends (section 24)
- The following procedure is to be adopted by foreign investors who intend to invest in the country.
- The investor shall appoint a local stockbroker of his own choice.
- Both the investor and the Stockbrokers shall agree on a bank in Nigeria for the investor.
- The potential investor shall inform the bank on how much he is investing.

- Thereafter, the money is routed electronically to the designated Nigerian Bank, cash movement for dealing in securities is not allowed.
- On receipt of the funds, the bank issues the investor with a certificate of Capital importation. (CCI)
- With this certificate, the investor through his stockbroker invests in any company of his choice.
- Whenever the investor wants to repatriate his capital and / or benefits, he must go back to the Bank which issued his certificate of Capital Importation and transfer all proceeds abroad, net all taxes.

5(b) Factors That Influence Price Movement

Share Price Determination

Demand and Supply

- ❖ Investor preferences and attitude
- ❖ Company Developments
- ❖ Government policy enabling environment and Economic data.
- ❖ Gainers & Losers of the Stock Exchange Interest rates.

Financial Performance

- ❖ Earnings per share (EPS)
- ❖ Earnings and Dividend Record of the company

Results using ratios

$$\text{i.e. } \frac{\text{Investment Ratios}}{\text{Dividend Per Share}} = \frac{\text{Ordinary Shares Dividend}}{\text{No of Ordinary Shares in issue}}$$

$$\text{❖ P/E Ratio} = \frac{\text{MKT Price per share}}{\text{Earnings per share}}$$

$$\text{❖ } \frac{\text{Profitability Ratios}}{\text{Current Ratio}} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$\text{Working Capital} = \text{Current Assets} - \text{Current liabilities}$$

Fundamental Factors

- Dividend stability and growth
- Earnings stability and growth
- Growth potential of the company
- Quality of Company's management
- Labour Unrest
- Industry Related Factors
- Political Factors
- Economy Related Factors
- Volume Trading
- Company History on Scrip and Dividend
- Potentials for long term growth

6 (a) SEC Rule 178(b)

A broker/dealer may maintain margin Accounts for its clients subject to the provisions of the Act and the monetary guidelines issued from time to time by the Central Bank of Nigeria:

(i) a broker/dealer maintaining margin accounts shall as a matter of policy, disclose it in the annual audited accounts and to their clients;

(ii) no broker/dealer shall extend credit to its clients in excess of 200% of its net capital in the aggregate per annum;

(iii) margin accounts maintained by a broker/dealer shall not be used for any other purpose other than for transaction in securities;

(iv) a broker/ dealer shall file a quarterly report with details of the operations of the margin account.

6(b)

- i. Shareholders intending to sell their physical share certificates approach their stockbrokers and give written instructions to sell to the brokers.
- ii. The shareholders complete sales order forms and transfer forms for the securities, sign the transfer forms and hand over the share certificates plus the sales order forms duly completed transfer forms to the brokers.
- iii. The stockbroker issues scrip receipts for the certificates.
- iv. The stockbrokers cover the certificates (CDF), attach the signed transfer forms to the certificates and send the physical share certificates along with duly completed transfer forms the Registrars.

- v. Thereafter, the Registrar verifies the authenticity of the share certificates and the shareholders' signatures on the transfer forms.
- vi. Being satisfied that the documents submitted are in order, the Registrar lodges all the verified share certificates and the relative transfer forms to CSCS Ltd.
- vii. Upon receipt, CSCS captures the share certificates into their system and put the holdings into the accounts of the clients and the securities become available for Stockbrokers to trade observing the T+ 3 transaction cycle.
- viii. CSCS demobilizes the various share certificates and return them along with relative transfer forms for both transferors and transferees to the Registrar for callover and confirmation.
- ix. The certificates then become dematerialised.