NOVEMBER 2016 PROFESSIONAL EXAMINATION
ADVANCED FINANCIAL MANAGEMENT (PAPER 3.3)
CHIEF EXAMINER'S REPORT, QUESTIONS & MARKING SCHEME

EXAMINER'S GENERAL COMMENTS

Overall, the standard of the questions was quite good for the level. No errors were detected.

GENERAL PERFORMANCE

Performance at this diet was not encouraging on account of lack of understanding of fundamental finance issues on the part of the candidates. It appeared most candidates were not prepared for the exams, especially those candidates in level two who "cut across" the AFM in level three. Poor handwriting from some candidates was very difficult to read and mark. Poor grammatical expressions leading to poor construction of sentences.

Most students struggled with Q5 (particularly the part on futures). Moreover, it appeared students do not take the theory and conceptual aspect of the paper serious. Preparations on the exams appeared to be lacking.

ADVANCED FINANCIAL MANAGEMENT QUESTIONS

QUESTION ONE

a) When determining the financial objectives of a company, it is necessary to take three types of policy decision into account: ***investment policy, financing policy*** and ***dividend policy.***

Required:
Discuss the nature of these **THREE** types of decisions, commenting on how they are inter-related and how they might affect the value of the firm (that is the present value of projected cash flows). **(6 marks)**

b) Last Chance Limited operates various manufacturing and retail operations throughout Ghana and has 400 million GH¢0·25 ordinary shares in issue. For the year that has just ended, the directors reported total after-tax profits of GH¢300 million and the P/E ratio of the company is 11·4 times.

The company has developed sophisticated computer software over the years to aid its financial and logistical decisions and it is aware of the commercial potential of this software. Three years ago, the software and systems division of the company was formed into a subsidiary company, Ananse Systems Limited. The subsidiary continues to provide computer services to the parent company but also offers consultancy and software solutions to other large companies, particularly within the retail industry. Since its inception, Ananse Systems Limited has been trading profitably and, for the year that has just ended, it contributed GH¢40 million of the total after-tax profits of Last Chance Limited.

Last Chance Limited is now considering 'spinning-off' the subsidiary and to have it separately listed on the Ghana Alternative Stock Exchange Market. It is proposed that Ananse Systems Limited will be floated with 64 million GH¢0·25 ordinary shares in issue and that, of this total, the shareholders of Last Chance Limited will receive one ordinary share in Ananse Systems Limited for every eight ordinary shares held in Last Chance Limited. The P/E ratio of Last Chance Limited is expected to reduce to 11·0 times as a result of the 'spin-off' but as the newly-listed company is expected to attract considerable interest, and investment analysts believe that a P/E ratio for the company of either 17 times or 18 times will be achieved. **(Ignore taxation)**

Required:

i) Suggest **THREE** reasons why Last Chance Limited may wish to ***'spin-off'*** part of its operations. **(3 marks)**
ii) Discuss **THREE** possible disadvantages of a ***'spin-off'*** for the shareholders of Last Chance Limited **(3 marks)**
iii) Calculate the likely effect of the proposed 'spin-off' on the wealth of a shareholder holding 10,000 ordinary shares in Last Chance, assuming that Ananse Systems Limited trades at a P/E ratio of: 17 times, and18 times commenting on your findings. **(8 marks)**

(Total: 20 marks)

QUESTION TWO

a) You are the newly employed Finance Director of Gala Gold Mining Ltd (GGML), a fast growing Ghanaian mining company. The ordinary shares of GGML are listed on the Ghana Stock Exchange. The company issued two million fresh shares in an Initial Public Offer (IPO) to meet the minimum public shareholding requirement of the Exchange. In the prospectus accompanying the IPO, the company proposed a stable earnings pay-out ratio of 20%.
It has been one year since the listing of GGML's ordinary shares. At the first post-listing annual general meeting, which was held last week, the directors recommended that the company retains the entire profit earned in its first year as a public company to help finance profitable mining opportunities in the Western part of Ghana. This 100% earnings retention proposal was rejected by the shareholders, and the directors have promised to reconsider the issue and recommend some dividends.
The directors would be meeting in the coming month to discuss the matter with the hope of developing a sustainable dividend policy for the next three years. You are expected to make a presentation on the company's dividend capacity at the meeting.
You have gathered relevant extracts from the financial results of the past financial year (i.e. financial year ending June 2015) and expected annual changes in the values over the next three years (i.e. financial years ending June 2016, 2017 and 2018) presented in the Table below:

	GH¢'m	
Earnings before interest and tax	494.0	20.0%
Interest expense	(40.0)	-10.0%
Net income before tax	454.0	
Tax	(158.9)	
Net income for the year	295.1	
Depreciation charges	100.0	8.0%
Capital expenditure	300.0	15.0%
Proceeds from sale of equipment	30.0	10.0%
Net working capital needs	75.0	10.0%
Net debt repayment	20.0	Same repayment

The company's tax rate is expected to remain at 35%.

Required:

i) Advise the directors on **THREE** factors they should consider in developing an appropriate dividend policy for GGML**.** **(6 marks)**

ii) Calculate the ***maximum dividends*** GGML can pay for the past financial year, and estimate its dividend capacity for the next three years. Recommend an appropriate dividend pay-out ratio for the coming three financial years. **(8 marks)**

b) KK Chemicals Ltd, an Accra-based manufacturer of paints, sells its products only in Ghana. Currently, the company wants to expand into other African countries. The directors are considering two options: set up its own subsidiary company to manufacture and sell the products or license a company based in the host country to manufacture and sell the products.

Required:

i) Advise the directors on **TWO** potential advantages and **TWO** disadvantages to KK Chemicals of setting up its own subsidiary company to handle production and sale in the host country as against licensing a company in the host country to do that. **(4 marks)**

ii) Suppose KK Chemicals elects to set up a subsidiary in the host country. Suggest to the directors **TWO** ways of dealing with the risk of blocked funds. **(2 marks)**

(Total: 20 marks)

QUESTION THREE

a) The directors of Sunland Company, a company which has 75% of its operations in the retail sector and 25% in manufacturing, are trying to derive the firm's cost of equity. However, since the company is not listed, it has been difficult to determine an appropriate beta factor. The following information was researched:

- **Retail industry** – quoted retailers have an average equity beta of 1.20, and an average gearing ratio of 20:80 (debt: equity).
- **Manufacturing industry** – quoted manufacturers have an average equity beta of 1.45 and an average gearing ratio of 45:55 (debt: equity).
- The risk free rate is 3% and the equity risk premium is 6%.
- Tax on corporate profits is 30%.
- Sunland Co has gearing ratio of 50% debt and 50% equity by market values. Assume that the risk on corporate debt is negligible.

Required:

Calculate the cost of equity of Sunland Company using the Capital Asset Pricing Model.

(8 marks)

b) A company plans to invest GH¢7million in a new product. Net contribution over the next five years is expected to be GH¢4.2million per annum in real terms. Marketing expenditure of GH¢1.4m per annum will also be needed. Expenditure of GH¢1.3m per annum will be required to replace existing assets which will now be used on the project but are getting to the end of their useful lives. This expenditure will be incurred at the beginning of each year. Additional investment in working capital equivalent to 10% of contribution will need to be in place at the start of each year. Working capital will be released at the end of the project. The following forecasts are made of the rates of inflation each year for the next five years:

Contribution	8%
Marketing	3%
Assets	4%

General prices	4.70%

The real cost of capital of the company is 6%. All cash flows are in real terms. Ignore tax.

Required:
Calculate the ***Net Present Value (NPV)*** of the project and appraise whether it is a worthwhile project. **(12 marks)**

(Total: 20marks)

QUESTION FOUR

a) The Directors of Mama Ltd (Mama), a large listed company, are considering an opportunity to acquire all the shares of Papa Ltd (Papa), a small listed company with a highly efficient production technology.
Mama has 10 million shares of common stock in issue that are currently trading at GH¢6.00 each. Papa Ltd has 5 million shares of common stock in issue, each of which is trading at GH¢4.50.
If Papa is acquired and integrated into the business of Mama, the production efficiency of the combined entity would increase and save the combined business GH¢600,000 in operating costs each year to perpetuity.
Though Mama operates in the same industry as Papa, its financial leverage is higher than that of Papa. Mama's total debt stock is valued at GH¢40 million, and its after-tax cost of debt is 22%. The beta of Mama's common stock is 1.2. The return on the risk-free asset is 20% and the market risk premium is 5%.

Required:
Suppose Mama offers a cash consideration of GH¢25 million from its existing funds to the shareholders of Papa for all of their shares.

i) Calculate the NPV of the acquisition, and advise the directors of Mama on whether to proceed with the acquisition or not. **(8 marks)**
ii) Calculate the value of the combined entity immediately after the acquisition. **(3 marks)**
iii) Suppose Mama would like to acquire all the shares in Papa by offering fresh shares of its own common stock to the shareholders of Papa. Advise the directors on the appropriate share exchange ratio based on market price. **(3 marks)**

b) ABC Ltd is a listed company that operates in the Information Technology industry. The company has been experiencing losses for several years now and its reserves are fast depleting. Its earnings per share has been negative for the past three years. A team of the company's largest shareholders and some managers are considering acquiring the company in a leveraged buy-out (LBO).

Required:
Discuss **THREE** advantages and **THREE** disadvantages of ABC Ltd being acquired in an LBO. **(6 marks)**

(Total: 20 marks)

QUESTION FIVE

a) YSL is a company located in the USA that has a contract to purchase goods from Japan in two months' time on 1st September. The payment is to be made in **YEN** and will total 140million yen.
The managing director of YSL wishes to protect the contract against adverse movements in foreign exchange rates and is considering the use of currency futures. The following data are available;

Spot foreign exchange rate
$1=128.15yen

Yen currency futures contracts on SIMEX (Singapore Monetary Exchange)
Contract size 12,500,000 yen, contract prices are US$ per yen.
Contract prices:
September 0.007985
December 0.008250

Assume that futures contracts mature at the end of the month.

Required:

i) Illustrate how YSL might hedge its foreign exchange risk using currency futures. **(5 marks)**

ii) Explain the meaning of ***basis risk*** and show what basis risk is involved in the proposed hedge. **(5 marks)**

iii) Assuming spot exchange rate is 120 yen/$1 on 1 September and that basis risk decreases steadily in a linear manner, calculate what the result of the hedge is expected to be. Briefly discuss why this result might not occur **(5 marks)**
(**Margin requirements and taxation may be ignored**).

b) The International Monetary Fund (IMF) and the World Bank are institutions in the United Nations system. They are twin intergovernmental pillars supporting the structure of the world's economic and financial order.

Required:

i) Compare and Contrast **THREE** functions of the International Monetary Fund (IMF) and the World Bank **(3 marks)**

ii) Explain **TWO** challenges being faced by the IMF in attaining its objectives in West African Countries **(2 marks)**

(Total: 20 marks)

Relevant Formulae

Modified Internal Rate of Return $MIRR = \left(\frac{PV_R}{PV_I}\right)^{1/n} \times (1 + r_e) - 1$

Value at Risk $VAR = k\,\sigma\,\sqrt{N}$

The Fisher Equation: $1 + i = (1 + r)(1 + h)$

Capital Asset Pricing Model

$$E(r_i) = r_f + \beta_i(E(r_m) - r_f)$$

Ungeared (Asset) Beta

$$\beta_a = \left[\frac{V_e}{V_e + V_d(1-t)} \times \beta_e\right] + \left[\frac{V_d\,(1-t)}{V_e + V_d(1-t)} \times \beta_d\right]$$

Gordon's Growth Model

$$V_0 = \frac{CF_0(1+g)}{k-g}$$

Bond Valuation

$$V_0 = I\left(\frac{1 - \frac{1}{(1+i)^n}}{i}\right) + \frac{RV}{(1+i)^n}$$

Miller and Modigliani (MM) Proposition 2 with tax

$$k_e(g) = k_e(u) + (k_e(u) - k_d)\left(\frac{V_d(1-t)}{V_e}\right)$$

Weighted Average Cost of Capital

$$WACC = \left[\frac{V_e}{V_e + V_d} \times k_e\right] + \left[\frac{V_d}{V_e + V_d} \times k_{dt}\right]$$

Purchasing Power Parity

$$F_1 = {S_0}^{d/f} \times \left(\frac{1 + h_d}{1 + h_f}\right)$$

Interest Rate Parity

$$F_1 = {S_0}^{d/f} \times \left(\frac{1 + i_d}{1 + i_f}\right)$$

International Fisher Effect

$$\frac{1 + i_d}{1 + i_f} = \frac{1 + h_d}{1 + h_f}$$

Black-Scholes Option Pricing Model

$$c = P_a N(d_1) - P_e\, e^{-rt} N(d_2)$$

$$d_1 = \frac{\ln\left(\frac{P_a}{P_e}\right) + (r + 0.5s^2)t}{s\sqrt{t}}$$

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

Put-Call Parity Relationship

$$p = c - P_a + P_e e^{-rt}$$

MARKING SCHEME

QUESTION ONE

(a)

The investment decision considers the benefits of investing cash either in projects or in working capital or even in high yield deposit accounts. This is important to shareholders as it will determine the cash flows which are generated by the company and will ultimately affect the dividends paid and the share price. Assessing projects can sometimes be difficult as the returns may be spread over many years making the cash flows harder to estimate. Shareholders will also be concerned to compare the risk as well as the return between profits, as a higher risk investment should carry a higher return to compensate.

The financing decision considers the source of the finance required for the business operations. This will be a mixture of equity and long-term debt finance; companies need to balance the benefits to their shareholders – debt is a cheaper form of finance as the returns required are lower (due to lower risk) and the debt interest is tax allowable, but excessive gearing can increase the risk to the company, and hence the shareholders, dramatically.

The dividend decision looks at how much of the surplus cash generated should be paid out to the shareholders, and how much retained for future investments. Companies often make two payments a year, and shareholders generally prefer a predictable, steadily rising, dividend rather than one which follows the fluctuations of the profits. A dividend policy is often declared for a number of years to give this predictability. A company which then delivers what it promises will generally be regarded as less risky, and hence more valuable, by shareholders.

The three decisions are, therefore, interrelated as the finance needed for viable projects will come from both internal funds, which have not been paid out as dividends, and externally raised finance. The mixture of funds raised and used will then affect the cost of capital, which in turn will affect the viability of investments.

(2 marks for each financial management decision= 6 marks)

(b) (i)

A company may ***'spin-off'*** part of its business operations for a variety of reasons. These include:

- **Market sentiment.** Where a business is a conglomerate, investors may lack confidence in the ability of the directors to manage efficiently a diverse range of operations and this may be reflected in the share price. By 'spinning-off' certain

business operations, the managers of these operations will usually have greater autonomy and this can lead to improved performance. Any improvement in performance should, in turn, lead to enhanced shareholder value.

- **Market valuations.** The directors of a company may feel that a particular business operation is undervalued by the market. A 'spin-off' of this operation may help the market to value it separately, which may again lead to enhanced shareholder value.
- **Investor preferences.** Where a company is a conglomerate, investors may not be equally attracted to each of the different business operations that are being undertaken. By 'spinning-off' different business operations and creating separate companies for each, investors can adjust their share portfolios to reflect the investment that they wish to make in each type of operation.
- **Strategic objectives.** The directors of a company may feel that certain operations are not compatible with the strategic direction that has been set. As a result, 'non-core' operations may be 'spun-off'.
- **Takeover defence.** A company may attract the unwelcome attention of a predator which is interested in a particular part of the company's operations. By 'spinning-off' this part of its operations, the company may avoid the threat of a takeover, although the operations that have been 'spun-off' may still be under threat of a takeover.

(1 mark for each point, maximum of 3 points)

(b)(ii)

Where a company **'spins-off'** part of its operations there will be a reduction in its overall size, which may bring with it a number of disadvantages including:

- An increased vulnerability to takeover
- A reduced ability to raise loan finance
- A reduced ability to benefit from economies of scale through bulk buying, common administrative functions etc.
- A reduction in market status

(1 mark for each point, maximum of 3 points)

(b)(iii)

Value of one share in Last Chance Ltd before the 'spin-off' = GH¢300m x 11·4
400m
= GH¢8·55

Value of shareholding (10,000) before spin-off = 10,000 x GH¢8·55
= GH¢85,500 **(I.5 marks)**

The earnings available to shareholders after the spin-off is = (GH¢300- GH¢40)
= GH¢260m

Value of one share in Last Chance Ltd after the 'spin-off' GH¢260m x 11·0

400m
= GH¢7·15

Value of shareholding (10,000) after spin-off = 10,000 x GH¢7·15
= GH¢71,500 **(I.5 marks)**

(A)

Value of shareholding in Ananse Systems assuming a P/E ratio of 17 times

Value of one share in Ananse Systems = GH¢40m x 17
64
= GH¢10·625

Value of shareholding in Ananse Systems = (1/8 x 10,000) x GH¢10.625
= GH¢13,281

Thus, the total wealth of the shareholder will be GH¢84,781 (i.e. GH¢71,500 + GH¢13,281) compared to GH¢85,500 before the 'spin-off'. **(2 marks)**

(B)
Value of shareholding in Ananse Systems assuming a P/E ratio of 18 times

Value of one share in Ananse Systems = **GH¢40m x 18**
64
= GH¢11·25

Value of shareholding in Ananse Systems = (1/8 x 10,000) x GH¢11·25
= GH¢14,062

Under this scenario, the total wealth of the shareholder will be GH¢85,562 (i.e. GH¢71,500 + GH¢14,062) compared to GH¢85,500 before the 'spin-off'. **(2 marks)**

The above calculations reveal that the benefits to the shareholder of the 'spin-off' are, at best, marginal and that there is a risk that shareholder wealth will be reduced. The case for a 'spin-off' is, therefore, not clear. **(1 mark)**

(Total: 20 marks)

EXAMINER'S COMMENTS

Candidates were able to explain the various financial management decisions. They however, could not comment on how the three decisions are inter-related. Few candidates were able to answer this part half-way. Most candidates did not understand "spin off" hence provided answers that were unrelated to the question.

QUESTION TWO

Marking Scheme

	Marks
(a) GGML – Dividend policy	
Factors that influence dividend policy (3 factors for 2 marks each)	6.0
Computation of FCFE for recent year, and recommended max dividend payout	2.0
Computation of FCFE for the coming three years	4.0
Recommended dividend payout ratio	2.0
14	
(a) KK Chemicals – Multinational business operation	
Advantages of setting up as against licensing (2 points for 1 mark each)	2.0
Disadvantages of setting up as against licensing (2 points for 1 mark each)	2.0
Ways of dealing with blocked funds (2 ways for 1 mark each)	2.0
6	
Total	**20**

(a) GGML – Dividend policy

i) Factors to consider when developing a dividend policy

Dividend policy refers to decisions concerning paying out earnings to shareholders and retaining earnings for reinvestment. In theory, optimal dividend policy is one that strikes a balance between current dividend and futures growth to minimize WACC while maximizing stock value. To craft an appropriate dividend policy for GGML, the directors would have to consider several factors, including the following:

- **Legal requirements –** There are certain provisions in the Companies Code that restrict dividend payment with a view to protecting the interest of lenders. For instant, a company cannot pay out more dividends than distributable earnings in its reserves.
- **Investment opportunities/requirements** – When a firm is presented with a lot of investment opportunities that are in line with its growth strategy, it would require more financing. As earnings retention is the first choice on the pecking order, higher investment requirements would restrict dividend payment. As a fast growing company, GGML's investment requirements would be high; and so may have to maintain a dividend policy that retains more earnings to fund investments. If GGML revises its growth strategy and rather pursues a lower growth rate, it can maintain a dividend policy that pays out relatively more dividends.

- **Alternative sources of finance –** The amount of dividends the company can afford to payout is influenced by the variety of financing sources available to the company. If the company has access to a variety of financing sources (including debt financing), then it can afford to maintain a dividend policy that pays out more dividends. However, considering the fact that GGML is rather repaying debt and not getting more, it cannot afford to maintain a dividend policy that pays out more cash to shareholders.
- **Tax implications for shareholders –** Earnings payout or retention has tax implications for shareholders. For instance if tax on dividend is lower than tax on capital gains, majority of shareholders may prefer current dividends to future capital gains.

(Any 3 factors for 6 marks)

ii) Dividend capacity

Dividend capacity which is the amount of dividend a firm can afford to pay to its shareholders is measured by free cash flow to equity (FCFE). GGML's free cash to equity for the recent year and the coming three years are computed below:

	Recent		3-year Projections		
	2015		2016	2017	2018
	GHS'm		GHS'm	GHS'm	GHS'm
EBIT	494.00	20%	592.80	711.36	853.63
Interest	(40.00)	-10%	(36.00)	(32.40)	(29.16)
Net income before tax	454.00		556.80	678.96	824.47
Tax	(158.90)		(194.88)	(237.64)	(288.57)
Net income	295.10		361.92	441.32	535.91
Depreciation	100.00	8%	108.00	116.64	125.97
Cash flow from operations	395.10		469.92	557.96	661.88
Capex	(300.00)	15%	(345.00)	(396.75)	(456.26)
Proceeds from disposal	30.00	10%	33.00	36.30	39.93
NWC requirement	(75.00)	10%	(82.50)	(90.75)	(99.83)
Net debt paid	(20.00)		(20.00)	(20.00)	(20.00)
FCFE (Dividend capacity)	30.10		55.42	86.76	125.72
Ratio of FCFE to NI	10.2%		15.3%	19.7%	23.5%

iii) Maximum dividends for recent year:

For the past financial year, GGML can afford to pay maximum dividends of GHS30.1m, which is 10.2% of earnings. This implies that company cannot meet its IPO promise of 20% payout ratio.

Recommendation for next 3 years:

The FCFE projections for the coming three years suggests that the company can pay a maximum dividend of GHS55.42m in 2016, GHS86.76m in 2017, and GHS125.72m in 2018.

The ratio of dividend capacity to net income (i.e. maximum payout ratio) ranges from 15.3% to 23.5% over the coming three years. However, to maintain a smooth dividend payout policy, the directors may consider the minimum payout ratio in the range (which is about 15%) or the average (which is about 20%).

b) KK Chemicals Ltd – Multinational business operation

i) Advantages and disadvantages of setting up as against licensing

Advantages:

- If KK Chemicals set up its own subsidiary to handle the production, **it will be able to protect its production secrets and technology from being replicated**. With licensing, KK Chemicals will have to disclose its production process and technology to the licensee and risk replication.
- KK Chemicals will **maintain total control over the quality of the products**. Controlling the quality of the product under licensing is a bit difficult.
- With a subsidiary, KK Chemicals will **earn all the revenue from the sale of the product** and not just a small percentage of it as royalty. That is setting up in the host country would be a more effective way of growing the company's earnings.

Disadvantages

- Setting up a subsidiary in the host country **requires a substantial amount of money**. This may cause the company to restrict dividend payments to make more earnings available to finance the operation or borrow more. Lower dividends may not meet shareholders' expectation while high borrowing will increase financial risk.
- Setting up a subsidiary in the host country **exposes the company to higher political risk** than licensing would do. Political risks such as expropriation, business interruption in times of political unrest or ethnic tensions, blocked funds, changes in shareholding rules could be avoided with licensing. **(4 marks)**

ii) Ways of dealing with blocked funds

Blocked funds refers to the situation where the government of the host country uses exchange controls to block the flow of foreign exchange into and out of the country. When this happens, KK Chemicals would not be able to remit cash returns back home. KK Chemicals can deal with blocked funds by doing any of the following:

- Sell goods or services to the subsidiary and obtain payment.
- License the subsidiary to use its production processes protected by patent for royalties.
- Offer management services to the subsidiary for a fee.
- Give more loan (rather than equity) finance to the subsidiary for interest payment.

(2 marks)

(Total: 20 marks)

EXAMINER'S COMMENTS

The first part of the question was on factors determining dividend payment. This was well answered.

The second part of the question was on the computation of the dividend capacity. This part was poorly answered as majority of the candidates had no idea on how to use the free cash flow to equity (FCFE) to determine the dividend capacity.

Candidates had good idea on the differences between setting up own plant as against licensing. Good answers were therefore obtained from this part.

QUESTION THREE

			Mark
(a)	Computation of asset beta for the retail industry	2	
	Computation of asset beta for the manufacturing industry	2	
	Weighted asset beta	1	
	Geared company equity beta	1	
	Company cost of equity capital	2	8
(b)	Computation of contribution	1	
	Computation of marketing cost	1	
	Operating cost	1	
	New investment	1	
	Asset replacement	1	
	Working capital	1	
	Free cash flow	2	
	Discounted cash flows	1	
	Net present value	1	
	Acceptance of project	2	12
			20

(a) In order to use CAPM we shall need to derive a suitable equity beta for Sunland Co. This will be done by first finding a suitable asset beta (based on the asset betas of the 2 parts of the business) and gearing up to reflect Sunland Co's 50:50 gearing level. Retail industry: the asset beta of retail operations can be found from the industry information as follows: (assuming the debt beta is zero) $\beta_a = \frac{80}{80 + 20(1 - 0.3)} 1.2 = 1.02$ Manufacturing industry: Similarly, the asset beta for manufacturing operations is: $\beta_a = \frac{55}{55 + 45(1 - 0.3)} 1.45 = 0.92$

Sunland Co asset beta: Hence, the asset beta of Sunland will be a weighted average of these two asset betas: ß a (Sunland) = (0.75 × 1.02) + (0.25 × 0.92) = 1.00. Sunland Co equity beta: So, regearing this asset beta now gives: 1.00 = ße × [50/(50 + 50(1 – 0.30))] So, ße = 1.00/0.59 = 1.69

Sunland Co cost of equity, using CAPM: Ke = RF + ß (E(RM) – RF) = 3% + (1.69 × 6%) = **13.1**%

(b)

GH¢'000

Year	**0**	**1**	**2**	**3**	**4**	**5**
Contribution (inflation@8%)		4,536	4,899	5,291	5,714	6,171
Marketing (inflation@ 3%)		(1442)	(1485)	(1530)	(1576)	(1623)
Operating cash flows		3,094	3,414	3,761	4,138	4,548
New investment	(7000)					
Asset replacement (inflation @ 4%)	(1300)	(1352)	(1406)	(1462)	(1520)	
Working capital injection (see working 1)	(454)	(36)	(39)	(42)	(46)	617
Free cash flows	(8754)	1,706	1,969	2,257	2,572	5,165
Discount factor @11% (working 2)	1	0.901	0.812	0.731	0.659	0.593
Discounted cash flows	(8754)	1,537	1,599	1,650	1,695	3,063

The Net present value = -8754 + 1,537+1,599+1,650+1,695+3,063 = 790,000

The positive NPV shows the project is worthwhile.

W1, working capital injection

GH¢'000

Year	0	1	2	3	4	5
Increased revenue		4,536	4,899	5,291	5,714	6,171
Working capital required(10%)	454	490	529	571	617	
Working capital injection	(454)	(36)	(39)	(42)	(46)	617

W2, cost of capital

(1+i)=(1+r)(1+h)=(1+0.06)(1+0.047)=1.11, hence 11%

EXAMINER'S COMMENTS

Most candidates either did not understand the question or had no idea of how to use CAPM to compute the cost of capital of a company. Thus, the first part of the question was poorly answered.

This part of the question is one of the most popular areas in the syllabus. However, most candidates continued to commit the same error at every diet. Inflation forecast increases expenses and revenues and it starts from year1 and not year 0. Majority of the candidates mixed this concept and therefore produced deviated answers.

Other important principles missed out by candidates include:

How to arrange the cash flow with respect to where they will be under the respective years.

Most candidates inflated the cash flows but used the real cost of capital.

Some students did not inflate the figures at all.

QUESTION FOUR

Marking Scheme

	Marks
(a) Mama Ltd - Acquisition	
Cost of equity using CAPM	1.0
WACC for discounting future synergy	1.0
Gain from the transaction (i.e. PV of synergy)	1.0
Cost of the transaction (i.e. premium paid)	1.0
NPV of the acquisition	1.0
Advise to directors of Mama based on NPV	1.0
Post-acquisition value of Mama	2.0
Share exchange ratio based on market price	2.0
2	
(b) ABC – Leveraged buy-out	
Advantages (between 2 to 3 advantages @ 2 marks each)	4-6
Disadvantages (between 2 to 3 disadvantages @ 2 marks each)	4-6
Total	**20**

(a) Mama Ltd – Acquisition

i) Appraisal of the proposed acquisition

	Mama Ltd	**Papa Ltd**
Shares in issue	10 million	5 million
Market price	GHS6.00	GHS4.50
Value of equity (10,000,000 x 6.0)	60,000,000	
(5,000,000 x 4.5)		22,500,000
Value of debt	40,000,000	
After-tax cost of debt	22%	

NPV and post-acquisition value

Computation of NPV:

The NPV of an acquisition is the gain from the acquisition less the cost of the acquisition:

The gain from the acquisition is the PV of synergy from the acquisition:

$$Gain\ (PV\ of\ synergy)\ = \frac{Cost\ saving}{Cost\ of\ capital} = \frac{600{,}000}{0.244} = 2{,}459{,}016$$

Cost saving = given as GHS600,000 every year perpetually

As the firm has both equity and debt in its capital structure, the appropriate cost of capital to use as discount rate is the WACC.

$$WACC = \left[\frac{V_e}{V_e + V_d} \times k_e\right] + \left[\frac{V_d}{V_e + V_d} \times k_{dt}\right]$$

$$WACC = \left[\frac{60}{60 + 40} \times 0.26\right] + \left[\frac{40}{60 + 40} \times 0.22\right] = 0.244$$

Cost of equity, ke is estimated from the CAPM:

$$ke = r_f + \beta_i(E(r_m) - r_f)$$

$$ke = 0.2 + 1.2(0.05) = 0.26$$

Cost of the acquisition is the excess of the purchase consideration over the value of the target:

$$Cost = Cash\ offer - Value\ of\ Papa$$

$$Cost = GHS25{,}000{,}000 - GHS22{,}500{,}000 = GHS2{,}500{,}000$$

The NPV is then computed as Gain less Cost:

$$NPV\ =\ Gain\ -\ Cost = GHS2{,}459{,}016 - GHS2{,}500{,}000 = (GHS40{,}984)$$

Advice based on NPV:

The negative NPV suggests that if the acquisition happens, the value of Mama would reduce by GHS40,984. Therefore, the directors of Mama should discard the acquisition plan. **(8 marks)**

b. The value of combined entity:

$$Post - acquisition\ value = Value_{Mama} + Value_{Papa} + PV\ of\ Synergy - Cash\ offer$$

$$Post - acquisition\ value = GHS60{,}000{,}000 + GHS22{,}500{,}000 + GHS2{,}459{,}016 - GHS2{,}500{,}000$$

$$Post - acquisition\ value = GHS82{,}459{,}016m$$

(3 marks)

ii) Share exchange ratio (ER)

The number of shares Mama should issue to shareholders of Papa can be calculated based on market price as under:

$$\text{ER} = \frac{\text{Market Price of Papa}}{\text{Market price of Mama}} = \frac{4.5}{6.0} = \frac{3}{4} = 0.75$$

The share exchange ratio between Mama and Papa may be expressed as 3:4 or 0.75:1. That is Mama should issue 3 shares of its ordinary stock for every 4 shares in Papa (or 75 shares of Mama for every 100 shares in Papa).

(3 marks)

(b) ABC Ltd - Advantages and disadvantages of LBO

Leveraged buyout involves the acquisition or purchase of a company (usually a publicly listed company) with substantial use of debt financing. The buyers in an LBO include existing shareholders, managers, and employees.

Potential Advantages:

Usually a publicly listed company that is acquired through an LBO is converted to a private company (i.e. delisted from the stock exchange). On the assumption that the LBO results in ABC being converted to a private company, the following advantages would be enjoyed:

- It will **save money from meeting listing requirements**.
- Its **share value would be less volatile** as it will no longer be vulnerable to instability and inefficiencies in the stock market.
- Management can **concentrate on long-term needs of the business** rather than meeting the short-term needs of shareholders (earning some profit and

paying some dividend in the short-term even at the expense of future earnings potential).

- Shareholders would be closer to management. This **reduces agency problems and the attendant agency costs**.

Besides the advantages that would be derived from delisting the company, there are some potential benefits associated with the involvement of managers in the LBO. **The increased stake of managers in the business can increase their commitment and effort** with the potential to create more value to the company.

Finally, the huge amount of debt that would come with the LBO can bring potential benefits to the restructured company. First, **high interest payments reduces taxable income, which results in lower tax liability**. Other factors held constant, the tax shield will enhance the value of the company. Second, the huge debt would somehow make the restructured company less attractive to predators; and so would be **protected from hostile takeover bids**.

Potential disadvantages:

Some potential disadvantages will result from delisting the company from the stock exchange. One is the **reduction in the marketability of its stock,** which might have **a negative effect on the value of its stock.** Compliance with public listing rules is believed to bring about good corporate governance. Unless the restructured ABC clearly demonstrates otherwise**, it may be rated low on good corporate governance practices** in the minds of the public. This might have negative effect on its credit rating.

A potential disadvantage of ABC being acquired through an LBO is **high risk of bankruptcy due to high financial obligations**. The success of an LBO is influenced greatly by ability to meet the high interest obligation that comes with the increased debt level. If the restructured company is not able to generate enough income and cash flows, it would default on its huge financial obligations and ultimately go bankrupt. **(6 marks)**

(Total: 20 marks)

EXAMINER'S COMMENTS

Candidates were to determine the NPV of an acquisition under the topic "Mergers and acquisition". Determination of the pre-acquisition values and post-acquisition values were poorly computed. Candidates also failed to compute the cost of equity capital and the weighted average cost of capital (WACC).

The second part of the question had to do with Leveraged buy-out. Candidates just did not know what LBO actually means. They were using intuition to explain the advantages and disadvantages.

QUESTION FIVE

(a) (i)
YSL can hedge using futures as follows.
• Use September futures, since these expire soon after 1 September, price of 1/0.007985 = 125.23 ¥/$.
• Buy futures, since it wishes to acquire yen to pay the supplier, and the futures are in Yen.
• Number of contracts 140m/12.5m = 11.2 contracts - 11 contracts
• Tick size
0.000001 x 12.5m = $12.50 **(5 marks)**

(ii) ***Basis risk*** arises from the fact the price of a futures contract may not move as expected in relation to the value of the instrument being hedged. Basis changes do occur and thus represent potential profits/losses to investors. Typically, this risk is much smaller than the risk of remaining unhedged.

Basis risk is the difference between the ***spot and futures prices***.
Spot price = 1/128.15
= 0.007803

Basis = 0.007803 - 0.007985 = 182 ticks with 3 months to expiry

Basis with one month to expiry, assuming uniform reduction = 1/3 X 182 = 61 ticks

Spot price on 1 Sept = 1/120 = 0.008333

Therefore predicted futures price = 0.008333+0.000061= **0.008394**
(5 marks)
iii) **Outcome**
Futures market

Opening futures price	0.007985
Closing futures price	0.008394
Movement in ticks	409 ticks

Futures market profit 409 x 11 x $12.50 = $56,238
Net outcome

	$
Spot market payment (¥140m. 120)	**1,166,667**
Futures market profit	**56,238**
	1,110,429

Hedge efficiency
56,238 = 76%
74,197

This hedge is not perfect because there is **not** an **exact match** between the exposure and the number of contracts, and because the **spot price** has moved more than the futures price due to the reduction in basis. The actual outcome is likely to differ since basis risk does not decline uniformly in the real world.
(5 marks)

b) The primary difference between the **International Monetary Fund**, or **IMF**, and the **World Bank** lies in their respective purposes and functions. The IMF exists primarily to stabilize exchange rates, while the World Bank's goal is to reduce poverty. Both organizations were established as part of the Bretton Woods Agreement in 1945. Their functions among others are:

- The **International Monetary Fund** promotes monetary cooperation internationally and offers advice and assistance to facilitate building and maintaining a country's economy. The IMF also provides loans and helps countries develop policy programs that solve balance of payment problems if a country cannot obtain financing sufficient to meet its international obligations. The loans offered by the IMF, however, are loaded with conditions. Often, a loan provided by the IMF as a form of "rescue" for countries in serious debt ultimately only stabilizes international trade and eventually results in the country repaying the loan at rather hefty interest rates. For this reason, the IMF has many critics worldwide.

- The **World Bank's** purpose is to aid long-term economic development and reduce poverty in developing countries. It accomplishes this by making technical and financial support available to countries. The bank initially focused on rebuilding infrastructure in Western Europe following World War II, and then turned its operational focus to developing countries. World Bank support helps countries reform inefficient economic sectors and implement specific projects, such as building health centers and schools or making clean water and electricity more widely available. World Bank assistance is typically long term, funded by countries that are members of the bank through the issuing of bonds. The World Bank also has a pool of about $200 billion with which to offer aid to less-developed countries. The bank's loans, however, are not used as a type of bailout, as in IMF style, but as a fund for

projects that help develop an underdeveloped or emerging market nation and make it more productive economically. **(3 marks)**

iii) Challenges faced by IMF in attaining its objectives in West African Countries

- Governance Structure and Key policy issues
- Managing capital movements and preventing crisis
- How to develop partnership for develop, Millenium development goals and the provision of global public goods**.** **(2 marks)**

(Total: 20 marks)

EXAMINER'S COMMENTS

Candidates lack understanding of futures market risk management techniques. Most candidates did not attempt this part of the question. Few candidates who attempted this part too produced poor answers.

Explanation of "basis risk" was also a problem. Most candidates seemed not to have met the term "basis risk".

The second part of the question was on the role of IMF and the World Bank. It is strange that most students do not have any idea of these two important institutions. Good answers were however received from few candidates who attempted this part.