CERTIFIED PUBLIC ACCOUNTANT

ADVANCED LEVEL 2 EXAMINATIONS

A2.1: STRATEGIC CORPORATE FINANCE

DATE: DATE: WEDNSDAY 29, NOVEMBER 2023

MARKING GUIDE AND MODEL ANSWERS

SECTION A

QUESTION ONE

Marking Guide:

Qn	Description	Marks	Total Marks
a	Adjusted Present Value (APV) of IPL's proposed investment:		
	Annual depreciation	0.5	
	NPV(All-Equity):		
	NPV(All-Equity) formula	0.5	
	Initial investment	0.5	
	(1 – tC)(EBITD)	0.5	
	PV [(1 – tC)(EBITD)]	0.5	
	Depreciation Tax Shield	0.5	
	PVIFA9.5%,5	0.5	
	PV (Depreciation Tax Shield)	0.5	
	NPV(All-Equity)	1	
	NPV (Financing Side Effects):		
	NPV (Financing Side Effects) formula	0.5	
	After tax Interest Payments	0.5	
	PVIFA9.5%,20	0.5	
	After tax PV (Interest Payments)	0.5	
	PVIF9.5%,20	0.5	
	PV (Principal Repayments)	0.5	
	NPV (Financing Side Effects)	1	
	APV of the project:		
	APV of the project formula	1	
	APV of the project	1	
	Decision or comment	1	12
b	Differentiate between APV and NPV:		
	Other discussions not in the model answers should be considered		
	Differences between APV and NPV (Award 1 mark for any one valid difference, 2 maximum marks)	2	
	Circumstances under which APV might be a better at evaluating a capital investment than NPV (Award 1 mark for any one valid point, 3 maximum points)	3	5
c (i)	Financial ratios for each of the three subsidiaries:		
	For each company, award 0.5 marks for each correct answer for each ratio below)		
	Equity multiplier	1.5	

Qn	Description	Marks	Total Marks
	Total asset turnover	1.5	
	Profit margin	1.5	
	Return on equity (ROE)	1.5	
	Market capitalization	1.5	
	Enterprise value	1.5	
	Price-Earnings (PE) multiple	1.5	
	EBITDA	1.5	
	Enterprise value (EV) multiple	1.5	
	Capital intensity	1.5	15
c (ii)	Describe these three companies from a financial point of view: Award 1 mark for any valid interpretation. Candidates who did not categorise points in major ratios but have valid points should be marked		
	Award 1 mark any valid interpretation of the results (1 mark * 9 points = 9 maximum marks)		9
d	Ethical issues reported in Mparaga Limited:		
	Brief explanation of what ethics means	2	
	Identification of ethical issues in the company:		
	Bullying, harassment, and discrimination	1	
	No protective personal equipment	1	
	Child labour	1	
	Potential consequences of unethical behaviour:		
	Award 2 marks for any well explained point (2 marks * 2 marks = 4 marks). Award 1 mark if the point is not explained	4	9
	Total Marks		**50**

Model Answers:

(a) Using appropriate calculations, estimate the Adjusted Present Value (APV) of IPL's proposed investment. *Note: Round your calculations off to two decimal places.*

The adjusted present value (APV) of a project equals the net present value of the project under all-equity financing plus the net present value of any financing side effects.

APV = NPV(All-Equity) + NPV(Financing Side Effects)

NPV(All-Equity) = –Initial Investment + PV[$(1 - t_C)$(EBITD)] + PV(Depreciation Tax Shield)

NPV(Financing Side Effects) = Proceeds – After tax PV(Interest Payments) – PV(Principal Repayments)

Where:

- NPV = Net Present Value
- t_C = Tax rate
- EBITD = Earnings before interest, taxes, and depreciation

Below is the computation of APV:

Particulars	**FRW**	**FRW**
Annual depreciation:		
Initial investment	100,000,000	
Useful life	25	
Annual depreciation		4,000,000.00
Depreciation Tax Shield:		
EBITDA	14,000,000	
Tax rate	30%	
Project Period	25	
Required rate of return	12%	
Annual depreciation	4,000,000	
Pretax cost of debt	9.5%	
Debt interest rate	6.0%	
Laon period	20	
NPV(All-Equity):		
Initial investment		(100,000,000.00)
PV [(1 – tc)(EBITD)]:		
$(1 – t_C)$(EBITD)	9,800,000	
PVIFA12%,25	7.8431	
PV [(1 – tc)(EBITD)]		76,862,380.00
PV (Depreciation Tax Shield):		
Depreciation Tax Shield	1,200,000	
PVIFA9.5%,5	9.4376	
PV (Depreciation Tax Shield)		11,325,093.24
NPV(All-Equity)		**(11,812,526.76)**
NPV (Financing Side Effects):		
Proceeds		50,000,000.00
After tax PV(Interest Payments):		
After tax Interest Payments	2,100,000	

Particulars	FRW	FRW
PVIFA9.5%,20	8.8124	
After tax PV (Interest Payments)		18,506,002.45
PV (Principal Repayments):		
Principal Repayments	50,000,000	
PVIF9.5%,20	0.1628	
PV (Principal Repayments)		8,141,184.94
NPV (Financing Side Effects)		**23,352,812.61**
APV of the project:		
NPV(All-Equity)	(11,812,526.76)	
NPV (Financing Side Effects)	23,352,812.61	
APV of the project		**11,540,285.85**

Note:
PVIFA = $[1 - 1/(1 + k)^n] / k$

Where k = rate and n = number of periods or years

(b) Differentiate between APV and NPV as methods of investment appraisal and indicate the circumstances under which APV might be a better at evaluating a capital investment than NPV.

Both APV and NPV are discounted cash flow techniques but are technically different. The major difference is how financing is looked at. With NPV, project-only cash flows are evaluated using a discount rate, usually WACC. The cash flows do not include financing side effects such as tax subsidy to debt among others.

On the contrary, the adjusted present value (APV) is the net present value (NPV) of a project or company if financed solely by equity plus the present value (PV) of any financing benefits, which are usually the additional effects of debt.

By considering financing benefits, APV includes tax shields such as those provided by deductible interest.

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

- There is a significant change in capital structure because of the investment.
- The investment involves complex tax payments and tax allowances, and/or has periods when taxation is not paid.
- Subsidised loans, grants or issue costs exist.

- Financing side effects exist (e.g. the subsidised loan), which require discounting at a different rate than that applied to the mainstream project.

(c) Using information in the Burera Investments Limited case above:

(i) Calculate financial ratios for each of the three subsidiaries. *Note: Use ratios or multiples in table 2 only.*

Particulars	Unit	Formula	Kivu	Ruhondo	Ihema
Equity multiplier	*Times*	Total assets / Total equity	2.7	2.3	2.5
Total asset turnover	*Times*	Sales / total assets	1.6	1.9	1.8
Profit margin	*%*	Net income / Sales	4.3%	6.9%	5.8%
Return on equity (ROE)	*%*	Net income / Total equity	19.3%	30.2%	25.8%
Market capitalization	*FRW Billion*	Shares outstanding * Price per share	43.9	108.8	73.0
Enterprise value	*FRW Billion*	Market capitalization + Market value of interest-bearing debt − Cash	53.8	119.5	83.4
Price-Earnings (PE) multiple	*Times*	Price per share / Earnings per share	21.2	21.7	20.6
EBITDA	*FRW*	Net income + Interest + Taxes + Depreciation + Amortization	5.2	16.7	10.9
Enterprise value (EV) multiple	*Ratio*	Enterprise value / EBITDA	10.4	7.1	7.6
Capital intensity	*Ratio*	Total assets / Sales	0.6	0.5	0.6

(ii) Describe these three companies from a financial point of view. *Hint: Your answers must be based on results from (i) above*.

Overall, these three subsidiaries are similarly situated. One could assess their performance from the following perspectives:

- The efficiency with which they use its assets. The measures in this section are sometimes called asset management or utilization ratios.
- How efficiently the firm uses its assets and how efficiently the firm manages its operations. These are commonly known as profitability ratios.
- Market value measures.
- Long-Term Solvency, or Financial Leverage, Ratios.

Asset management or utilization ratios:
In this category, there are two ratios namely: Total Asset Turnover and Capital intensity.

From the Total Asset Turnover perspective, Ruhondo performed better than the other two sister companies. For every FRW in assets, the company generated FRW 1.9 in sales. Ihema was second and Kivu the third. All the three companies generally performed well.

Looking at capital intensity, it appears that both Kivu and Ihema are the most capital-intensive companies closely followed by Ruhondo. Generally speaking, all the three companies do not seem to be high capital-intensive entities.

Profitability ratios:
There are two ratios to compare on this category as well which include Profit Margin, EBITDA, and Return on Equity.

On all ratios, Ruhondo outperformed the other two sister companies. For instance, it had a 6.9% Profit Margin and 30.2% Return on Equity. Ihema was the second performer and Kivu the last. This tells us that Ruhondo, in an accounting sense, generates a little more than the other companies in net income for every FRW in sales. Similarly, for every FRW in equity, Ruhondo generated more in profit; but again, this is correct only in accounting terms.

Market value measures:
There are four ratios including price–earnings or PE ratio (or multiple), Market Capitalization, Enterprise Value, and Enterprise Value Multiple.

The performance on these measures follows the same trend or relationship seen in previous measures. On most of the market measures, Ruhondo significantly outperformed the two sister companies. For instance, Ruhondo has a dramatically higher Enterprise Value and Market Capitalization signalling that Ruhondo is a higher market value relative to the other companies. This implies that for a potential buyer, Ruhondo appears to be a better target than the other companies.

In general, however, all the three companies have high growth prospects. For instance, in the vernacular, we would say that all three companies' shares sell for 20 times earnings, or we might say their shares have, or "carry," a PE multiple above 20. This is generally considered a good sign.

Long-Term Solvency, or Financial Leverage, Ratios:
There is one ratio in this category, namely Equity multiplier.

Results of the ratio analysis point again to a generally similar picture with all three companies having equity multipliers in the range of 2.3 to 2.7 times. It appears that Kivu is using a high amount of debt to finance its assets compared to the other two companies because it has a higher equity multiple.

(d) Identify the ethical issues reported in Mparaga Limited and the likely impact of these issues on the company if not addressed effectively.

Ethics are about having standards of behaviour and 'doing the right thing'. This means that an ethical business will act in a socially responsible way, doing what is right even if it is not required to do so by legislation, and regardless of the impact it might have on profits.

There are several ethical issues reported in the Mparaga Limited case. The company has recently come under intense scrutiny for various ethical issues. Staff have long complained of cases of bullying, harassment, and discrimination taking place one after another and after reporting, no action is taken.

Furthermore, there additional ethical issues reported in the leaked article. For instance, it appeared that staff work in poor conditions. They have no protective personal equipment and there were nine children under the age of 15 working along with other older staff. All these cases are ethical issues that the company must address effectively and immediately to avoid potential legal and financial consequences discussed below.

Firstly, companies that behave in an unethical way are more likely to receive bad publicity and get a poor reputation. For example, because the company employs children below the legal age, it may be fined or targeted by negative articles in the media such as the one in the case. Bad publicity may negatively impact profitability by repelling clients.

A lack of ethics has a negative effect on employee performance. Mparaga's employees could be so concerned with their health as a result of lack of protective equipment that they lose focus and motivation. Again, this could result legal issues if something goes wrong.

The company may also fail to attract or retain good employees because unethical behaviours usually circulate by word of mouth. No one wants to work for a bad company. This would certainly be bad for the company.

SECTION B

QUESTION TWO

Marking Guide:

Qn	Description	Marks	Total Marks
a	Advise the CIO on the best course of action for the available extra cash:		
	After tax corporate yield	0.5	
	FVIF4.90%,3	0.5	
	FV of investment in T-bills	0.5	
	After tax cash flow to shareholders	0.5	
	Preferred dividend	0.5	
	Taxable preferred dividends	0.5	
	Taxes on preferred dividends	0.5	
	After tax corporate dividend	0.5	
	After tax corporate dividend yield	0.5	
	FVIF8.60%,3	0.5	
	FV of investment in preferred stock	0.5	
	After tax cash flow to shareholders	0.5	
	After tax cash received today	1	
	After tax corporate yield	0.5	
	FV of investment in T-bills	0.5	
	Preferred dividend	0.5	
	Taxes on preferred dividends	0.5	
	After tax preferred dividend	0.5	
	After tax individual dividend yield	0.5	
	FVIF5.85%,3	0.5	
	FV of investment in preferred stock	0.5	
	Comment or advise on the use of cash or course of action	1	12
b	Report on the proposed acquisition of Kamanga Limited and financial markets:		
	Points in the model answer are not exhaustive and other valid answers provided by candidates should be considered		
	Presentation (Award 1 mark if a candidate used a proper report format eg addressee, author, date, title, signature etc)	1	
b (i)	Due diligence:		
	A short description of what due diligence means in the context of M&A	1	

Qn	Description	Marks	Total Marks
	Role/advantage or due diligence (Award 2 marks for any well explained point. Maximum 6 points)	6	
	Challenges/disadvantages of conducting due diligences (Award 2 marks for any well explained point. Maximum 1 point)	1	7
b (ii)	Global financial markets:		
	A short description of what financial markets is	2	
	Explanation of the extent to which global financial markets are integrated (Award 2 marks for any valid point. Maximum 2 points)	4	6
	Total Marks		**25**

Model Answers:

(a) Using appropriate calculations, **advise the CIO on the best course of action for the available extra cash.** *Note: Round your calculations off to two decimal places.*

Particulars	**FRW or %**	**FRW or %**
Alternative 1:		
If the firm invests in T-Bills:		
After tax corporate yield:		
Treasury bills yield	7%	
Tax rate	30%	
After tax corporate yield		= 7% * (1-30%) = 4.90%
FV of investment in T-bills:		
Investment in T-bills	55,000,000	
FVIF 4.90%,3	1.1543	
FV of investment in T-bills		63,487,635.70
After tax cash flow to shareholders:		
FV of investment in T-bills	63,487,635.70	
Personal dividend tax rate	15%	
After tax cash flow to shareholders		**53,964,490.34**
If the firm invests in preferred stock:		
Preferred dividend:		
Preferred stock	55,000,000	
Preferred stock rate	9%	
Preferred dividend		4,950,000
Taxable preferred dividends:		
Preferred dividend	4,950,000	

Particulars	FRW or %	FRW or %
Non-taxable rate	85%	
Taxable preferred dividends		= 4,950,000 * (1-85%) = 742,500
Taxes on preferred dividends		222,750
After tax corporate dividend		= 4,950,000 - 222,750 = 4,727,250
After tax corporate dividend yield		= 4,727,250 / 55,000,000 = 8.60%
FV of investment in preferred stock:		
Investment in preferred stock	55,000,000	
FVIF8.60%,3	1.2806	
FV of investment in preferred stock		70,435,593.51
After tax cash flow to shareholders		**59,870,254.48**
Alternative 2:		
After tax cash received today		= 55,000,000 * (1-15%) = 46,750,000
The individuals invest in Treasury bills:		
After tax individual yield on T-bills:		
Treasury bills yield	7%	
Personal income tax rate	35%	
After tax corporate yield		= 7% * (1-35%) = 4.55%
FV of investment in T-bills:		
Investment in T-bills	46,750,000	
FVIF4.55%,3	1.1428	
FV of investment in T-bills		**53,426,131.24**
The individuals invest in preferred stock:		
Preferred dividend:		
Preferred stock	46,750,000	
Preferred stock rate	9%	
Preferred dividend		4,207,500
Taxes on preferred dividends:		
Preferred dividend	4,207,500	
Personal income tax rate	35%	
Taxes on preferred dividends		1,472,625.00
After tax preferred dividend		= 4,207,500 - 1,472,625 = 2,734,875.00
After tax individual dividend yield		= 2,734,875 / 46,750,000 = 5.85%
FV of investment in preferred stock:		
Investment in preferred stock	46,750,000	

Particulars	FRW or %	FRW or %
FVIF5.85%,3	1.1860	
FV of investment in preferred stock		**55,443,954.99**

All FVIF values are computed using the following formula:

FVIF k,n = $(1 + k)^n$
Where k = rate and n = number of period or years

The after tax cash flow for the shareholders is maximized when the firm invests the cash in the preferred stock and pays a special dividend later because this is when the future value is the highest at FRW 59,870,254.48.

(b) Prepare a report to be submitted to the CIO by 10 May 2023 addressing the following issues:

(i) Evaluate the role of legal and financial due diligence during the proposed acquisition of Kamanga Limited.

(ii) The extent to which global financial markets are integrated.

From: Financial Analyst, LBL,
To: Chief Investment Officer, LBL
10 May 2023

Dear CIO,

Re: Report on the proposed acquisition of Kamanga Limited and financial markets

Part I: Due diligence:

Due diligence is a process of verification, investigation, or audit of a potential deal or investment opportunity to confirm all relevant facts and financial information and to verify anything else that was brought up during a merger and acquisition (M&A) deal or investment process. Due diligence is completed before a deal closes to provide the buyer with an assurance of what they're getting.

It is important for LBL to conduct a proper due diligence before acquiring Kamanga Limited because of the following reasons:

Transactions that undergo a due diligence process offer higher chances of success. Due diligence contributes to making informed decisions by enhancing the quality of information available to decision-makers. By conducting an appropriate due diligence, LBL would have a high degree of confidence of the situation at its target and the quality of its decisions regarding the acquisition

cost, skills of its employees, culture, growth potential and others is likely to be better than if it had not.

Due diligence allows the buyer to feel more comfortable that their expectations regarding the transaction are correct. In M&As, purchasing a business without doing due diligence substantially increases the risk to the purchaser. LBL would, therefore, significantly reduce the risk by gathering as much information about is target as possible.

However, it is important for the BoD to be aware of the potential costs of undergoing a due diligence process. The costs of undergoing a due diligence process depend on the scope and duration of the effort, which depends heavily on the complexity of the target company. Costs associated with due diligence are an easily justifiable expense compared to the risks associated with failing to conduct due diligence.

If LBL decides to conduct a due diligence of Kamanga Limited, it, and the target shall determine who bears the expense of due diligence. Both buyer and seller typically pay for their own team of investment bankers, accountants, attorneys, and other consulting personnel. However, it is likely that LBL's cost would probably be higher since it is the most eager to complete the deal.

Part II: Global financial markets

Financial market integration is the process by which financial markets are integrated with one another rather than segmented, leading to a convergence of market risk and price. The interest in integrating financial markets increased considerably following the abolition of foreign exchange controls in both mature and emerging markets during the last few decades. The cross-border movement of funds has increased with the world moving towards a free trade zone.

When this does not happen, then the markets are said to be segmented. Segmentation is a result of lack of integration, and this can happen due to high transaction costs involved in arbitrage or market inefficiency.

Given the technological developments in communications and trading systems and introduction of innovative financial products, the investors today face opportunities to maximise their returns by diversification.

In the globalised financial market, the main challenge for both investors and policy makers is to take advantage of and promote efficiency enhancing aspects of market interaction, while containing and controlling the undesirable destabilising effects. There are various factors that influence market interaction and hence integration of financial markets like institutional framework of the economy, governmental policies and technological advancement of the country.

However, there is a danger in markets being inter-linked. If stock markets are closely linked, then there is a danger that shocks in one market will spill over to the other markets.

Although research has pointed to global financial markets getting inter-linked over time, there has been recent signs of contraction partly due to geopolitics and globalisation retreat. It is still early, however, to conclude that this will continue over the next years.

Yours sincerely,

Financial Analyst

QUESTION THREE

Marking Guide:

Qn	Description	Marks	Total Marks
a	Mr John's stock decision:		
	i/N	0.5	
	Xi	0.5	
	Var(x) formula	0.5	
	Var (RP)	0.5	
	RP	0.5	
	E(Z)	0.5	
	E(a)	0.5	
	E(RP) formula	0.5	
	E(RP)	0.5	
	Var (RP) formula	0.5	
	Var (RP) new derived formula	0.5	
	Var (RP)	0.5	
	R1i equation	0.5	
	R2i equation	0.5	
	E(R1P)	1	
	Var(R1P) equation	0.5	
	Var(R2P) equation	0.5	
	Var(R1P)	1	
	Var(R2P)	1	
	Comment or decision	1	12
b	Examine the soundness of the broker's advice to Mr John as a risk-averse investor: Points in the model answer are not exhaustive and other valid answers provided by candidates should be considered	1	

Qn	Description	Marks	Total Marks
	A short description of the standard deviation	1	
	The wide fluctuations do not mean poor investment	2	
	A discussion around systematic risk or beta	2	
	The standard deviation is not adequate	2	7
c	Amazi Company Limited's operating and cash cycles and interpret your answer:		
	Inventory turnover	0.5	
	Inventory period	0.5	
	Receivables turnover	0.5	
	Receivables period	0.5	
	Operating cycle	1	
	Payables turnover	0.5	
	Payables period	0.5	
	Cash cycle	1	
	Comment	1	6
	Total Marks		**25**

Model Answers:

(a) Using the information above about stock markets 1 and 2 and assuming John is risk-averse, **advise which market would be more beneficial for Mr John Gatsinzi if he finally decided to invest in the stock market.**

To determine which investment Mr John Gatsinzi would prefer, the variance of portfolios created by many stocks from either market must be computed.

Given:

$E_F = 0$ and $\sigma = 10\%$

$E_\varepsilon = 0$ and $S_{\varepsilon i} = 20\%$ for all i

Since the stocks in the portfolio are equally weighted, the weight of each stock is 1/N, that is:

$Xi = 1/N$ for all *i*

The variance of the respective portfolios in the 2 markets:

$Var(x) = E[x - E(x)]^2$

In this case:

$\text{Var}(R_P) = \text{E}[R_P - \text{E}(R_P)]^2$

Using the assumption about equal weights and then substituting in the known equation for R_i:

$R_P = 1/N * \sum R_i$
$R_P = 1/N * \sum (10\% + \beta F + \varepsilon_i)$
$R_P = 10\% + \beta F + 1/N * \sum \varepsilon_i$

If:

$$\tilde{Z} = a\tilde{X} + \tilde{Y}$$

Then

$$\text{E}(\tilde{Z}) = \text{E}(a)\text{E}(\tilde{X}) + \text{E}(\tilde{Y})$$

And $\text{E}(a) = a$
Using the above to find $\text{E}(R_P)$:

$$E(RP) = E\left[10\% + \beta F + \frac{1}{N}\sum \varepsilon i\right]$$

$$E(RP) = \left[10\% + \beta F + \frac{1}{N}\sum (\varepsilon i)\right]$$

$$E(RP) = \left[10\% + \beta(10) + \frac{1}{N}\sum 0\right]$$

$$E(RP) = 10\%$$

Substituting both of these results into the original equation for variance:

$\text{Var}(RP) = \text{E}[RP - \text{E}(RP)]^2$

$\text{Var}(RP) = \text{E}[RP - \text{E}(RP)]^2$

$$Var(RP) = E[10\% + \beta F + \frac{1}{N}\sum \varepsilon i - 10\%]2$$

$$Var(RP) = E[\beta F + \frac{1}{N}\sum \varepsilon]2$$

$$Var(RP) = E[\beta^2 F^2 + 2\beta F + \frac{1}{N}\sum \varepsilon + \frac{1}{N^2}\left(\sum \varepsilon\right)2]2$$

$$Var(RP) = E[\beta^2\sigma^2 + \frac{1}{N}\sigma^2\varepsilon + \left(1 - \frac{1}{N}\right)Cov(\varepsilon n, \varepsilon m)]2$$

Since 1/N → 0, then

Var (RP) = $\beta^2\sigma^2$ + Cov (ε_n,ε_m)

Since Cov (ε_n,ε_m) = $\sigma_n\sigma_m\rho(\varepsilon_n,\varepsilon_m)$

And $\sigma^1 = \sigma^2 = 10\%$, then:

Var (R_P) = $\beta^2\sigma^2 + \sigma 1\sigma 2\rho(\varepsilon_n,\varepsilon_m)$
Var (R_P) = $\beta^2(10\%) + 0.04\rho(\varepsilon_n,\varepsilon_m)$

This now results in:

$R_{1i} = 0.10 + 1.5F + \varepsilon_{1i}$
$R_{2i} = 0.10 + 0.5F + \varepsilon_{2i}$
E(R_{1P}) = E(R_{2P}) = 0.10
Var(R_{1P}) = $0.0225 + 0.04\rho(\varepsilon_{1n},\varepsilon_{1m})$
Var(R_{2P}) = $0.0025 + 0.04\rho(\varepsilon_{2n},\varepsilon_{2m})$

Substituting $\rho(\varepsilon_{1n},\varepsilon_{1m}) = \rho(\varepsilon_{2n},\varepsilon_{2m}) = 0$ into the respective variance formulas:

Var(R_{1P}) = 0.0225
Var(R_{2P}) = 0.0025

Since Var(R_{1P}) > Var(R_{2P}), and expected returns are equal, market 2 would be more beneficial to Mr John Gatsinzi if he finally decided to invest in the stock market.

(b) A broker has advised Mr John Gatsinzi not to invest in the energy sector stocks because they have high standard deviations. **Examine the soundness of the broker's advice to Mr John as a risk-averse investor.**

Standard deviation is a statistic that measures the dispersion of a dataset relative to its mean and is calculated as the square root of the variance. Standard deviation is a statistical measurement in finance that, when applied to the annual rate of return of an investment, sheds light on that

investment's historical volatility. The greater the standard deviation of securities, the greater the variance between each price and the mean, which shows a larger price range. For example, a volatile stock has a high standard deviation, while the deviation of a stable blue-chip stock is usually rather low.

The wide fluctuations in the price of energy sector stocks do not indicate that these stocks are a poor investment. If an energy stock is purchased as part of a well-diversified portfolio, only its contribution to the risk of the entire portfolio matters.

This contribution is measured by systematic risk or beta. Price fluctuations in energy stocks may reflect diversifiable plus non-diversifiable risk which means that observing the standard deviation of price movements is not an adequate measure of the appropriateness of adding energy stocks to a portfolio.

A lower standard deviation isn't necessarily preferable. It all depends on the investments and John's willingness to assume risk. When dealing with the amount of deviation in his portfolios, John should consider their tolerance for volatility and their overall investment objectives. A more aggressive investor may be comfortable with an investment strategy that opts for vehicles with higher-than-average volatility, while more conservative investors may not. Clearly, this is not recommended for Mr John who is rather risk averse.

(c) Calculate Amazi Company Limited's operating and cash cycles and interpret your answer. *Note: Round your calculations off to two decimal places.*

Particulars	***Unit***	**Remarks**	**Remarks**
Inventory turnover:			
COGS	*FRW*	254,000,000	
Opening Inventory	*FRW*	26,000,000	
Closing Inventory	*FRW*	31,000,000	
Inventory turnover	*Times*		8.91
Inventory period:			
Days	*Days*	365	
Inventory turnover	*Times*	8.91	
Inventory period	*Days*		40.95
Receivables turnover:			
Credit sales	*FRW*	323,000,000	
Opening receivables	*FRW*	21,000,000	
Closing receivables	*FRW*	25,000,000	
Receivables turnover	*Times*		14.04
Receivables period:			
Days	*Days*	365	

Receivables turnover	*Times*	14.04	
Receivables period	*Days*		25.99
Operating cycle	***Days***		**66.95**
Payables turnover:			
COGS	*FRW*	254,000,000	
Opening payables	*FRW*	29,000,000	
Closing payables	*FRW*	28,000,000	
Payables turnover	*Times*		8.91
Payables period:			
Days	*Days*	365	
Payables turnover	*Times*	8.91	
Payables period	*Days*		40.95
Cash cycle	***Days***		**25.99**

The operating cycle = the inventory period + the receivables period

The cash cycle = the operating cycle - the payables period.

Interpretation

This cash cycle mans that it takes Amazi Company Limited only 26 days to convert inventory into cash.

QUESTION FOUR

Marking Guide:

Qn	Description	Marks	Total Marks
a	Forward contracts vs currency options:		
	The answer should discuss similarities and differences between the two hedging techniques		
	A short but clear introduction/definition of each of the two hedging techniques (Award 1 mark for forward contracts and 1 mark for currency options)	2	
	Similarities between forward contracts and options (Award 2 marks for any valid similarity eg they are both hedging techniques etc)	2	
	Differences between forward contracts and options (Award 2 marks for any valid similarity. Maximum 2 points)	4	8
b	Advise how the 6-month currency risk should be hedged:		
	Locked in receipt - forward contract	1	
	Futures contracts:		
	Approach 1:		

Qn	Description	Marks	Total Marks
	Predicted futures rate	1	
	Expected receipt	1	
	Number of contracts to be bought	1	
	Approach 2:		
	Futures lock-in rate	1	
	Expected receipt	1	
	Number of contracts to be bought	1	
	Comment (1 mark for the correct advice and 1 mark for a correct justification)	2	9
c	Evaluate Ms Lisandro Fernandes' comment on capital markets:	5	
	The points in the model answer are not exhaustive and other points should be considered		
	The discussion should address the progress in capital markets regulation, remaining and emerging gaps, what the IMF and country regulars should do		
	A short but clear introduction/definition of capital markets	2	
	Progress made in capital market regulation (alternative arguments should be considered)	2	
	Gaps, risks, vulnerabilities in the financial system	2	
	IMF and country regulators must do to address these issues	2	8
	Total Marks		**25**

Model Answers:

(a) Compare and contrast forward contracts and currency options as approaches of hedging a foreign exchange risk.

Forex hedging aims to reduce and limit exposure to fluctuations on the foreign exchange market including fluctuations related to exchange rates, interest rates and other unexpected changes in the foreign currency market. The two most common methods to hedge foreign currency exposure are forward contracts and currency options. Forward contracts and options are a form of derivatives, namely over-the-counter derivatives, meaning that they are not traded on centralized markets but rather privately negotiated between two counterparts.

Forward contracts, or forward exchange contracts, are agreements whereby a business accepts to buy or sell a specific amount of a future currency on a specific future date. This solution enables the business to protect itself against any fluctuations that may occur until this specific date. More specifically, forward contracts can take the form of flexible forward contracts as well as dynamic forward contracts.

Like forward contracts, options are a form of derivative products. However, their difference lies in the fact that they give the counterparts the right but not the obligation to buy or sell a currency pair at a specific price on a specific date in the future. These are so-called call options and put options.

As suggested before, they are similar to forward contracts, but the company is not forced to complete the transaction when the contract's expiration date arrives. Therefore, if the option's exchange rate is more favourable than the current spot market rate, the investor would exercise the option and benefit from the contract. If the spot market rate was less favourable, then the investor would let the option expire worthless and conduct the foreign exchange trade in the spot market. This flexibility is not free, and the company will need to pay an option premium.

(b) Using appropriate calculations, **advise how the 6-month currency risk should be hedged.**
Note: Round your calculations off to the nearest whole number.

Particulars	**Unit**	**Remarks**	**Remarks**
Forward contracts:			
6-month forward		1.9315	
Receipt	*BIF*	16,000,000,000	
Locked in receipt	***FRW***		**8,283,717,318**
Futures contracts:			
Approach 1:			
Predicted futures rate:			
6-month expiry	*BIF*	1.9367	
3-month expiry	*BIF*	1.9322	
Predicted futures rate	*BIF*		1.9356
Expected receipt	***FRW***		**8,266,277,463**
Contract size	*FRW*	100,000,000	
Number of contracts to be bought	*Contracts*		83
Approach 2:			
Futures lock-in rate:			
6-month expiry	*BIF*	1.9367	
Spot	*BIF*	1.9304	
Futures lock-in rate	*BIF*		1.9357
Expected receipt	***FRW***		**8,265,957,172**
Number of contracts to be bought	*Contracts*		83

CCC should use the forward markets to hedge against the BIF depreciating in five months' time against FRW to maximise receipts since this where receipts are higher than futures.

(c) Evaluate Ms Lisandro Fernandes' comment on capital markets.

A capital market is a market for securities which could be debt or equity, where business enterprises and government can raise long-term funds. Securities traded in the capital market are usually long dated financial instruments such as Treasury Bonds, Municipal Bonds, Corporate Bonds and debentures, shares or stocks issued by companies.

Capital markets are like engines that help power the global economy: they perform best with regular tune-ups. In this spirit, the major regulatory overhaul following the global financial crisis was aimed at shoring up key segments, from over-the-counter derivatives to investment funds and market infrastructure, closing fault lines revealed by the crisis.

However, there are always new developments which pause new risks and vulnerabilities in the capital market. To prevent the next financial crisis, countries must keep assessing these new cracks in the financial system and address them effectively.

The IMF and its country counterparts must regularly the performance of asset managers like money market funds and bond funds, and whether trading venues beyond traditional exchanges are adequately regulated. A constructive debate must exist to enable dialogue on how to address any new challenges. This will ensure that the financial system is appropriately regulated.

Although there has been tremendous progress since the financial crisis of 2008, it is important that reforms keep happening because there has also been corresponding rapid growth of financial services firms that don't have banking licenses or take deposits, such as insurers, mutual funds, and exchanges. There has also been growth of nonbank financial intermediation. Regulators must keep monitoring all these changes to ensure that any vulnerabilities and shocks do not spillover to the mainstream financial system.
In addition to the usual issues that culminated to the financial crisis, there are emerging issues that require the attention of regulators. These include, but not limited to, cyber resilience, fintech, and climate change.

Vital to the regulation efforts, there must be appropriate shock absorption and crisis preparedness if risks get out of hand and to better manage early warnings.

END OF MARKING GUIDE AND MODEL ANSWERS