

CERTIFIED PUBLIC ACCOUNTANT ADVANCED LEVEL 2 EXAMINATIONS A2.1: STRATEGIC CORPORATE FINANCE DATE: DATE: WEDNSDAY 29, NOVEMBER 2023

MARKING GUIDE AND MODEL ANSWERS

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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)	A ROVER NO	
	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)	NOVAR OPAR	
	APV of the project:		
	APV of the project formula	20032000	
	APV of the project	VENICE PAR 3 10 12	
	Decision or comment	INBELEMBER IS	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	OVERNOVENOVE S
c (i)	Financial ratios for each of the three subsidiaries:		
MBERR NI	For each company, award 0.5 marks for each correct answer		
	for each ratio below)		
	Equity multiplier	1.5	
	Color		

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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	2023 ER 2023	
	No protective personal equipment	VENIOVEN 1	
	Child labour	NBER VENEEL IN	
	Potential consequences of unethical behaviour:		
	Award 2 marks for any well explained point (2 marks * 2	4	
	marks = 4 marks). Award 1 mark if the point is not explained		9
	Total Marks		<u>50</u>

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 allequity financing plus the net present value of any financing side effects.

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

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

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 $NPV(Financing\ Side\ Effects) = Proceeds - After\ tax\ PV(Interest\ Payments) - PV(Principal\ Repayments)$

Where:

- NPV = Net Present Value
- $t_{\rm C} = {\rm Tax \ rate}$
- EBITD = Earnings before interest, taxes, and depreciation

Below is the computation of APV:

Particulars	FRW	FRW
Annual depreciation:	PAR 3 C 023 ENDENEND VENCOPAR 3 CO 3 LOS SIGNED	STONE WONE OF SOLS FOR MONEY PORT AND SOLS
Initial investment	100,000,000	CHBERLEND ENCENCY 2023 COMENSE VENT
Useful life	25	OPAR CPAN 2016ER MEER ROPAN CPAN CPAN CPANER
Annual depreciation	34,005	4,000,000.00
Depreciation Tax Shield:	EFENE WENCERS CO. 3 CHEN TO SENOWE CO.	OZ3 ZOZO VENINOVE NOV. NOV. 3 TO ZOZE PO ZAZA PO ZOZE PO ZAZA POZA PO
EBITDA	14,000,000	CON 3 10 23 1 MB VE NOV 3 CY 2023 202
Tax rate	30%	SELNE OPAR CPAS CONSENERS OF ACT OF A
Project Period	25	20 MER MER AR NO AR CPARE VENDER ENDO
Required rate of return	12%	AR NO 2023 FR 201 ER NOVER TO PART 2018 ER
Annual depreciation	4,000,000	WE WALL SOS BE SOS BEEN HOUSE HOUSE
Pretax cost of debt	9.5%	23 VENE VENE (PROVES C PO 20 12 20 20 VENE VOVE PO AR
Debt interest rate	6.0%	COPAGO CENTRAL MENTENNE PAR COPAGO COMENTA
Laon period	20	AR NO PARTOPAR PROBLEM TO PARTOPAR TO PART
NPV(All-Equity):	165 AC ON 105 OF 505 ACM 100 AC 105 ACM	SOFTER SHOWING HE CONTROL SHEET WOOD
Initial investment	3 /CMBE NEW ONE CENTRAL STORY FUND OF HO	(100,000,000.00)
PV [(1 – tc)(EBITD)]:	IC AS CHEER ENDINENDED AND COME TO THE WAS	1003 10 505 B 5053 EMPONE 400 3 10 205
$(1-t_{\rm C})$ (EBITD)	9,800,000	CALMER CHART CHART CHART CHART CHART C
PVIFA12%,25	7.8431	CPARE 200 EE MEE AF TO CPARE CHEEFE VENER
PV [(1 – tc)(EBITD)]	3 C 202 R 202 VEN NOVE NO 3 10 202 ER 200	76,862,380.00
PV (Depreciation Tax Shield):	100 1EW 5 10 30 33 50 38 FWEL VEW OF SOLD ST	OLVENNOVE NO 3 IC SOLE LAND OF HOLD
Depreciation Tax Shield	1,200,000	23 12 22 3 KINEW OVER NOVER 107 2023 2020 KINEW
PVIFA9.5%,5	9.4376	CPAP 3 CP 3 CMEET HAND VEW CPAR 3 CO 20 23
PV (Depreciation Tax Shield)	AR CPA TO 2018 ER 2018 A TO PAR TO HER 2018	11,325,093.24
NPV(All-Equity)	ONEW ONE WONSTEL STEEL WOLVE WOULD IN	(11,812,526.76)
NPV (Financing Side Effects):	31,5053 EMBENERHOURS CP 23, 2023 EMBEN	RWOOD ON WELL WORK COLER JOSEP W
Proceeds	SPART OF THE CHEEP CONSTRUCTION OF ANY TOTAL STATE OF THE	50,000,000.00
After tax PV(Interest Payments):	REPART OF A CONTROL OF THE CONTROL O	SIGNEER ENTENDASION OF STATE SOURCE SENTING STATE
After tax Interest Payments	2,100,000	CPAR CPART I CHARLEN OF AR 1 CPART C

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Particulars	FRW	FRW
PVIFA9.5%,20	8.8124	MON 3 CX 2013 R 2014 PM MON R MO 23 FF 2014
After tax PV (Interest Payments)	AP 310 3 LINEENENEL LINEE LOS 3 CONE	18,506,002.45
PV (Principal Repayments):	NEER CPAR CPAR 200 ER INEER NEED AR NO PAR	THE WENDYEND PAR 10 PO JUNE VENTON
Principal Repayments	50,000,000	AR CRAFT 20 EEF MEER NE PROPERTOR LANGER
PVIF9.5%,20	0.1628	MOVER NO REH SUBER WEEK NO PAR CPAR
PV (Principal Repayments)	NEWO 3/C 203 2 2023 12 MBC 12 MOVE CON	8,141,184.94
NPV (Financing Side Effects)	PATER IN NEET ENDER AR TOPPE OF THE FRENCH TOP	23,352,812.61
APV of the project:	ARTOPHER 2012 ER LIBERT TO PART CRAFTER 2018	JEMPERARI CPARICIPALITY ENDVENCER CPARISIV
NPV(All-Equity)	(11,812,526.76)	NEER NEER NO AN CPREE VENE VENE COA
NPV (Financing Side Effects)	23,352,812.61	RANGER WEEK WONAK OPAK 2018EEK
APV of the project	PARTY COSTENED VENTONES OF 2023 12022 EN	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.

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- 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.

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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.

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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.

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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	VENIOVENIA	
	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	OVENDOUS P	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	BET NU PAR	
	report format eg addressee, author, date, title, signature etc)		
b (i)	Due diligence:		
2023 AUL ENBERARNO 23 ER 2023	A short description of what due diligence means in the context of M&A	1	

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

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:	PAR TOPAT CPREE VENEER WENTOP	3 12023 TEMBER ACTUONES 105 205 3 15 205 ALEMINONE HOUSE
If the firm invests in T-Bills:	ER 20ER NOVAR OPAR 2018ER	HER AND PAY CONTENT OF THE WENT OF AND CONTENTS OF THE OVERLY
After tax corporate yield:	123 C 2023 202 VEN NOVE NO	CH 20EFF HOPAF TO REF 2012 EFF MEETER HOPAF LOPAF
Treasury bills yield	7%	ONE CLASS TOSSIEN POR MOUSE SOUTH SOUTH WE
Tax rate	30%	15 ME 15 MC 6 KG 3 C 5 C 5 S 15 ME 1 MC 15 MC 15 S 2 5 C 5 S 5 C 5 C 5 C 5 C 5 C 5 C 5 C 5 C
After tax corporate yield	MORAR 2023 REPUBER WOVER OF ART	= 7% * (1-30%) = 4.90%
FV of investment in T-bills:	VENILOVE MON3 IC 2023 F 202 VE	A TOPE TO THE MEET WO AR TOPAR TO WELL WELL TO THE
Investment in T-bills	55,000,000	NEW WORK HOUS IS SOLD SOLD WAY WORK HOUSE IN SOLD SOLD SOLD WAY TO SEE THE SOLD SOLD SOLD SOLD SOLD SOLD SOLD SOLD
FVIF 4.90%,3	1.1543	(C) 23 15 14 15 15 14 14 10 15 16 16 16 16 16 16 16 16 16 16 16 16 16
FV of investment in T-bills	BER 2 NOVER NOAR 1202 ER MET	63,487,635.70
After tax cash flow to shareholders:	10 2023 2023 ENIL NOVE NO. 3 ER	POLE TO AR OF AR TO THE MEET NO AR OF ARE
FV of investment in T-bills	63,487,635.70	OF TOP 3 2023 KIND OF TOP 3 FREE WORK TO AS
Personal dividend tax rate	15%	BELLINE STEP STEP STEP STEP STEP STEP STEP STE
After tax cash flow to shareholders	AR A 2013 EP MBER AND AR WEAR	53,964,490.34
If the firm invests in preferred stock:	MBC VEROVE 1012 R 2023 R 202 VERIL	ON NO 23 TO JULE AND PAR NO PAR TO SOLE HAMBER AND CO
Preferred dividend:	3 CHBERVENDVENICPATS 1023	MET REMOVE CENTER TO SERVE WHO WE HOUSE REPORTED
Preferred stock	55,000,000	AS CHEEVENEURING PAR COLOR LENEUR REMOVE COLOR
Preferred stock rate	9%	NORTH COME NOTE NOT ARE NOT AS A MEET LIME TEN
Preferred dividend	2023 12023 ENINOVE HONS 1C 20	4,950,000
Taxable preferred dividends:	EMBERGIOPHISCHER CONTRACTOR	Sec. 3 Cols remain Action of the Modern Work of the
Preferred dividend	4,950,000	ENE PARTICIPATION CHERTEN CHENCEN CHARLES TO STANDON

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Taxable preferred dividends	Particulars	FRW or %	FRW or %
Taxes on preferred dividends 222,750	Non-taxable rate	85%	VENDO 18 100 3 10 2023 200 VEN 100 84 12 203 ER 201
Taxes on preferred dividends After tax corporate dividend After tax corporate dividend After tax corporate dividend After tax corporate dividend yield FV of investment in preferred stock: Investment in preferred stock Investment in preferred stock FV of investment in preferred stock After tax cash flow to shareholders After tax cash flow to shareholders After tax cash received today The individuals invest in Treasury bills: Treasury bills yield Personal income tax rate After tax corporate yield FV of investment in T-bills: Investment in T-bills The individuals invest in preferred stock Preferred dividend: Preferred dividend: Preferred dividend Preferred dividend Taxes on preferred dividends After tax preferred dividend After tax individual dividend yield FV of investment in preferred stock:	Taxable preferred dividends	A NORAR TO ARE ZOUBER TO PAR	= 4,950,000 * (1-85%) =
After tax corporate dividend	26 4 5 3 0 5 12 4 6 12 4 0 12 4 0 13 14 5 16 15 16 16 16 16 16 16 16 16 16 16 16 16 16	23 202 KNROVEN OVER 2013 P 2014	
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 FVIFS,60%,3 1.2806 FV of investment in preferred stock 70,435,593.51 After tax cash flow to shareholders 59,870,254.48 After tax cash flow to shareholders 46,750,000 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 9% Preferred dividend: Preferred dividend 4,207,500 Preferred dividend 4,207,500 Prersonal income tax rate 35% After tax son preferred dividends 1,472,625.00 After tax preferred dividend = 4,207,500 - 1,472,625 = 2,734,875.000 After tax individual dividend yield = 2,734,875.000 - 2,85% FV of investment in preferred stock:	Taxes on preferred dividends	C65053 C053 RWB ACK HOAS 10	222,750
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: 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 dividend: Preferred dividend 4,207,500 Preferred dividend 4,207,500 Preferred dividend 5,2000 Preferred dividend 4,207,500 Presonal income tax rate 35% Taxes on preferred dividends 1,472,625.00 After tax preferred dividend = 4,207,500 - 1,472,625.00 After tax preferred dividend = 4,207,500 - 1,472,625.00 After tax preferred dividend = 4,207,500 - 1,472,625.00 After tax individual dividend yield = 2,734,875,00 - 2,734,875.00 FV of investment in preferred stock:	After tax corporate dividend	WENGEAR WEAR OF A CHEER ENEMENT	= 4,950,000 - 222,750 =
8.60%	440 18 10 5 10 5 10 5 14 14 10 18 10 10 5 10 5 10 5 10 10 10 10 10 10 10 10 10 10 10 10 10	2023 ER NBER NOVAR NO ARER 20	
FV of investment in preferred stock: Investment in preferred stock FVIF8.60%, 3 After tax cash flow to shareholders After tax cash received today The individuals invest in Treasury bills: After tax individual yield on T-bills: Treasury bills yield Personal income tax rate FV of investment in T-bills FV of investment in T-bills FV of investment in T-bills The individuals invest in Treasury bills: After tax conporate yield FV of investment in T-bills FV of investment in T-bills FV of investment in T-bills FV of investment in T-bills Treferred dividend: Preferred dividend: Preferred dividend Taxes on preferred dividends: Preferred dividend Personal income tax rate 35% After tax corporate yield FV of investment in T-bills Total yield 46,750,000 FV of investment in T-bills The individuals invest in preferred stock Preferred dividend: Preferred dividend: Preferred dividend Acorporate Acorporate 4,207,500 Preferred dividend Presonal income tax rate 35% Taxes on preferred dividends After tax preferred dividend After tax preferred dividend After tax preferred dividend acorporate yield After tax individual dividend yield Experiment in preferred stock: FV of investment in preferred stock:	After tax corporate dividend yield	TELYON CLOSS SOLVEN HON	= 4,727,250 / 55,000,000 =
Investment in preferred stock 55,000,000	NOAR TOOLS ER WEEK NO PAR LEATER SUBERMERAR NOPAS CO	BERTENBOYENCENTS CO23 LEMBE	8.60%
FVIF8.60%,3 FV of investment in preferred stock After tax cash flow to shareholders Alternative 2: After tax cash received today The individuals invest in Treasury bills: After tax individual yield on T-bills: Treasury bills yield Personal income tax rate After tax corporate yield FV of investment in T-bills Investment in T-bills FV of investment in T-bills The individuals invest in preferred stock: Preferred dividend: Preferred dividend Preferred dividend Preferred dividend After tax on preferred dividends After tax preferred dividend After tax preferred dividend After tax preferred dividend After tax preferred dividend After tax individual dividend yield After tax individual dividend yield After tax individual dividend yield FV of investment in preferred stock: FV of investment in preferred stock: FV of investment in T-bills After tax individual dividend yield After tax individual dividend yield Expression after tax individual dividend yield Expres	FV of investment in preferred stock:	A CPAIR 20 BEH NBERR NO PAT I	MEET ENBOUGH CPAYS COS TEMBER TEMPOVES CPESS TO
FV of investment in preferred stock After tax cash flow to shareholders Alternative 2: After tax cash received today The individuals invest in Treasury bills: After tax individual yield on T-bills: Treasury bills yield Personal income tax rate After tax corporate yield FV of investment in T-bills: Investment in T-bills FV of investment in T-bills Treindividuals invest in preferred stock: Preferred dividend: Preferred dividend: Preferred dividend Taxes on preferred dividend After tax individual dividend yield Expanding to the shareholders FV of investment in T-bills The individual dividend A,207,500 After tax preferred dividend A,207,500 After tax individual dividend yield After tax individual dividend yield Expanding tax individual dividend yield Expandin	Investment in preferred stock	55,000,000	AR OPAR 201 ER MEET TO AR OPAR TO ARE THE MET TO ARE
After tax cash flow to shareholders 59,870,254.48 Alternative 2:	FVIF8.60%,3	1.2806	SCALE WOOD ARE SOLD FOR THE SOL
Alternative 2: After tax cash received today The individuals invest in Treasury bills: After tax individual yield on T-bills: Treasury bills yield Personal income tax rate After tax corporate yield FV of investment in T-bills: Investment in T-bills FVIF4.55%,3 The individuals invest in preferred stock: Preferred dividend: Preferred dividend Preferred dividend At 207,500 Personal income tax rate After tax corporate yield FV of investment in T-bills Af,750,000 FVIF4.55%,3 At 1.1428 FV of investment in T-bills The individuals invest in preferred stock: Preferred dividend: Preferred dividend: Preferred dividend: Preferred dividend At 207,500 After tax preferred dividends After tax preferred dividend After tax preferred dividend After tax individual dividend yield After tax individual dividend yield FV of investment in preferred stock:	FV of investment in preferred stock	AR NO PAY CHEER ENEVENINGS	70,435,593.51
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 = 4,207,500.00 = 2,734,875.00 After tax individual dividend yield = 2,734,875 / 46,750,000 = 5.85% FV of investment in preferred stock:	After tax cash flow to shareholders	NIBER NOVARIONAL 200 EER WEELEN	59,870,254.48
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The individuals invest in Treasury bills: After tax individual yield on T-bills: Treasury bills yield Personal income tax rate After tax corporate yield FV of investment in T-bills: Investment in T-bills Investment in T-bills FV of investment in T-bills The individuals invest in preferred stock: Preferred dividend: Preferred dividend: Preferred stock 46,750,000 Preferred stock rate Preferred dividend Taxes on preferred dividends: Preferred dividend Personal income tax rate Taxes on preferred dividends After tax preferred dividend After tax preferred dividend After tax preferred dividend After tax individual dividend yield E 2,734,875.00 FV of investment in preferred stock:	After tax cash received today	10/53 CPR 2023 ENERGYEND	= 55,000,000 * (1-15%) =
bills: After tax individual yield on T-bills: Treasury bills yield Personal income tax rate After tax corporate yield FV of investment in T-bills: Investment in T-bills Investment in T-bills FV of investment in T-bills Freferred dividuals invest in preferred stock: Preferred dividend: Preferred stock Preferred stock 46,750,000 Preferred stock 79% Preferred dividend 4,207,500 Taxes on preferred dividends: Preferred dividend 4,207,500 Personal income tax rate Taxes on preferred dividends 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:	AL WOOS E SOFTE SHOWE HORE TO SOFTE WEEK HOURS IN SOFTE	2 20 MEET NEED AR TO PAY CHEER	46,750,000
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 Investment in T-bills 46,750,000 FV of investment in T-bills 53,426,131.24 The individuals invest in preferred stock: 46,750,000 Preferred dividend: 9% Preferred stock rate 9% Preferred dividend 4,207,500 Taxes on preferred dividends: 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: 5.85%	The individuals invest in Treasury bills:	PRE NOVEMBER NOVAR OPE MINO VEMOVE 10 2023 P. 202 VEM	CP 2016 CHAPARA TOPAT CPREST AND THE PRINCE PARTS CP 123 CP 123 CP 125 C
Personal income tax rate 35% After tax corporate yield = 7% * (1-35%) = 4.55% FV of 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: \$ 53,426,131.24 Preferred dividend invest in preferred stock: \$ 46,750,000 Preferred stock rate 9% Preferred dividend 4,207,500 Taxes on preferred dividends: 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: ***	After tax individual yield on T-bills:	OB COMER CENTS LENGTHE CONTRACTOR	ENERGIEMONE OBSOSS SOSSEMBONE NOSSER SOSS
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FV of investment in T-bills: Investment in T-bills FVIF4.55%,3 FV of investment in T-bills FV of investment in T-bills FV of investment in T-bills The individuals invest in preferred stock: Preferred dividend: Preferred stock Preferred stock	Personal income tax rate	35%	TO AF TO AF R 2012 EF WEEK TO AF TO AFT TO A
FV of investment in T-bills: Investment in T-bills FVIF4.55%,3 FV of investment in T-bills FV of investment in T-bills FV of investment in T-bills The individuals invest in preferred stock: Preferred dividend: Preferred stock Preferred stock	After tax corporate yield	PAR OF SHEW OF WORLD	= 7% * (1-35%) = 4.55%
FVIF4.55%,3 FV of investment in T-bills The individuals invest in preferred stock: Preferred dividend: Preferred stock	FV of investment in T-bills:	ENBERA CPATICE REPUENDE	CPAN 3023 ENEROVENOVE 1023 2023 2020 ENTROVE
FVIF4.55%,3 FV of investment in T-bills The individuals invest in preferred stock: Preferred dividend: Preferred stock	Investment in T-bills	46.750.000	ELEMPER WOODS CHAFF SWEET WEEK WE ALVOOR OF STORES
FV of investment in T-bills 53,426,131.24 The individuals invest in preferred stock: Freferred stock: Preferred dividend: 46,750,000 Preferred stock rate: 9% Preferred dividend: 4,207,500 Taxes on preferred dividends: 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: 5.85%			2023 EF 202 PAR OP AR NO BEET MELT NO PAR NO PAR NO
The individuals invest in preferred stock: Preferred dividend: Preferred stock		SETTEMOVE TOPICS TO 23 ENDE	53,426,131,24
stock: Preferred dividend: 46,750,000 Preferred stock rate 9% Preferred dividend 4,207,500 Taxes on preferred dividends: 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: 5.85%	THAT IN THE CLASS OF SHE ON THE PLANT OF THE	CREET WELL VENERAL CPARTO	BEYEMENEWOPAS 1023 EMBEVENOVE CP. 823 20
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Preferred stock rate Preferred dividend Taxes on preferred dividends: Preferred dividend Personal income tax rate Taxes on preferred dividends Taxes on preferred dividends Taxes on preferred dividends After tax preferred dividend After tax preferred dividend After tax individual dividend yield FV of investment in preferred stock:	Preferred dividend:	5053 FMP OF HOAR 1C, 5053 50	OVEN WORK TO 2023 ER 2016 ER WOVER TO PAR OF ARE 2016 EER ME
Preferred dividend Taxes on preferred dividends: Preferred dividend 4,207,500 Personal income tax rate Taxes on preferred dividends After tax preferred dividend After tax preferred dividend After tax individual dividend yield FV of investment in preferred stock: 4,207,500 4,207,500 4,207,500 4,207,500 4,207,500 1,472,625.00 2,734,875.00 5.85%	Preferred stock	46,750,000	2023 FINE NO. 12 40 153 C 2023 F 20 V FIN HOVE HOUSE
Taxes on preferred dividends: Preferred dividend Personal income tax rate Taxes on preferred dividends After tax preferred dividend After tax individual dividend yield FV of investment in preferred stock: 4,207,500 4,207,500 1,472,625.00 2,734,875.00 = 2,734,875 / 46,750,000 = 5.85%	Preferred stock rate	9%	AR 3 CPA CHEEN LINE VENCPAR 2023 LENE VENOVENO
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: 5	Preferred dividend	ER 2012 R 20 OKE NO AR R 2013 EF	4,207,500
Personal income tax rate Taxes on preferred dividends After tax preferred dividend After tax individual dividend yield FV of investment in preferred stock: 35% 1,472,625.00 = 4,207,500 - 1,472,625 = 2,734,875.00 = 2,734,875 / 46,750,000 = 5.85%	Taxes on preferred dividends:	JUST 10 5053 12053 VENINOVE NO.	CONTRACTOR AND
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:	Preferred dividend	4,207,500	10 NE 10 2013 5 20 5 STEWN NO. 15 NO. 3 C. 30 S. 5 SOLVEN NO. 15 NO. 15 SOLVEN NO. 15 NO. 15 SOLVEN
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:	Personal income tax rate		FILMERIEMERARY COST EMBERICADO FINO PARA LOCAS
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:	Taxes on preferred dividends	ANONE NO 3 E 2028 R 20 VERN	1,472,625.00
After tax individual dividend yield	After tax preferred dividend	3 TO BEN ENDOUGH TO PAGE 100 20 20 20 20 20 20 20 20 20 20 20 20 2	ARE AND ARE ARE NO SIVE SIVE OF THE AREA
5.85% FV of investment in preferred stock:	200 VETN NOVE TO 20 2 TO 201 FR NOVE TO ARE TO 2012 ET TO BEET TO BE BEET TO BEET TO BEET TO BEET TO BEET TO BEET TO BE BEET TO BE BEET TO BEET TO BE BET TO BE BEET TO BE BE	CPAR CPARE 2NBER WENDER ROOM	
FV of investment in preferred stock:	After tax individual dividend yield	R WOLE NO WELL SOLVEN TO WE WELL SOLVEN TO WELL SOL	31 - 45 - 41 - 41 - 10 - 4 6 - 45 - 30 - 16 - 40 - 40 - 40 - 40 - 40 - 40 - 40 - 4
Investment in preferred stock 46,750,000	FV of investment in preferred stock:	MEENAR WORKS OF BEET END VENT	17202 2023 LEMBE 1/2 1/072 12 2723 202 1/2 1/0 VE NOVE NO
	Investment in preferred stock	46,750,000	TEMBERAR TOPATORIER TEMBERARIO PROPERTIES TO THE TEMBERARIO

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Particulars	FRW or %	FRW or %	PART
FVIF5.85%,3	1.1860	WENNE WORK TO 2023 FT 2022 TO THE TO PER 2023 FT	SOF
FV of investment in preferred stock	2 NOPAR CPANER 20 BEF INBURAR	55,443,954.9	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

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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.

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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)	3 CPRIER VENETIE	
	Var(R1P) equation	0.5	
	Var(R2P) equation	0.5	
	Var(R1P)	2023 R 2023 VENE	
	Var(R2P)	MERCE CONTRACTOR	
	Comment or decision	BER NBERN TO	12
b	Examine the soundness of the broker's advice to Mr John as a	A 2023 TO 202 TO 2020	
	risk-averse investor:		
	Points in the model answer are not exhaustive and other valid		
	answers provided by candidates should be considered		

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Qn	Description	Marks	Total Marks
	A short description of the standard deviation	NOV3 10 2023 P	
	The wide fluctuations do not mean poor investment	2	
	A discussion around systematic risk or beta	2	
	The standard deviation is not adequate	2	NE RENCEASOR OF T
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	BER EMPLYENING AT	
	Payables turnover	0.5	
	Payables period	0.5	
	Cash cycle	202 VENTOVER TO	
	Comment	2023 R 2023 VENDER NO.	6
	Total Marks		<u>25</u>

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 $\sigma = 10\%$

 $E_\epsilon = 0$ and $S_{\epsilon i} = 20\%$ 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:

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$$Var(R_{\rm P}) = E[R_{\rm P} - E(R_{\rm P})]^2$$

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

$$R_{P} = 1/N * \sum R_{i}$$

$$R_{P} = 1/N * \sum (10\% + \beta F + \epsilon_{i})$$

$$R_{P} = 10\% + \beta F + 1/N * \sum \epsilon_{i}$$

If:

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

Then

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

And E(a) = a

Using the above to find $E(R_P)$:

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

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

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

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

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

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

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

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

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

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

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

Since $1/N \rightarrow 0$, then

$$Var(RP) = \beta^2 \sigma^2 + Cov(\varepsilon_n, \varepsilon_m)$$

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

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

Var
$$(R_P) = \beta^2 \sigma^2 + \sigma 1 \sigma 2 \rho(\epsilon_n, \epsilon_m)$$

Var $(R_P) = \beta^2 (10\%) + 0.04 \rho(\epsilon_n, \epsilon_m)$

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

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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:	PORER NORTH CPART 201	CHE BENEFICE AND CHEER THE VEHICLE AND COME	023 ENBERVENTOVE 1CP 2023 120
COGS	FRW	254,000,000	NOPAN CPAER EMBLEMOPAR
Opening Inventory	FRW	26,000,000	BER HOVER OPAR 2018ER NO
Closing Inventory	FRW	31,000,000	CY 223 202 VENLOWER NO 2023 EP
Inventory turnover	Times	BERENBER NEW PARTICIPATIONS OF THE ENEWS	8.91
Inventory period:	WENDONE TOTAL SOLE SOLE SOL	ONE 340 PIE HOUSE TO SHEET WORK WOODE CONFER	MELLINEE ARM CPAY CPAER VE
Days	Days	365	R 2023 ER MEER MOVAR VEAN
Inventory turnover	Times	8.91	HOVE NOVER 2023 ER 2022 TO VENT
Inventory period	Days	THE AR NO PAY CPARE VENER OF MER 10P	40.95
Receivables turnover:	CH SOS3 STONEW MONEY NO	SEF WEER WOLLD'S WEER WEER WEER W	OPAR CPARET 20 NEW OPAR CO
Credit sales	FRW	323,000,000	RUCKELOPHE SOMEENBE
Opening receivables	FRW	21,000,000	053 5050 KM HOVE HO 3 FB 50
Closing receivables	FRW	25,000,000	CONTRACTOR SENSE VENTOVE
Receivables turnover	Times	AF PARTON BERNBER NORAR CPART	14.04
Receivables period:	53 /CHBE / MOVE CP 2023 /C	OS THE ONE WORK SOLD SOLD SOLD RELIEVED WELL HOUSE	2023 ER 20 ER NOVAR OPAR
Days	Days	365	NE 10/3 16 5055 505 NEW 110.

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Receivables turnover	Times	14.04	SPAR 20 BERNBERAR
Receivables period	Days	3 (CPA) 3 2023 KENNOVE NOV3 (C) 2 20 MOV	25.99
Operating cycle	Days	REFERENCE AS CONSTITUTED TO SPECIAL OF THE SPECIAL	66.95
Payables turnover:	NOW NO 3 TO 202 FR 20 OVER NO AR	R2022 ER WEER WOODE COAR COAR ER SONE VENDO PAR	SO23 ENBENEMENT
COGS	FRW	254,000,000	JER NOPAR CPARE
Opening payables	FRW	29,000,000	R 20ER 20 OVER NORP
Closing payables	FRW	28,000,000	123 C 2023 2023 VENE
Payables turnover	Times	NO AR TO ARE BUNEVENERARY TOPRY TO THE PRO	8.91
Payables period:	3 C 5 W 3 C 5 C 5 C 5 C 5 C 5 C 5 C 5 C 5 C 5 C	EFT WORR CPARTS 2023 ER 2018 ER TWO PAR OPP	REP 20 BER WELL PAR NO
Days	Days	365	NO AR NO 2023 ER 20 BER
Payables turnover	Times	8.91	NEWPONE HONS 1C 50
Payables period	Days	MEER HEER TO PAR ICPAIN TENEDUE MENERS	40.95
Cash cycle	Days	RINGER WEEK WORK IN SERVICE TO SEE SOURCE WEEK	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:		CPAR 20/BER NEED N
	The answer should discuss similarities and differences between		
	the two hedging techniques		
	A short but clear introduction/definition of each of the two	2	
	hedging techniques (Award 1 mark for forward contracts and 1		
	mark for currency options)		
	Similarities between forward contracts and options (Award 2	2	
	marks for any valid similarity eg they are both hedging		
	techniques etc)		
	Differences between forward contracts and options (Award 2	4	
	marks for any valid similarity. Maximum 2 points)		8
b	Advise how the 6-month currency risk should be hedged:		
	Locked in receipt - forward contract	NEER ENEREY TO	
	Futures contracts:		
	Approach 1:		

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Qn	Description	Marks	Total Marks
RNOPAR	Predicted futures rate	23 R 2023 Tu	VENNOVARNOZA 2023 ER 2015
	Expected receipt	MOVEN CPAT	
	Number of contracts to be bought	ER SUMBEREN PR	
	Approach 2:		
	Futures lock-in rate	ENNOVER TO	
	Expected receipt	2023 VENNEYOU IN	
	Number of contracts to be bought	23 CP 1 CT 1	
	Comment (1 mark for the correct advice and 1 mark for a	2	
	correct justification)		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	2	
	arguments should be considered)		
	Gaps, risks, vulnerabilities in the financial system	2	
	IMF and country regulators must do to address these issues	2	8
	Total Marks		<u>25</u>

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.

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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:	NO AR CRAP 2023 ER 21	REAR WORLD CHARLES ON BEET WEEK	TOPAN CPAER ENEWENE WEND PAR
6-month forward	23 1 2023 VEMBOVE NOV.	1.9315	BER NOVAR NOAR 2012 ER MEE
Receipt	BIF	16,000,000,000	C 2023 202 VEN NOVE NO 2023 ER
Locked in receipt	FRW	WHEEL WEEL AR YORA'S CHIEFT ENTE	8,283,717,318
Futures contracts:	OS COSER SOUTH NO	AND 2022 ER WEER NO PAR ICPARE	MEET MEET PAR ICPAT ICPAER EN
Approach 1:	EM ME CS 5053 15053 E	WONE WON 310 505 50 MEN WO	R 12023 R 20 ER MOVER CPAR
Predicted futures rate:	BER EMBELENDOPAR 1 CP	3 EMBENENDOVENCE OF BY 2023 LOVEN	HOVE HOUS ICE 2023 R 202 VENING
6-month expiry	BIF	1.9367	SICHBERTENBURGHOPATS 1023 VE
3-month expiry	BIF	1.9322	OPAR CPARE ENBER INDEAR IS CPA
Predicted futures rate	BIF	223 R 2023 VENN WORK NO. 3 10 2023	1.9356
Expected receipt	FRW	COARS COSSIENBENENENENENENENENENENENENENENENENENEN	8,266,277,463
Contract size	FRW	100,000,000	MEPAR 10023 IEMBEVEND VENTO
Number of contracts to be bought	Contracts	2023 FER MEER AND PAR OPAR 201	83
Approach 2:	OVENIC PAR 2023 VENE	ORNOVE CROSS REQUENTIONE	2023 ER 202 ER 240 VER HORE R 20
Futures lock-in rate:	120 BEHNBERAR MOPAN	BERVENER INC. SOLS SOLS STENSE	MENNONS ICPOSS POSSIENTONE
6-month expiry	BIF	1.9367	MEER EMELVENDOPAR 10PP 3 10 123 LEVIE
Spot	BIF	1.9304	ROPAR 2012 ER MEER NO CPAR
Futures lock-in rate	BIF	3 2023 YEMET WENT WONE 10 2023 F 20	1.9357
Expected receipt	FRW	SHE WORK STORES OF WEND OF AN	8,265,957,172
Number of contracts to be bought	Contracts	PARER NO PAR CPARE ZOBER INBERINE	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.

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(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

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