May 2010 paper - Section A 50 marks

Question 1

Required:
Assume you are an external consultant engaged by Aybe to evaluate the proposed projects.

Write a report, suitable for presentation to the Directors of Aybe, in which you:

(a) Calculate the Net Present Value (NPV) of each of Project 1 and Project 2 as at 1 January 2011 for the 5 year planning horizon. State any assumptions made.

(17 marks)

(b) Evaluate how other relevant factors such as changes to the planning horizon might affect the choice of project and advise Aybe how to proceed.
Up to 6 marks are available for calculations.

(14 marks)

(c) Advise on the choice of currency if long term borrowings should be required to finance the new USA subsidiary in Project 2.

(5 marks)

(d) Advise the Directors on how to achieve efficient management and control of the implementation of the proposed projects. Your answer should include discussion of the different issues arising for each project.

(11 marks)

Additional marks available for structure and presentation. ***(3 marks)***

(Total for Question One = 50 marks)

Appendix to the report (answer to part a)

Project 1 - Factory refit in Country C

Tutor note: Be careful of the different currencies. Some cash flows are in US$ and some in C$.

Year	0 (2010)	1 (2011)	2 (2012)	3 (2013)	4 (2014)	5 (2015)
Cost of factory refit- C$m		**(35.0)**				
Residual value C$m						**4.0**
Tax relief (W1) C$m		**4.4**	**1.1**	**0.8**	**0.6**	**0.8**
Operating cash flows						
Cash inflows (W2) C$m			44.1	46.3	48.6	51.1
Cash outflows C$m			(30.0)	(30.0)	(30.0)	(30.0)
Loss of current products C$m		(4.0)				
Pre-tax operating cash flows C$m		(4.0)	14.1	16.3	18.6	21.1
Tax at 25% C$m		1.0	(3.5)	(4.1)	(4.6)	(5.3)
Post tax operating cash flows C$m		**(3.0)**	**10.6**	**12.2**	**14.0**	**15.8**
Total cash flows C$m		(33.6)	11.7	13.0	14.6	20.6
Discount rate at 8%	1.000	0.926	0.857	0.794	0.735	0.681
Present value C$m	0	(31.1)	10.0	10.3	10.7	14.0
NPV C$m	**13.9**					

Project 2 – New factory in the USA

- Fee paid of US$200,000 is a sunk cost.

Year	0 (2010)	1 (2011)	2 (2012)	3 (2013)	4 (2014)	5 (2015)
Cost of land US$m	(20.0)					
Development costs US$m		(60.0)	(60.0)			
Tax relief on development US$M (W3)		18.0	18.0			(6.0)
Residual value US$M						40.0
Operating cash flows						
Net pre tax cash inflows US$m			50.0	50.0	50.0	50.0
Grant US$m			15.0	15.0	15.0	
Total pre-tax cash inflows US$m			65.0	65.0	65.0	50.0
Tax at 30%			(19.5)	(19.5)	(19.5)	(15.0)
Post tax cash inflows US$M			45.5	45.5	45.5	35.0
Net cash flows US$m	**(20.0)**	**(42.0)**	**3.5**	**45.5**	**45.5**	**(69.0)**
Exchange rate	4.000	3.810	3.629	3.456	3.291	3.134
Net cash flows CS$	(5.0)	(11.0)	1.0	13.2	13.8	22.0
Discount rate at 11%	1.000	0.901	0.812	0.731	0.659	0.593
Present value CS$m	(5.0)	(9.9)	0.8	9.6	9.1	13.0
NPV CS$m	**17.6**					

Project 2 has a higher NPV of CS$17.6m

W1 Tax relief on factory refit

Tax paid in year incurred

Year C$m	Opening TWDV	CA	Tax @ 25%	Closing TWDV
1	35	X 50% = 17.5	4.4	17.5
2	17.5	X 25% = 4.4	1.1	13.1
3	13.1	X 25% = 3.3	0.8	9.8
4	9.8	X 25% = 2.5	0.6	7.3
5 (bal. year)	7.3	(7.3 ï 4.0) = 3.3	0.8	4.0

W2 Translated US$ cash inflows using forecast exchange rates

Forecast exchange rates
US$ predicted to strengthen against C$ by 5%. Therefore C$ represents 105%, for calculations the exchange rate needs to be divided by 1.05 (alternatively just multiply the exchange rate by 0.95)

Spot (as at 31/12/10) US$4.000 / C$		
		US$ / C$
Year 1	4.000 /1.05	3.810
Year 2	3.810 / 1.05	3.629
Year 3	3.629 / 1.05	3.456
Year 4	3.456 / 1.05	3.291
Year 5	3.291 / 1.05	3.134

	2012	2013	2014	2015
Cash inflows (US$m)	160.0	160.0	160.0	160.0
Exchange rate	3.629	3.456	3.291	3.134
Cash inflows (C$m)	44.1	46.3	48.6	51.1

W3 Tax relief on development costs for project 2

100% in the year of purchase = US$60.0 m x 30% = 18m for year 1 and 2
US$20m residual value balancing charge = 20 x 30% = 6m in year 5

Report

To: **Directors of Aybe**
From: **External Consultant**
Date: **May 2010**
Subject: **Evaluation of the proposed projects**

This report will evaluate the 2 proposals by:

- Calculating the NPV of both projects
- Discussing other relevant factors including the planning horizon
- Advise on choice of currency if long term borrowings are used
- Advise on how to achieve efficient management and control of the projects

1.1 Evaluation of the 2 projects

A detailed NPV analysis has been undertaken which is attached to this report in appendix

Project 1 – Factory refit in Country C	**C$13.9m NPV**
Project 2 – New factory in USA	**C$17.6m NPV**
Difference	**C$3.7m**

It is clear from the NPV analysis that project 2 will generate the highest NPV and therefore add greater shareholder wealth to the organisation.

1.2 Planning horizon and other relevant factors (part b)

Both the projects are being evaluated over a 5 year planning horizon. This seems very short term for these huge projects.

The post tax operating cash flows for the both the projects are as follows:

Project 1	0 (2010)	1 (2011)	2 (2012)	3 (2013)	4 (2014)	5 (2015)
Post tax operating cash flows C$m		**(3.0)**	**10.6**	**12.2**	**14.0**	**15.8**
Project 2						
Post tax cash inflows US$M			45.5	45.5	45.5	35.0
Exchange rate			3.629	3.456	3.291	3.134
Post tax operating cash flows C$m			**12.5**	**13.2**	**13.8**	**11.2**
Difference in cash flows (1-2)			**(1.9)**	**(1.0)**	**0.2**	**4.6**

Project 1 starts generating higher post tax cash flows from year 4 onwards. If the planning horizon was extending, the NPV of project 1 will be higher than project 2 and

therefore completely change the decision criteria. As the discount rate for project 2 is higher than project 1, the change in NPV will appear very soon after year 5.

For a better analysis the time horizon should be extended, otherwise the wrong decision will be undertaken resulting in loss in shareholder wealth. A longer time horizon or discounting into perpetuity would certainly change the decision to go for project 1 (factory refit in Country C) rather than project 2 (new factory in USA). As both projects would result in major changes, it is imperative that time horizon is looked at again.

It is important to look at the product life cycle of the new state of the art range of products; this will also help with the planning horizon. How much research has gone into this?

Other factors that need to be considered before a final decision is taken include: ***(tutor note: do PEST analysis as part b is worth 14 marks)***

Political risk

- How will the operations be affected in the USA? Are there additional regulations and rules that USA government will impost if project 2 is undertaken. Will there be problems with repatriating profits / cash from the USA to Country C? All these matters will need to be thoroughly investigated before the final decision is made.
- The government grant conditions need to be investigated. What would Aybe have to do to meet these conditions and have these been factored into the NPV?
- If the government grant for project 2 were excluded from the NPV for project 2, the result would be as follows:

Year	0 (2010)	1 (2011)	2 (2012)	3 (2013)	4 (2014)	5 (2015)
Grant US$m			15.0	15.0	15.0	
Tax at 30%			(4.5)	(4.5)	(4.5)	
Post tax govt grant US$M			10.5	10.5	10.5	
Exchange rate			3.629	3.456	3.291	
Post tax govt grant CS$			2.9	3.0	3.2	
Discount rate at 11%	1.000	0.901	0.812	0.731	0.659	0.593
Present value CS$m			2.4	2.2	2.1	
NPV CS$m	**6.7**					

The total NPV of the government grant is C$6.7M. If this was not given by the US government, project 2 NPV would be (17.6 ï 6.7) C$10.9 million. This would result in project 1 (factory refit in Country C) being chosen as a more viable project.

Economical risk

- The forecast exchange rates between US$ and C$ may significantly impact on the NPV analysis for project 2. The forecast is suggesting that the US$ is going to

strengthen against the C$ for the foreseeable future. This assumption is very unrealistic as the economic environment can change drastically very quickly.

- The impact of inflation can have a huge impact on the cash flows. A detailed breakdown of the cash flows is required and the appropriate inflation rates applied. Forecasting forward inflation rates is difficult.
- Changes in interest will affect borrowing costs and therefore the cost of capital. This will affect the discount rates used for the NPV analysis. No details of how the discount rates are calculated are given. Appropriate discount rates should reflect the systematic risk of the projects. Here proxy companyôs data can be used with the use of CAPM and betas. Again finding this information can be difficult. The sensitivity of the projects will be very sensitive to the discount rates so it is imperative that correct ones are used.

Social risk

- The factory refit for project 1 may result in initial job losses and disruption to existing production. Planning is essential for these projects to ensure staffs are always informed of decisions and security of their jobs emphasised.
- Project 2 will result in employing staff locally. This will be great for the local community especially with the help of the government grant. The conditions of the government grant require careful consideration as to how the staffs are to be treated. Foreign investments have natural problems when it comes to employees, there will be differences in culture, language barriers, work ethos etc. Aybe will need to educate its own staff for training purposes with project 2.

Technological risk

- The new state of the art range of products will be at risk of obsolescence from competitors and Aybe need to ensure that they keep updating their products. The cost of these needs to be factored into the NPV.
- The equipment used to produce the products will also be at risk of becoming out of date.

Other factors

- The cost of the specialist consultants from the USA who may be required to work on project 1 has been ignored in the NPV analysis; this requires detailed analysis and need to be incorporated into project 1.
- Disruption to production under project 1 has been estimated at C$4m in year 2011 only. This may not be realistic as the losses may also occur beyond this period. This needs to be factored in.
- As the there are a large number of uncertainties involved with both the projects, sensitivity analysis is very important to look at the worst case scenarios and see how these impact the NPVs.
- The impact on gearing will need to be looked at. Aybe currently has long term borrowings of C$40 million which will need to be paid back in 2015. As the directors have stated they do not wish to raise anymore equity finance. The financing of the either of these projects will be through debt. Aybe need to ensure that the debt ratio remains below 75% as per their banks covenant.

It appears from the NPV analysis the project 2 should be undertaken as this has a higher NPV. However there are so many uncertainties including the product life cycle and planning horizon that actually project 1 may be worthwhile undertaking. Further investigations are required before a final decision can be made.

1.3 Advise on choice of currency if long term borrowings are used (part c)

Investing overseas exposes Aybe to foreign exchange risk. Ideally foreign investments should be financed by foreign currency borrowings to provide a natural hedge against currency risk.

Aybe can borrow in its home currency (C$) or in foreign currency (US$). With a globalised world, borrowing in foreign currency will not be a problem for Aybe.

Advantages of borrowing in home currency to finance project 2

- As Aybe would be borrowing in home currency, they should be able to get favourable interest rates and therefore the cost would be lower.
- Aybe would not have to buy foreign currency to pay interest as the borrowings are in home currency.
- It would be quicker to arrange home currency borrowings compared to foreign currency borrowings.

Advantages of borrowing in US$ to finance project 2

- The foreign currency loan will provide a natural hedge against currency risk as Aybe would be matching its foreign currency investment (asset) with foreign currency loan (liability). This will hedge against both translation and transaction risk.
- The interest payments can be made out of the US$ receipts. Therefore Aybe wonôt need to buy foreign currency to service the loan.
- The consolidated financial statements would be protected from exchange rate movements as under IAS 39 hedge accounting can be used to offset exchange differences on the re-translation of foreign currency investments and foreign currency loans if both are connected to each other.

In this situation, it is advisable that Aybe take out US$ loan to finance project 2 as this will provide them with a natural hedge against currency risk and therefore add to shareholder wealth.

1.4 Advise on how to achieve efficient management and control of the projects

A project is an undertaking that has a beginning and an end and is carried out to meet established goals within cost, schedule and quality objectives **(Haynes)**

Normally a project is temporary and is completed once and once only, project teams are normally formed over a short period of time, in order to contribute their different skills, knowledge or expertise and achieve project deliverables e.g. time, cost and quality.

The Project Manager (PM) will have to manage time, cost, quality, suppliers, customers and staff for the either of these 2 projects. Aybe will need to appoint someone who is capable of undertaking either of these 2 projects and if project 2 is undertaken the PM will need to be stationed in the USA.

The PM has the ultimate responsibility for ensuring the desired end result is achieved e.g. the project is on time, within budget and meets the specified quality required by the client or end user. To manage a project, resources e.g. staff, equipment and money, must be used efficiently and effectively to accomplish project deliverables or objectives. The project manager is the tactical level of management, converting the wishes of a project board (strategic level) into action, to achieve project success. Aybe need to ensure that at the planning stage the projects objectives are communicated to the PM.

Project implementation and control

Undertaking an investment project not only involves the financial aspects but the whole project cycle needs to be adhered to.

The project life cycle

- **Defining stage** e.g. identification of a weakness or opportunity arising. These have been identified as project 1 and project 2
- **Planning stage** e.g. submission and evaluation of suggested proposals. Project goals and objectives would be set at the planning stage, the project team would put all the activities that need to be accomplished into the right sequence of events and ensure sufficient resources are provided. The project team will use many tools to help meet this responsibility e.g. a project programme, resource plans e.g. staff required, estimated duration and sequence of events to complete all activities, and financial estimates of likely cost e.g. a budget.

- **Implementing stage** e.g. actual performance of project. Here the project team would ensure proper coordination between the various parties, testing the products to ensure they work and meet the required objective. Implementation stage would also involve monitoring the quality of the work.

- **Controlling stage** e.g. monitoring and controlling over life of project. The project team must ensure good control systems exist and are maintained

throughout the different project stages e.g. reporting lines, accountability and exception reporting, for on-going monitoring of any deviations between budget (standard) and the actual cost, time or resources that have been committed. The project team needs to ensure conformance to quality objectives, perhaps through work inspection or testing reports. The project team may need to take control action when adverse feedback is reported, highlighted by regular progress reporting on a timely manner throughout the different project stages. The PM would have the responsibility to report to a project steering committee or board of Aybe on a regular basis, being directly accountable to the board for any decisions they make.

- When project risks have been identified and the scale or impact of each risk understood, appropriate strategies or courses of action can then be developed and implemented. The responsibilities of Aybeôs project team are to identify risks, develop strategies and contingency plans, and monitor any on-going project risks throughout the different project stages.

- **Completing stage** e.g. confirmation that project accomplished, evaluating actual performance against objectives set at the planning stage of the project e.g. post completion audit.

PCA are objective and independent appraisals of the project. PCA ensures control of the project and improvement to the decision making process by learning from past mistakes.

- ✓ PCA ensures that projects are in line with original plan
- ✓ Any deviations can be quickly rectified, thereby saving costs
- ✓ Ensures control and therefore likely success of the project
- ✓ Any weakness are highlighted

Limitations of PCA

- Requires time and effort which incur additional costs.
- The staff in charge of the project may get de-motivated with any negative feedback from the PCA and this could cause internal conflicts which is not good for the organisation.
- The lessons that need to be learned from the PCA may fall on deaf ears and in the future there is the risk that the same mistakes could be made again. The PCA would have been done in vain then.

Project 1 – factory refit in country C

The factory refit will result in major disruptions to existing operations. The project team will need to ensure that proper planning is in place to minimise the disruption. This will be critical to the success of the project. The staffs need to be informed and trained to ensure smooth operation of the factory refit.

Project 2 – New factory in USA

The distant involved in this project will cause Aybe problems. Therefore it is essential to account for this at the planning stage. The planning permission has not yet been granted and this could jeopardise the projects start time. Contingencies need to be in place to ensure any delays in governmental issues do not hinder the success of this project.

Conclusion

Both projects are major undertakings. It appears initially that project 2 new factory in USA is the most favourable one according to the NPV. However there are also higher risks involved with project 2 due to the fact itôs overseas. Aybe needs to ensure it does details analysis of the risks and costs involved. Aybe also needs to ensure that whichever project is undertaken, the management of the project is done smoothly.

I would recommend before a final decision is undertaken Aybe look at the planning horizon as this will affect the decision making.

Signed

External Consultant

Section B (50 marks)

Question 2

Required:
(a)
(i) Calculate the short-term and long-term (permanent) financing requirements of PIC under the aggressive policy for financing net current assets that is currently being used and also under the proposed new conservative policy.

(5 marks)

(ii) Calculate the implied issue price per A$100 nominal of the bond being considered by the treasurer.

(3 marks)

(iii) Calculate the weighted average cost of capital (WACC) of PIC at present and discuss, briefly, the likely effect on WACC if PIC changes its policy for financing net current assets.

(4 marks)

(b)
(i) Evaluate PICôs proposal to change from an aggressive to a conservative policy for financing net current assets.

(9 marks)

(ii) Advise PIC, briefly, on alternative approaches to financing net current assets that it should consider.

(4 marks)
(Total for Question Two = 25 marks)

A REPORT FORMAT IS NOT REQUIRED IN THIS QUESTION

a (i)

Firstly the maximum and minimum working capital levels need to be calculated:

- The minimum level of working capital would be the lowest inventory levels plus the lowest trade receivable levels less the highest the trade payable levels.
- The maximum level of working capital would be the highest inventory levels plus the highest trade receivables less the lowest trade payable levels.
- The difference between the minimum and maximum working capital is the fluctuating working capital

Minimum working capital (permanent)	(17.26 + 1.64 ï 14.79)	A$4.11 million
Maximum working capital (total)	(29.59 + 3.29 ï 7.40)	A$25.48 million
Difference = fluctuating working capital	(25.48 ï 4.11)	A$21.37 million

Revision

Conservative policy	Moderate policy	Aggressive policy
All the **non current assets, permanent assets** and **some of the temporary current assets** are financed by **long-term finance**.	All the **non current assets and permanent asset are financed** by **long-term finance.** The temporary fluctuating assets financed by short-term finance.	All the **non current assets and part of permanent assets** financed by long term. Remaining permanent assets all temporary fluctuating assets by short term.

Present policy = **Aggressive** = all fluctuating net current assets (WC) and 20% of permanent net currents assets funded by overdraft (short term).

Short term finance (overdraft)	(20% x A$4.11m) + A$21.37m	= A$22.19 million
Long term finance	(80% x A$4.11m)	=A$3.29 million
	Total	= A$25.48 million

Proposed policy = **Conservative** = 100% of permanent net current assets and 20% of fluctuating net current assets are financed by medium/long term finance.

Short term finance (overdraft)	(80% x A$21.37m)	= A$17.10 million
Long term finance	(20% x A$21.37m + A$4.11m)	= A$8.38 million
	Total	= A$25.48 million

a (ii)

The implied issue price per A$100 nominal bond being considered by the treasurer is basically the present value of the cash flows using market interest rate of 9%.

Using blocks of A$100

Year	**Details**	**Cash flow A$**	**DF at 9%**	**PV A$**
1 -5	Interest	8	3.890	31.12
5	Redemption	100	0.650	65.00
				96.12

The implied issue price is A$96.12 for every A$100 nominal value. As the interest rate being paid on the bond is lower compared to the market (8% versus 9%), to make it attractive to the investor, the bond must be issued at a lower price.

a (iii)

Current WACC

Procedure to calculating WACC

1 Find cost of each source of capital
2 Calculate weights for each source of capital. (using **market values**)
3 Multiply each source of capital costs with its weighting.
4 Add the weightings

Exam formula (weighted average cost of capital WACC)

$$ko = ke \times \left\{ \frac{Ve}{VE + VD} \right\} + kd \times \left\{ \frac{Vd}{VE + VD} \right\}$$

Where

ko	=	weighted average cost of capital
k_e	=	cost of equity
k_d	=	cost of debt
V_E	=	market value of equity
V_D	=	market value of debt

1 Cost of capital

Cost of equity = 10% (given)
Cost of debt after tax = 8.125% x (1 ï 0.2) = 6.5%

2 Market value of capital

Equity = A$350 million
Debt = A$100 million
Total = A$450 million

3 WACC

Ko = (10% x 350/450) + (6.5% x 100/350)
= 7.8% + 1.9%
= 9.7%

If the **overdraft of A$20 million** is included which has pre-tax interest of 7%, the WACC would be as follows:

1 Cost of capital

Cost of equity = 10% (given)
Cost of debt after tax = 8.125% x (1 ï 0.2) = 6.5%
Cost of overdraft after tax = 7% x (1-0.2) = 5.6%

2 Market value of capital

Equity = A$350 million
Debt = A$100 million
Overdraft = A$20 million
Total = A$470 million

3 WACC

Ko = (10% x 350/470) + (6.5% x 100/470) + (5.6% x 20/470)
= 7.4% + 1.4% + 0.2
= 9.0%

Currently the WACC is 9.7% (9% with overdraft) under the aggressive financing policy. Aggressive financing policy relies heavily on short term finance and a switch to the conservative policy will result in higher long term debt. Debt is a cheaper form of finance compared to equity due to its low risk, so the change in policy may result in the WACC reducing slightly. However an increase in a companyôs debt will increase the financial risk to the shareholders, therefore the cost of equity may rise. As the amounts of additional long term debt are low compared to the market values of capital, the change in WACC will be minimal.

b (i)
Within a business, funds are required to finance both non-current and net current assets. Non current assets are long term and therefore ideally should be financed by long term finance. The level of net current assets fluctuates throughout the year, although there tends to be an underlying net current asset requirement. These underlying net current assets are permanent and therefore long term.

There are three types of working capital management policies, aggressive, conservative and moderate. With an aggressive working capital policy, a company will hold minimal

levels of inventories in order to minimise costs. With a conservative working capital policy the company will hold large levels of inventories. The moderate policy is somewhere in between the conservative and aggressive.

Advantages of an aggressive financing policy

(i) Short term finance is cheaper than long term finance, which means it will cost PIC less and therefore increase their profits.

(ii) PIC is not tied into long term finance and can renew the short term finance to its needs, therefore it gives greater flexibility. So for example PIC can use their overdraft facility or perhaps use a factoring company to buy their trade receivables to release the finance required. When this finance is no longer required PIC can simply cancel the arrangement. With bank loans or other forms of long term finance, PIC would be tied into the period of the finance.

(iii) PIC would hold low levels of inventory and trade receivables which mean they have a low level of unproductive assets which earn no return. They will also be taking advantage of free form of credit of their credit suppliers which under an aggressive policy, the credit period is maximised.

(iv) PIC has a large fluctuation in its net current assets (A$21.37 million), the aggressive policy allows flexibility with financing. PIC doesnôt want to be tied up in expensive long term finance throughout the year, when it doesnôt actually require it throughout the year. Its minimum working capital is A$4.11 million and it has an overdraft facility of A$20 million. This huge overdraft facility will assist PIC in it management of short term finance required for the aggressive policy.

Disadvantages of an aggressive financing policy

(i) PIC would continually need to renew its short term finance, which adds a great deal of risk to the company. What would happen if the bank withdrew the overdraft facility? PIC would have severe cash problems in that case, so there is a high risk to its operations with an aggressive policy.

(ii) The management of the working capital is greater under the aggressive policy. PIC continuously needs to ensure that they have adequate levels of inventory to meet demand.

Switching to a conservative policy would mean PIC will be undertaking more long term finance. 100% of permanent net current assets and 20% of fluctuating net current assets will be financed by medium/long term finance.

- The cost if issuing long term finance will be high and the overall cost of long term finance is more expensive than short term finance, so PIC will have higher costs due to this.
- At the moment PICôs trade payable days are 60 days and it appears that PIC is using supplier credit to finance its inventories and trade receivables. Under the conservative policy PIC may take advantage of early settlement discount with the suppliers and therefore increase their profits.

- There will be less reliance on the full overdraft facility, although some of it will still be required. This will save time for PIC as they will now continuously be looking to renew their overdraft facility.

Other factors to consider before changing from aggressive to conservative policy:

- PIC may well have surplus cash during the year under the new policy; it is worthwhile investigating how this will be invested to earn a high return.
- The levels of actual working capital may change and PIC need to ensure they have systems in place and staff trained.
- Changes in interest rate in the future may impact on the profitability of PIC as this will directly affect their long term debt and overdraft rates, this requires further investigation.
- Average figures have been used for the calculation of working capital levels; it will be useful to see regular movements throughout the year to really assess the fluctuations before a final decision is made.

b (ii)

Alternative approaches to financing net current assets

Net current assets are short term assets and should ideally be financed with short term finance. PIC could implement the moderate policy which is somewhere in between aggressive and conservative where all of the **non current assets and permanent asset are financed** by **long-term finance.** The temporary fluctuating assets are financed by short-term finance.

Financing of the net current assets could be as follows:

- **Factoring of trade receivables**. Here PIC would go to a factoring organisation and sell their trade receivables for instant cash. This is a great way of releasing cash early from the trade receivables. However as PIC has only a few large customers that are given credit, it may impact badly if factoring companies are heavy handed during their debt collection. PIC can't afford to upset their large customers.
- **Offering early settlement discounts** to customers will encourage PIC's customer to pay early and therefore release the cash. However cost benefit analysis has to be undertaken with regards to cost of early settlement discount.
- Other forms of financing net current assets is **effective management of working capital**, low inventory levels (which may be difficult as it's a furniture retailing company), maximum credit from suppliers and low credit term to customers.

Question 3

Required:
(a) Evaluate the interests of the various stakeholder groups in both XK and its subsidiary Company Y, and how these might be affected by the divestment.

(7 marks)

(b) Discuss the economic and market factors that might impact on the negotiations between XK and the various financiers of the divestment (the Executive Directors of Y, the investment bank and the venture capitalist).

(7 marks)

(c) Evaluate the advantages and disadvantages of the proposed buyout structure, and recommend alternative financing structures for the buyout.

Up to 5 marks are available for calculations

(11 marks)

(Total for Question Three = 25 marks)

A REPORT FORMAT IS NOT REQUIRED FOR THIS QUESTION

(a)

To ensure that the objectives of the company look after everybodyôs interest, the stakeholders have to be recognised.

Stakeholders are those organisations or people that have an interest in the organisation, these interests are varied and for many reasons. They can be a source of potential conflict for the successful accomplishment of the organisations strategy and goals. The essential skills of negotiation and communication are needed by the organisations management team, in order to resolve conflicts that may exist between the strategic aims of the organisation and the goals, values and interests of its various stakeholders.

The stakeholders in XK group and its subsidiary Company Y will involve:

- Shareholders of the group
- Employees of the group and Company Y
- Directors of the group and Company Y
- Customers
- Suppliers
- Banks / bond holders
- Government
- Local community

Shareholders of the group

The main aim of the shareholders of the group is to maximise their wealth. Although the stock market price index has fallen by 3%, the share price of XK group has risen by 5%. The shareholders will be very satisfied with this return and they probably trust the decisions made by the directors of XK. If XK can communicate effectively to its shareholders the reason behind the divestment, the shareholders should remain satisfied.

It is important for XK to then invest the cash from the divestment to maximise the return and this could prove to be a challenge.

As Company Y produces smaller appliances, the risk profile of the group may change. The reduction in earnings of 6% due to the divestment will need to be replaced to ensure the shareholdersô remain satisfied.

Employees of the group and Company Y

The employees of the group may not be affected by the divestment, although there might some loss in work due to the divestment.

The employees of Company Y are a group of stakeholders that will be affected by the divestment. They could potentially lose their jobs if the management buyout is not so successful and the directorsô start cutting costs. It is important for the directors to keep all channels of communication open with the employees and keep them informed. Maintaining staff morale in major reorganisations is important for the smooth running of the business during this period.

Directors of the group and Company Y

The directors of the group will largely be unaffected by the divestment, although they were initially involved with the decision making process.

The directors of Company Y will not only control their business but also own it. This gives them the opportunity to make their own decisions. This will be highly motivating for the directors. As they are putting US$5 million of their own equity into the business, they are also taking on substantial personal financial risk.

Customers

Company Y manufactures smaller appliances as apposed to larger electrical appliances the XK group manufactures. Therefore the customers of Company Y may not be affected too much, unless Company Y increases prices and change the credit terms. This could happen as Company Y will not have the backup of the head office. If cash flows are tight, Company Y may start imposing penalties for late payment which could impact on the goodwill with their existing customers.

The quality of the goods may change if Company Y starts using other suppliers (perhaps to reduce costs, they may source cheaper material). This could impact on the long term sales growth.

Suppliers

The suppliers to Company Y may be affected with changes in credit terms. Company Y may take longer to pay as they donôt have the head office for back up. This could put a

strain on the relationship with the suppliers resulting in perhaps putting the account on hold resulting in a stop to their supplies.

Company Y may source cheaper material from other suppliers resulting in existing suppliers losing business.

Banks / bond holders

XKôs bonds are secured on its non current assets. If Company Y is removed from the group accounts, the remaining non current assets would be (2,250 ï 220) = US$2,030 million. This is more than enough security for the bond holders, so they will be largely unaffected by the divestment. The reduction in earnings by 6% is also insignificant as it wonôt affect the interest payments.

The bank has imposed a condition for the overdraft, the current ratio to be maintained to at least 1.5:1. From the accounts the current ratio is 700 / 425 = 1.6:1. This is very close to the stated criteria and if Company Y is removed from the group accounts, the current ratio may change to below 1.5:1. The bank will be affected in this case and withdraw their overdraft facility.

Government

The government of USA will be unaffected by the divestment. There may be redundancies, but the scale is too low for the government to worry about.

Local community

The local community may be affected by the divestment with either creation of jobs or redundancies.

Conclusion

It is very important to consider the impact on all the major stakeholders with this divestment. There will be stakeholders who lose out (perhaps employees being made redundant, suppliers losing business). There will also be stakeholders who will benefit with the divestment.

(b)

XK group wants the highest price possible for the divestment, whereas Company Y want to pay the lowest price possible. The negotiations can be affected by the economic and market factors as follows:

Economic factors

- **Interest rates**. A change in interest rates affects consumerôs disposal income and therefore directly affects the revenues of Company Y. If interest rates rise, consumers will have less disposal income to spend on electrical goods that Company Y manufacturer. The future worth of Company Y will be considerably reduced if revenue declines.
- Interest rates also affect the cost of borrowing and therefore impact the cost of capital. A rise in interest rates will increase the cost of capital and therefore for NPV purposes reduce the NPV. The buyout price for Company therefore reduces with increase in interest rates. The management buyout team would therefore negotiate a lower price.
- **Inflation.** Increases in inflation rates affects prices of goods and therefore consumer confidence in the economy. Sales will be affected, resulting in lower valuation of Company Y.
- **Exchange rates**. It is not clear whether Company Y is exposed to foreign currency risk but changes in currency rates will have an impact on imports and exports.

Market factors

- **Stock market.** The groupôs share price has risen by 5% over the past 3 months whereas the stock market price index has fallen by 3%. It is not clear whether the market is aware of the divestment, but in a semi-strong form efficiency market, information may well have been leaked to the outside world. The reaction of the market will impact the negotiations. If the market sees the divestment as a good thing, XK group could demand a high price for Company Y.
- **Competitor forces.** Electrical goods manufacturing is a very competitive market and new entrants to the market or cheaper overseas alternatives may reduce the worth of Company Y affecting the price XK group would like.
- **Competition commission.** The divestment is unlikely to attract any government intervention as it is relatively small.

Conclusion

There are quire a few economic and market factors that could affect the negotiations between XK and Company financiers. The investment bank which is lending money requires security for its investment as they want to ensure they receive their interest payments and repayment of their capital. The venture capitalists expect a return of 25% on their investment over 5 years compounding. Changes in interest rates, inflations rates, consumer confidence, downturn in the economy, global recession etc all will have a major impact on the final price for Company Y.

(c)

Proposed buyout structure

	US$ million
Valuation of Company Y	**325**
Financed by:	
Executive directors of Y	5
Investment bank (90% x 220m)	198
Venture capitalist (325 ï 5 ï 198)	122
	325

Venture capitalists

Venture capitalists are organisations that take on risky business ventures. They provide the finance for and usually require a high return and even an equity stake in the business. This protects them from the high risk they are taking and may even be involved in some of the decision making process.

For Company Y, the venture capitalists will put in US$122 million (37.5% of the investment). They require an average return of 25% per annum compounding. The directors of Company Y will have to think of ways of buying out the venture capitalists after five years with a suitable exit strategy.

Based on the existing earnings of the group, Company Y would be as follows:

	US$ million
Company Yôs earnings for ye 2010 (510 x 6%)	30.6
Less interest (net of tax) on investment bank loans (198 x 6% x 0.75)	(8.9)
Net projected earnings	21.7
Existing return for VC (21.7 / 122) = 17.8%	

With the current level of earnings for Company Y, before taking into account the return to the executive directors, the venture capitalists would only receive 17.8% return. Company Y will have to achieve significant growth to finance the venture capitalists. If this rapid growth canôt be achieved, the venture capitalists may not invest.

Other factors regarding the venture capitalists

Advantages

- ✓ Cash will be available immediately without incurring any issue costs (with bank loans there will be issue costs).
- ✓ Expertise and new knowledge may be bought into the business by the venture capitalists, thereby assisting in its growth.
- ✓ Company Y does not have to pay obligatory interest payments which help with cash flow.

Disadvantages of venture capitalists

- X They require a high return, which may not be achieved by Company Y.
- X Conflicts can occur between the venture capitalists and the directors. One of the stipulations by the venture capitalists is that all earnings to be retained in the business for 5 years. The directors do not agree with this and therefore are unable to pay themselves dividends.
- X Company Y may not be able to afford to buy the venture capitalists in 5 years time, in which case the company have to float on the stock market resulting in loss of control for the directors.

Investment bank

The investment bank is lending a substantial amount of money (US$198 million = 61%). This huge amount of debt will not look good on the balance sheet. Company Y will be highly geared and this will impact their risk profile and increase their cost of capital, all resulting in the worth of the company declining.

Commercial bank lending is around 3% to 4%. Company Y is being charged 6%. The huge interest payments annually (US$8.9 million net of tax) will be major cash out flow for Company Y and they must keep up with the interest payments as the bank can force them into liquidation.

Company Y also needs to ensure that it has enough cash in 5 years time to repay the principle of US$198 million. This may result in Company Y taking on more debt (perhaps at higher interest rates) or raising finance through equity issue. These factors require careful consideration before a final decision is made.

Other factors regarding the investment bank

Advantages

- ✓ Interest payments are tax allowable thereby reducing the tax charge and increasing earnings.
- ✓ Debt is a cheaper form of finance. However Company Y will have a substantial amount of debt which will actually increase the financial risk, thereby increasing the cost of capital.

Disadvantages

- X Gearing will increase substantially resulting in the value of the company declining.
- X Obligatory interest payments are burden on the companyôs cash flows.
- X The investment bank can force liquation if interest payments or repayment of capital are not made on time.

Management buyout team of Company Y

The executive directors are putting in a small amount of capital (US$5m = 1.5%). At the moment they will not achieve much return on their investment as they have to service the debt and generate the required rate of return for the venture capitalist. They could lose everything if the business doesnôt achieve rapid growth.

Alternative financing structures

- The investment bank is charging a very high rate of interest. It will be worthwhile investigating other banks or even syndicate of banks for a much more favourable rate of interest.
- The investment bank is taking on 61% of the investment; it would be useful for the venture capitalist to take on a higher stake. This will help Company Y in reducing its annual obligatory interest payments.
- XK could retain a small stake in Company Y. This will help with the financing issue.
- Company could raise equity finance on the stock market. This would mean dealing with third party shareholders, but dividend payments are not obligatory unlike interest payments.
- Company Y could issue convertible debt. This is where instead of repaying the debt when it matures, Company Y issue shares instead. This will ease the cash flow problem.

Question 4

Required:

(a) Discuss the meaning of the terms ñsystematicò and ñunsystematicò risk and their relationship to a companyôs equity beta. Include in your answer an appropriate diagram to demonstrate the difference between the two types of risk.

(6 marks)

(b) Using the CAPM and the information given in the scenario about CIP and Companies A and B, calculate for each of CIPôs proposed investments:

- An asset beta.
- An appropriate discount rate to be used in the evaluation of the investment.

(6 marks)

(c) Evaluate the benefits and limitations of using each of the following in CIPôs appraisal of the two investments:

- CIPôs WACC.
- An adjusted WACC as suggested by the Managing Director.
- CAPM-derived rates that use proxy (or surrogate) companiesô betas.

(6 marks)

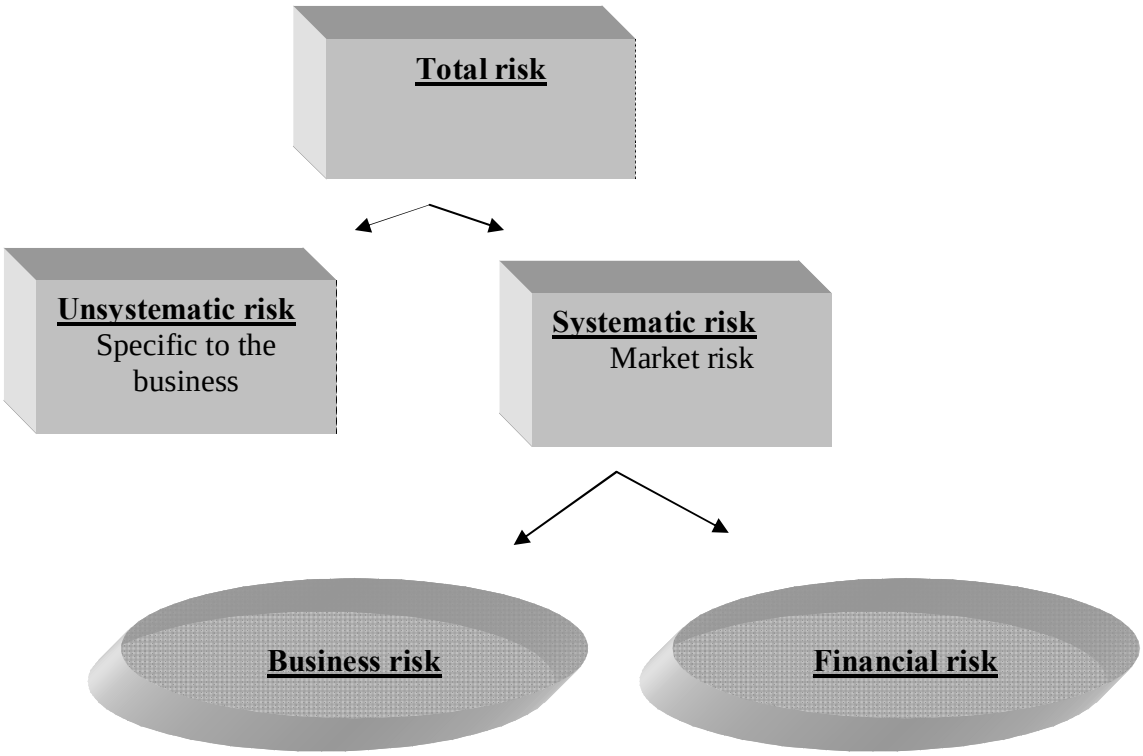
(d) Discuss, briefly, how an asset beta differs from an equity beta and why the former is more appropriate to CIPôs investment decision. Include in your discussion some reference to how the use of the CAPM can assist CIP to achieve its financial objective.

(7 marks)

(Total for Question Four = 25 marks)

(a)

CAPM is a model used to establish the returns or cost of equity of a particular investment or project by taking into consideration the risk involved. The CAPM says that total risk can be split into 2 elements as follows:



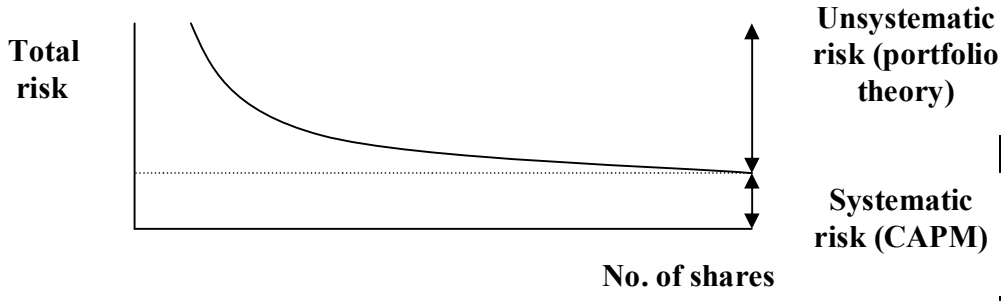
Unsystematic risk
This is the risk that is unique to the businesses industry. This can be eliminated by diversification (portfolio theory).

Systematic risk
This is the market risk and relates to the economic environment the business operates in (interest rates, exchange rates, prices etc). In CAPM this is measured by the β.

Business risk
This is the risk associated with the particular activities undertaken by the organisation that is being invested in.

Financial risk
This is the risk due to the organisation having debt in its capital structure.

As the unsystematic risk can be fully diversified away we are simply left with the systematic risk to consider.



An efficient portfolio of shares almost eliminates the business specific (or unsystematic) risk associated with just holding one share.

CAPM relates the remaining systematic risk (variability caused by factors affecting the market as a whole e.g. recession) to the cost of equity capital, and is an alternative to the dividend valuation model looked at earlier.

Investors will be able to diversify unsystematic risk by spreading their funds among a wide range of securities from different industries. Systematic risk is caused by general economic factors. These affect all companies and therefore cannot be removed by diversification. In an efficient market, shareholders are assumed to be well diversified and will therefore only require a return for systematic risk.

All companies are subject to general economic factors and therefore are either more or less systematically risky. The measure of a companyôs systematic risk is the beta factor (ß). These βôs are calculated statistically and are published quarterly for all quoted companies by London business school. The beta factor, together with an estimate of the risk-free rate of return and the market portfolio return, allow an estimate of the cost of equity or expected return to be calculated.

Asset beta = β**a** = β**u** = β in an ungeared company (i.e. no debt) and therefore measures business risk.

Equity beta = β**e** = β**g** = β in geared company, measures both the business and the financial risk (as now there is debt in the company).

(b)

Asset betaôs

Using M&M formulas, the equity betas of Company A and Company B will be ñungearedò to remove the financial risk.

Exam formula (un-gearing β)

$$\beta a = \beta g \times \left\{ \frac{Ve}{Ve + Vd(1-t)} \right\} + \beta d \times \left\{ \frac{Vd(1-t)}{Ve + Vd(1-t)} \right\}$$

Where

βa	=	asset beta = beta for the equity for un-geared company
βg	=	equity beta = beta of the equity for the geared company
βd	=	beta of debt
Vd	=	market value of debt
Ve	=	market value of equity
t	=	corporation tax rate

Company A

βa = 1.3 x {3 / 3 + 1(1-0.25)} + 0.3 x {1(1-0.25) / 1(1-0.25) + 3}
= 1.04 + 0.06
= 1.10

Company B (no debt beta)

βa = 0.9 x {6 / 6 + 1(1-0.25)}
= 0.8

The asset beta for Company A is 1.10 and for Company B its 0.8. To find the appropriate discount, the asset betas of the proxy companyôs will be re-geared with CIPôs debt to equity ratio.

CIP debt to equity ratio = 40%:60% = 2:3.
CIP has zero beta for debt

Re-gearing formula - No beta for debt

$$\beta g = \beta a \times \frac{Ve + Vd(1-t)}{Ve}$$

Using Company Aôs asset beta
βg = 1.10 x {3 + 2(1-0.25) / 3}
= 1.65

Plug this into CAPM to find appropriate discount rate:

ke = Rf + (Rm – Rf) β
= 3 + (8 – 3)1.65
=11.25%

The appropriate discount rate to use for investment 1 which reflects the business risk of that industry and the financial risk of CIP is 11.25%

Using Company Bôs asset beta
βg = 0.8 x {3 + 2(1-0.25) / 3}
= 1.2

Plug this into CAPM to find appropriate discount rate:

ke = Rf + (Rm – Rf) β
= 3 + (8 – 3)1.2
= 9.0%

The appropriate discount rate to use for investment 2 which reflects the business risk of that industry and the financial risk of CIP is 9%

Tutor note: The above discount rates could be used in the WACC formula to provide another %. The CAPM would be the cost of equity and an assumption would be needed for the cost of debt.

(c)

WACC

Weighted average cost of capital is the average cost of the companyôs finance (equity, debentures, bank loans), weighted according to the proportion each element bears to the total pool of capital.

The correct cost of capital to use in investment appraisal is the marginal cost of the funds raised to finance the investment. WACC can be considered the most reliable guide to the marginal cost of capital, if the same level of business risk is maintained with the new projects.

Assumptions of WACC

- For project appraisal purposes, the project is small relative to company and has same business risk as company.
- The WACC reflects companyôs long-term future capital structure and costs. This means the capital structure of the company must be reasonably constant else the calculations will change and therefore WACC will change.
- New investments are financed by new funds.
- New investments are marginal to the company and have similar risk profile to the company. Therefore the cost of capital reflects marginal cost.

Problems with WACC

- New investments may have different business risk (for example the company may be expanding into a different market). Evaluating the project using WACC may lead to accepting the project which may result in reducing the value of the company.
- New finance may change capital structure and perceived financial risk.
- Cost of floating rate capital not easy to incorporate into WACC, as it changes frequently.

For CIP, WACC has been used in the past and therefore understood by non finance people. The idea of a risk adjusted discount rate may confuse some people within CIP. The benefits of using WACC are:

- As an NPV discount rate for project appraisal.
- To identify the companyôs optimal capital structure.

CIP already has the information to calculate the WACC, but as the new investments have a different risk profile, the WACC is not suitable to use here.

Adjusted WACC

The adjusted WACC suggested by the Managing Director is a good way of allowing for risks with different investments. However it is not accurate as CIP is just allowing for 1% or 2% either way. No attempt is being made to look at the actual risk of the new investments.

CAPM using proxy betas

CAPM is a model used to establish the returns or cost of equity of a particular investment or project by taking into consideration the risk involved. As CIP is undertaking investments which are in a different industry, using Proxy Companyôs beta and adjusting for the gearing, is an ideal way of establishing the discount rate.

Problems with CAPM

Assumptions are unrealistic

- It is a single period model, but investments are longer term
- Ignores taxation
- βôs are related to past, and investments relate to future.
- Relies on an efficient market for investments. Efficient market is when transaction costs are low, investors are rational, the share prices reflect all the information and taxation has no effect on decision making.
- It assumes investors hold well-diversified portfolios and therefore unsystematic risk has been diversified away.

Required estimates difficult to make

- Risk premium. This is the different between the market return and the risk free return.
- Risk-free rate (govt. securitiesôrates vary with lending terms)
- Beta factors difficult to calculate.

Also using a proxy companyôs beta may be unrealistic as the proxy companies are listed organisations, which CIP may not have that much similarities with. The operations, economies of scale etc are much better run for listed organisations.

(d)

Asset beta is a β in an ungeared company (i.e. no debt) and therefore measures business risk.

Equity beta is β in geared company, measures both the business and the financial risk (as now there is debt in the company).

The asset beta measures the business risk only of the organisation. The equity beta measures both the business and the financial risk. Using a proxy companyôs equity beta is less useful than using their asset beta. Hence the need to un-gear the equity beta using M&M.

The gearing or financial risk of the proxy companies is unique to them and CIP doesnôt need to allow for this in their investment appraisal. CIP has its own financial risk; hence the proxy asset beta is re-geared to allow for this financial risk.

As CIP is investing into areas which are different to their existing operations, using a proxy asset beta is very appropriate as the business risk is incorporated into the discount rate.

Taking a proxy companyôs asset beta and re-gearing with your own financial risk means you have a beta which measures the different industries business risk and your own financial risk ï this will give the ideal discount rate.

Use of CAPM in assisting with objectives

Using CAPM will give CIP the most appropriate discount rate to appraise their investments. If the NPV is positive the investment will add to shareholder wealth and therefore CIP will generate higher profits and achieve increase in the dividend payments.

If the wrong discount rate is chosen, the wrong decision would be made, resulting in shareholder wealth reducing and this will hinder the achievement of the objectives.