CLASS QUESTIONS AND ASSIGNMENTS

SOURCES OF FINANCE

The finance division of GoSlo Motor Corporation has made a number of loans to customers with a current pool value of $200 million. The loans have an average term to maturity of four years. The loans generate a steady income to the business of 10·5% per annum. The company will use 95% of the loan's pool as collateral for a collateralised loan obligation structured as follows:

- 80% of the collateral value to support a tranche of A-rated floating rate loan notes offering investors LIBOR plus 140 basis points.
- 10% of the collateral value to support a tranche of B-rated fixed rate loan notes offering investors 11%.
- 10% of the collateral value to support a tranche as subordinated certificates (unrated).

In order to minimise interest rate risk, the company has decided to enter into a fixed for variable rate swap on the A-rated floating rate notes exchanging LIBOR for 8·5%.

Service charges of $240,000 per annum will be charged for administering the income receivable from the loans.

You may ignore prepayment risk.

Required:

(a) Calculate the expected returns of the investments in each of the three tranches described above. Estimate the sensitivity of the subordinated certificates to a reduction of 1% in the returns generated by the pool. (10 marks)

(b) Explain the purpose and the methods of credit enhancement that can be employed on a securitisation such as this scheme. (4 marks)

(c) Discuss the risks inherent to the investors in a scheme such as this. (6 marks)

(20 marks)

Assignment 1: Moonstar

Moonstar Co is a property development company which is planning to undertake a $200 million commercial property development. Moonstar Co has had some difficulties over the last few years, with some developments not generating the expected returns and the company has at times struggled to pay its finance costs. As a result Moonstar Co's credit rating has been lowered, affecting the terms it can obtain for bank finance. Although Moonstar Co is listed on its local stock exchange, 75% of the share capital is held by members of the family who founded the company. The family members who are shareholders do not wish to subscribe for a rights issue and are unwilling to dilute their control over the company by authorising a new issue of equity shares. Moonstar Co's board is therefore considering other methods of financing the development, which the directors believe will generate higher returns than other recent investments, as the country where Moonstar Co is based appears to be emerging from recession.

Securitisation proposals

One of the non-executive directors of Moonstar Co has proposed that it should raise funds by means of a securitisation process, transferring the rights to the rental income from the commercial property development to a special purpose vehicle. Her proposals assume that the leases will generate an income of 11% per annum to Moonstar Co over a ten-year period. She proposes that Moonstar Co should use 90% of the value of the investment for a collateralised loan obligation which should be structured as follows:

- 60% of the collateral value to support a tranche of A-rated floating rate loan notes offering investors LIBOR plus 150 basis points
- 15% of the collateral value to support a tranche of B-rated fixed rate loan notes offering investors 12%
- 15% of the collateral value to support a tranche of C-rated fixed rate loan notes offering investors 13%
- 10% of the collateral value to support a tranche as subordinated certificates, with the return being the excess of receipts over payments from the securitisation process

The non-executive director believes that there will be sufficient demand for all tranches of the loan notes from investors. Investors will expect that the income stream from the development to be low risk, as they will expect the property market to improve with the recession coming to an end and enough potential lessees to be attracted by the new development.

The non-executive director predicts that there would be annual costs of $200,000 in administering the loan. She acknowledges that there would be interest rate risks associated with the proposal, and proposes a fixed for variable interest rate swap on the A-rated floating rate notes, exchanging LIBOR for 9·5%.

However the finance director believes that the prediction of the income from the development that the non-executive director has made is over-optimistic. He believes that it is most likely that the total value of the rental income will be 5% lower than the non-executive director has forecast. He believes that there is some risk that the returns could be so low as to jeopardise the income for the C-rated fixed rate loan note holders.

Islamic finance

Moonstar Co's chief executive has wondered whether Sukuk finance would be a better way of funding the development than the securitisation.

Moonstar Co's chairman has pointed out that a major bank in the country where Moonstar Co is located has begun to offer a range of Islamic financial products. The chairman has suggested that a Mudaraba contract would be the most appropriate method of providing the funds required for the investment.

Required:

(a) Calculate the amounts in $ which each of the tranches can expect to receive from the securitisation arrangement proposed by the non-executive director and discuss how the variability in rental income affects the returns from the securitisation. (11 marks)

(b) Discuss the benefits and risks for Moonstar Co associated with the securitisation arrangement that the non-executive director has proposed. (6 marks)

(c) (i) Discuss the suitability of Sukuk finance to fund the investment, including an assessment of its appeal to potential investors. (4 marks)

(ii) Discuss whether a Mudaraba contract would be an appropriate method of financing the investment and discuss why the bank may have concerns about providing finance by this method. (4 marks)

(25 marks)

BONDS, VALUATION & YIELDS

Assignment 2: Mac co

The directors of Mac Co have identified that the firm has a surplus of cash. In these recessionary times, they have decided to follow a cautious investment strategy, and are considering investing the cash surplus in corporate bonds.

The directors have identified two potential investments.

Company	*Term of bond*	*Par value*	*Coupon*	*Redemption*
Echo Co	4 years	$100	5%	At par
Bunnymen Co	4 years	$100	2%	At a 10% premium

The Echo Co bonds are currently trading at $105.10 on the market, whereas the Bunnymen Co bonds are just about to be issued.

Both Echo Co and Bunnymen Co have an A credit rating according to the main credit rating agencies.

Required:

(a) **Calculate the gross redemption yield (yield to maturity) for the Echo Co bonds, and (on the assumption that the Bunnymen Co bonds will have the same yield) the theoretical value of the Bunnymen Co bonds. (5 marks)**

(b) **Estimate the Macaulay duration of the two bonds Mac Co is considering for investment. (5 marks)**

(c) **Advise the directors what factors should be considered by Mac Co when evaluating which bonds to invest in. Support the advice by referring to your calculations in parts (a) and (b) above, along with any other important factors. (7 marks)**

(d) Among the criteria used by credit agencies for establishing a company's credit rating are the following: industry risk, earnings protection, financial flexibility and evaluation of the company's management.

Briefly explain each criterion and suggest factors that could be used to assess it. (8 marks)

(Total: 25 marks)

COST OF CAPITAL - Do Tisa part (a) ONLY

Tisa Co is considering an opportunity to produce an innovative component which, when fitted into motor vehicle engines, will enable them to utilise fuel more efficiently. The component can be manufactured using either process Omega or process Zeta. Although this is an entirely new line of business for Tisa Co, it is of the opinion that developing either process over a period of four years and then selling the productions rights at the end of four years to another company may prove lucrative.

The annual after-tax cash flows for each process are as follows:

Process Omega					
Year	0	1	2	3	4
After-tax cash flows ($000)	(3,800)	1,220	1,153	1,386	3,829

Process Zeta					
Year	0	1	2	3	4
After-tax cash flows ($000)	(3,800)	643	546	1,055	5,990

Tisa Co has 10 million 50c shares trading at 180c each. Its loans have a current value of $3·6 million and an average after-tax cost of debt of 4·50%. Tisa Co's capital structure is unlikely to change significantly following the investment in either process.

Elfu Co manufactures electronic parts for cars including the production of a component similar to the one being considered by Tisa Co. Elfu Co's equity beta is 1·40, and it is estimated that the equivalent equity beta for its other activities, excluding the component production, is 1·25. Elfu Co has 400 million 25c shares in issue trading at 120c each. Its debt finance consists of variable rate loans redeemable in seven years. The loans paying interest at base rate plus 120 basis points have a current value of $96 million. It can be assumed that 80% of Elfu Co's debt finance and 75% of Elfu Co's equity finance can be attributed to other activities excluding the component production.

Both companies pay annual corporation tax at a rate of 25%. The current base rate is 3·5% and the market risk premium is estimated at 5·8%.

Required:

(a) Provide a reasoned estimate of the cost of capital that Tisa Co should use to calculate the net present value of the two processes. Include all relevant calculations. (8 marks)

(b) Calculate the internal rate of return (IRR) and the modified internal rate of return (MIRR) for Process Omega. Given that the IRR and MIRR of Process Zeta are 26·6% and 23·3% respectively, recommend which process, if any, Tisa Co should proceed with and explain your recommendation. (8 marks)

(c) Elfu Co has estimated an annual standard deviation of $800,000 on one of its other projects, based on a normal distribution of returns. The average annual return on this project is $2,200,000.

Required:

Estimate the project's Value at Risk (VAR) at a 99% confidence level for one year and over the project's life of five years. Explain what is meant by the answers obtained. (4 marks)

(20 marks)

Assignment 3: Medeirios

Medeiros Co is a large company which is listed on a major Asian Stock Exchange. It was founded 45 years ago as a manufacturer of car engine parts, but in recent years it has diversified into the aviation sector and now approximately 25% of the company's investment is in the aircraft engine parts manufacturing business.

The company has been quite successful in recent years. Despite the global recession which has had a major impact on the car industry, Medeiros Co has seen its profits grow slightly year by year. Over the last 12 months, the company's share price has stayed fairly constant at approximately $3.29 per share. The company has 40 million $0.50 nominal value shares in issue.

Medeiros Co also has $50 million corporate bonds (at nominal value) in issue, which were issued 3 years ago and are redeemable in 5 years' time. The bonds are trading at $131.60 per $100 nominal value. Medeiros is an AA rated company according to the main Asian credit rating agency. The agency is currently displaying the following summary of credit spreads on its website:

Credit spreads in basis points:

	1 Year	*3 years*	*5 years*	*8 years*
AA rating	22	39	63	89

The risk free rate of interest in Asia is currently 3.75% per annum.

The company is considering its future options. The directors are keen to expand the business further by investing in new projects, so they want to compute a cost of capital to be used in the investment appraisal process. In a recent newspaper article, a market analyst commented that the equity beta for Medeiros Co is approximately 1.56. However, the directors of Medeiros Co want to independently verify this figure using their own calculations based on proxy companies.

Therefore, two suitable proxy companies have been identified: Car Sure Co, a manufacturer of car engine parts, and Craft Bits Co, a manufacturer of aircraft engine parts. Key financial information for these two companies is as follows:

	Car Sure Co	**Craft Bits Co**
Gearing (debt to equity at market value)	20:80	50:50
Equity beta	1.60	Not available
Cost of equity	Not available	9.48%
Pre tax cost of debt	Not available	4.38%

The market risk premium on the stock market was 6.25% last year
The corporation tax rate is 30%.

Required:

Calculate the risk adjusted weighted average cost of capital (RAWACC) for Medeiros Co.

(15 marks)

DIVIDEND POLICY

Limni Co is a large company manufacturing hand-held electronic devices such as mobile phones and tablet computers. The company has been growing rapidly over the last few years, but it also has high research and development expenditure. It is involved in a number of projects worldwide, developing new and innovative products and systems in a rapidly changing industry. Due to the nature of the industry, this significant growth in earnings has never been stable, but has depended largely on the success of the new innovations and competitor actions. However, in the last two years it seems that the rapid period of growth is slowing, with fewer products coming to market compared to previous years.

Limni Co has never paid dividends and has financed projects through internally generated funds and with occasional rights issues of new share capital. It currently has insignificant levels of debt. The retained cash reserves have recently grown because of a drop in the level of investment in new projects.

The company has an active treasury division which invests spare funds in traded equities, bonds and other financial instruments; and releases the funds when required for new projects. The division also manages cash flow risk using money and derivative markets. The treasury division is currently considering investing in three companies with the following profit after tax (PAT) and dividend history:

Year	Company Theta		Company Omega		Company Kappa	
	PAT	Dividends	PAT	Dividends	PAT	Dividends
	$000	$000	$000	$000	$000	$000
2013	57,100	22,840	93,300	60,560	162,400	44,100
2012	54,400	21,760	90,600	57,680	141,500	34,200
2011	52,800	21,120	88,000	54,840	108,900	26,300
2010	48,200	19,280	85,400	52,230	105,700	20,250
2009	45,500	18,200	82,900	49,740	78,300	15,700

All of the three companies' share capital has remained largely unchanged since 2009.

Recently, Limni Co's Board of Directors (BoD) came under pressure from the company's larger shareholders to start returning some of the funds, currently retained by the company, back to the shareholders. The BoD thinks that the shareholders have a strong case to ask for repayments. However, it is unsure whether to pay a special, one-off large dividend from its dividend capacity and retained funds, followed by small annual dividend payments; or to undertake a periodic share buyback scheme over the next few years.

Limni Co is due to prepare its statement of profit or loss shortly and estimates that the annual sales revenue will be $600 million, on which its profit before tax is expected to be 23% of sales revenue. It charges depreciation of 25% on a straight-line basis on its non-current assets of $220 million. It estimates that $67 million investment in current and non-current assets was spent during the year. It is due to receive $15 million in dividends from its subsidiary companies, on which annual tax of 20% on average has been paid. Limni Co itself pays annual tax at 26%, and the tax authorities where Limni Co is based charge tax on dividend remittances made by overseas subsidiary companies, but give full credit on tax already paid on those remittances. In order to fund the new policy of returning funds to shareholders, Limni Co's BoD wants to increase the current estimated dividend capacity by 10%, by asking the overseas subsidiary companies for higher repatriations.

Required:

(a) Discuss Limni Co's current dividend, financing and risk management policies, and suggest how the decision to return retained funds back to the shareholders will affect these policies. (8 marks)

(b) Evaluate the dividend policies of each of the three companies that Limni Co is considering investing in, and discuss which company Limni Co might select. (8 marks)

(c) Calculate, and briefly comment on, how much the dividends from overseas companies need to increase by, to increase Limni Co's dividend capacity by 10%. (6 marks)

(d) Discuss the benefits to Limni Co's shareholders of receiving repayments through a share buyback scheme as opposed to the dividend scheme described above. (3 marks)

(25 marks)

Assignment 4: Chithurst

Chithurst Co gained a stock exchange listing five years ago. At the time of the listing, members of the family who founded the company owned 75% of the shares, but now they only hold just over 50%. The number of shares in issue has remained unchanged since Chithurst Co was listed. Chithurst Co's directors have continued the policy of paying a constant dividend per share each year which the company had before it was listed. However, investors who are not family members have become increasingly critical of this policy, saying that there is no clear rationale for it. They would prefer to see steady dividend growth, reflecting the increase in profitability of Chithurst Co since its listing.

The finance director of Chithurst Co has provided its board with details of Chithurst Co's dividends and investment expenditure, compared with two other similar-sized companies in the same sector, Eartham Co and Iping Co. Each company has a 31 December year end.

	Chithurst Co			Eartham Co			Iping Co		
	Profit for year after interest and tax	Dividend paid	New investment expenditure	Profit for year after interest and tax	Dividend paid	New investment expenditure	Profit for year after interest and tax	Dividend paid	New investment expenditure
	$m	$m	$m	$m	$m	$m	$m	$m	$m
2012	77	33	18	95	38	30	75	35	37
2013	80	33	29	(10)	15	15	88	17	64
2014	94	33	23	110	44	42	118	39	75
2015	97	33	21	120	48	29	132	42	84

Required:

(a) Discuss the benefits and drawbacks of the dividend policies which the three companies appear to have adopted. Provide relevant calculations to support your discussion.

Note: Up to 5 marks are available for the calculations. (15 marks)

DOMESTIC INVESTMENT APPRAISAL

- Tisa part (b) (June 2012)
- Fernhurst (S/D 2016)

Fernhurst Co is a manufacturer of mobile communications technology. It is about to launch a new communications device, the Milland, which its directors believe is both more technologically advanced and easier to use than devices currently offered by its rivals.

Investment in the Milland

The Milland will require a major investment in facilities. Fernhurst Co's directors believe that this can take place very quickly and production be started almost immediately.

Fernhurst Co expects to sell 132,500 units of the Milland in its first year. Sales volume is expected to increase by 20% in Year 2 and 30% in Year 3, and then be the same in Year 4 as Year 3, as the product reaches the end of its useful life. The initial selling price in Year 1 is expected to be $100 per unit, before increasing with the rate of inflation annually.

The variable cost of each unit is expected to be $43·68 in year 1, rising by the rate of inflation in subsequent years annually. Fixed costs are expected to be $900,000 in Year 1, rising by the rate of inflation in subsequent years annually.

The initial investment in non-current assets is expected to be $16,000,000. Fernhurst Co will also need to make an immediate investment of $1,025,000 in working capital. The working capital will be increased annually at the start of each of Years 2 to 4 by the inflation rate and is fully recoverable at the end of the project's life. Fernhurst Co will also incur one-off marketing expenditure of $1,500,000 post inflation after the launch of the Milland. The marketing expenditure can be assumed to be made at the end of Year 1 and be a tax allowable expense.

Fernhurst Co pays company tax on profits at an annual rate of 25%. Tax is payable in the year that the tax liability arises. Tax allowable depreciation is available at 20% on the investment in non-current assets on a reducing balance basis. A balancing adjustment will be available in Year 4. The realisable value of the investment at the end of Year 4 is expected to be zero.

The expected annual rate of inflation in the country in which Fernhurst Co is located is 4% in Year 1 and 5% in Years 2 to 4.

The applicable cost of capital for this investment appraisal is 11%.

Other calculations

Fernhurst Co's finance director has indicated that besides needing a net present value calculation based on this data for the next board meeting, he also needs to know the figure for the project's duration, to indicate to the board how returns from the project will be spread over time.

Failure of launch of the Milland

The finance director would also like some simple analysis based on the possibility that the marketing expenditure is not effective and the launch fails, as he feels that the product's price may be too high. He has suggested that there is a 15% chance that the Milland will have negative net cash flows for Year 1 of $1,000,000 or more. He would like to know by what percentage the selling price could be reduced or increased to result in the investment having a zero net present value, assuming demand remained the same.

Assessment of new products

Fernhurst Co's last board meeting discussed another possible new product, the Racton, and the finance director presented a range of financial data relating to this product, including the results of net present value and payback evaluations. One of the non-executive directors, who is not a qualified accountant, stated that he found it difficult to see the significance of the different items of financial data. His understanding was that Fernhurst Co merely had to ensure that the investment had a positive net present value and shareholders were bound to be satisfied with it, as it would maximise their wealth in the long term. The finance director commented that, in reality, some shareholders looked at the performance of the investments which Fernhurst Co made over the short term, whereas some were more concerned with the longer term. The financial data he presented to board meetings included both short and long-term measures.

Required:

(a) Evaluate the financial acceptability of the investment in the Milland and, calculate and comment on the investment's duration. (15 marks)

(b) Calculate the % change in the selling price required for the investment to have a zero net present value, and discuss the significance of your results. (5 marks)

(c) Discuss the non-executive director's understanding of net present value and explain the importance of other measures in providing data about an investment's short and long-term performance. (5 marks)

(25 marks)

INTERNATIONAL INVESTMENT APPRAISAL

- Yilandwe (June 2015)
- Chmura (December 2013)
- Fubuki (December 2010) – APV
- Burung (June 2014)

Yilandwe

Yilandwe, whose currency is the Yilandwe Rand (YR), has faced extremely difficult economic challenges in the past 25 years because of some questionable economic policies and political decisions made by its previous governments. Although Yilandwe's population is generally poor, its people are nevertheless well-educated and ambitious. Just over three years ago, a new government took office and since then it has imposed a number of strict monetary and fiscal controls, including an annual corporation tax rate of 40%, in an attempt to bring Yilandwe out of its difficulties. As a result, the annual rate of inflation has fallen rapidly from a high of 65% to its current level of 33%. These strict monetary and fiscal controls have made Yilandwe's government popular in the larger cities and towns, but less popular in the rural areas which seem to have suffered disproportionately from the strict monetary and fiscal controls.

It is expected that Yilandwe's annual inflation rate will continue to fall in the coming few years as follows:

Year	Inflation rate
1	22·0%
2	14·7%
3 onwards	9·8%

Yilandwe's government has decided to continue the progress made so far, by encouraging foreign direct investment into the country. Recently, government representatives held trade shows internationally and offered businesses a number of concessions, including:

(i) zero corporation tax payable in the first two years of operation; and
(ii) an opportunity to carry forward tax losses and write them off against future profits made after the first two years.

The government representatives also promised international companies investing in Yilandwe prime locations in towns and cities with good transport links.

Imoni Co

Imoni Co, a large listed company based in the USA with the US dollar ($) as its currency, manufactures high tech diagnostic components for machinery, which it exports worldwide. After attending one of the trade shows, Imoni Co is considering setting up an assembly plant in Yilandwe where parts would be sent and assembled into a specific type of component, which is currently being assembled in the USA. Once assembled, the component will be exported directly to companies based in the European Union (EU). These exports will be invoiced in Euro (€).

Assembly plant in Yilandwe: financial and other data projections

It is initially assumed that the project will last for four years. The four-year project will require investments of YR21,000 million for land and buildings, YR18,000 million for machinery and YR9,600 million for working capital to be made immediately. The working capital will need to be increased annually at the start of each of the next three years by Yilandwe's inflation rate and it is assumed that this will be released at the end of the project's life.

It can be assumed that the assembly plant can be built very quickly and production started almost immediately. This is because the basic facilities and infrastructure are already in place as the plant will be built on the premises and grounds of a school. The school is ideally located, near the main highway and railway lines. As a result, the school will close and the children currently studying there will be relocated to other schools in the city. The government has kindly agreed to provide free buses to take the children to these schools for a period of six months to give parents time to arrange appropriate transport in the future for their children.

The current selling price of each component is €700 and this price is likely to increase by the average EU rate of inflation from year 1 onwards.

The number of components expected to be sold every year are as follows:

Year	1	2	3	4
Sales component units (000s)	150	480	730	360

The parts needed to assemble into the components in Yilandwe will be sent from the USA by Imoni Co at a cost of $200 per component unit, from which Imoni Co would currently earn a pre-tax contribution of $40 for each component unit. However, Imoni Co feels that it can negotiate with Yilandwe's government and increase the transfer price to $280 per component unit. The variable costs related to assembling the components in Yilandwe are currently

YR15,960 per component unit. The current annual fixed costs of the assembly plant are YR4,600 million. All these costs, wherever incurred, are expected to increase by that country's annual inflation every year from year 1 onwards.

Imoni Co pays corporation tax on profits at an annual rate of 20% in the USA. The tax in both the USA and Yilandwe is payable in the year that the tax liability arises. A bilateral tax treaty exists between Yilandwe and the USA. Tax allowable depreciation is available at 25% per year on the machinery on a straight-line basis.

Imoni Co will expect annual royalties from the assembly plant to be made every year. The normal annual royalty fee is currently $20 million, but Imoni Co feels that it can negotiate this with Yilandwe's government and increase the royalty fee by 80%. Once agreed, this fee will not be subject to any inflationary increase in the project's four-year period.

If Imoni Co does decide to invest in an assembly plant in Yilandwe, its exports from the USA to the EU will fall and it will incur redundancy costs. As a result, Imoni Co's after-tax cash flows will reduce by the following amounts:

Year	1	2	3	4
Redundancy and lost contribution	20,000	55,697	57,368	59,089

Imoni Co normally uses its cost of capital of 9% to assess new projects. However, the finance director suggests that Imoni Co should use a project specific discount rate of 12% instead.

Other financial information

Current spot rates

Euro per Dollar	€0·714/$1
YR per Euro	YR142/€1
YR per Dollar	YR101·4/$1

Forecast future rates based on expected inflation rate differentials

Year	1	2	3	4
YR/$1	120·1	133·7	142·5	151·9

Year	1	2	3	4
YR/€1	165·0	180·2	190·2	200·8

Expected inflation rates

EU expected inflation rate: Next two years	5%
EU expected inflation rate: Year 3 onwards	4%
USA expected inflation rate: Year 1 onwards	3%

Required:

(a) Discuss the possible benefits and drawbacks to Imoni Co of setting up its own assembly plant in Yilandwe, compared to licensing a company based in Yilandwe to undertake the assembly on its behalf. (5 marks)

(b) Prepare a report which:

(i) Evaluates the financial acceptability of the investment in the assembly plant in Yilandwe; (21 marks)

(ii) Discusses the assumptions made in producing the estimates, and the other risks and issues which Imoni Co should consider before making the final decision; (17 marks)

(iii) Provides a reasoned recommendation on whether or not Imoni Co should invest in the assembly plant in Yilandwe. (3 marks)

Professional marks will be awarded in part (b) for the format, structure and presentation of the report. (4 marks)

(50 marks)

Assignment 5: Chmura (part b (i) ONLY)

Since becoming independent just over 20 years ago, the country of Mehgam has adopted protectionist measures which have made it difficult for multinational companies to trade there. However, recently, after discussions with the World Trade Organisation (WTO), it seems likely that Mehgam will reduce its protectionist measures significantly.

Encouraged by these discussions, Chmura Co, a company producing packaged foods, is considering a project to set up a manufacturing base in Mehgam to sell its goods there and in other regional countries nearby. An initial investigation costing $500,000 established that Mehgam had appropriate manufacturing facilities, adequate transport links and a reasonably skilled but cheap work force. The investigation concluded that, if the protectionist measures were reduced, then the demand potential for Chmura Co's products looked promising. It is also felt that an early entry into Mehgam would give Chmura Co an advantage over its competitors for a period of five years, after which the current project will cease, due to the development of new advanced manufacturing processes.

Mehgam's currency, the Peso (MP), is currently trading at MP72 per $1. Setting up the manufacturing base in Mehgam will require an initial investment of MP2,500 million immediately, to cover the cost of land and buildings (MP1,250 million) and machinery (MP1,250 million). Tax allowable depreciation is available on the machinery at an annual rate of 10% on cost on a straight-line basis. A balancing adjustment will be required at the end of year five, when it is expected that the machinery will be sold for MP500 million (after inflation). The market value of the land and buildings in five years' time is estimated to be 80% of the current value. These amounts are inclusive of any tax impact.

Chmura Co will require MP200 million for working capital immediately. It is not expected that any further injections of working capital will be required for the five years. When the project ceases at the end of the fifth year, the working capital will be released back to Chmura Co.

Production of the packaged foods will take place in batches of product mixes. These batches will then be sold to supermarket chains, wholesalers and distributors in Mehgam and its neighbouring countries, who will repackage them to their individual requirements. All sales will be in MP. The estimated average number of batches produced and sold each year is given below:

Year	1	2	3	4	5
Batches produced and sold	10,000	15,000	30,000	26,000	15,000

The current selling price for each batch is estimated to be MP115,200. The costs related to producing and selling each batch are currently estimated to be MP46,500. In addition to these costs, a number of products will need a special packaging material which Chmura Co will send to Mehgam. Currently the cost of the special packaging material is $200 per batch. Training and development costs, related to the production of the batches, are estimated to be 80% of the production and selling costs (excluding the cost of the special packaging) in the first year, before falling to 20% of these costs (excluding the cost of the special packaging) in the second year, and then nil for the remaining years. It is expected that the costs relating to the production and sale of each batch will increase annually by 10% but the selling price and the special packaging costs will only increase by 5% every year.

The current annual corporation tax rate in Mehgam is 25% and Chmura Co pays annual corporation tax at a rate of 20% in the country where it is based. Both countries' taxes are payable in the year that the tax liability arises. A bi-lateral tax treaty exists between the two countries which permits offset of overseas tax against any tax liabilities Chmura Co incurs on overseas earnings.

The risk-adjusted cost of capital applicable to the project on $-based cash flows is 12%, which is considerably higher than the return on short-dated $ treasury bills of 4%. The current rate of inflation in Mehgam is 8%, and in the country where Chmura Co is based, it is 2%. It can be assumed that these inflation rates will not change for the foreseeable future. All net cash flows from the project will be remitted back to Chmura Co at the end of each year.

Chmura Co's finance director is of the opinion that there are many uncertainties surrounding the project and has assessed that the cash flows can vary by a standard deviation of as much as 35% because of these uncertainties.

Recently Bulud Co offered Chmura Co the option to sell the entire project to Bulud Co for $28 million at the start of year three. Chmura Co will make the decision of whether or not to sell the project at the end of year two.

Required:

(a) Discuss the role of the World Trade Organisation (WTO) and the possible benefits and drawbacks to Mehgam of reducing protectionist measures. (9 marks)

(b) Prepare an evaluative report for the Board of Directors of Chmura Co which addresses the following parts and recommends an appropriate course of action:

(i) An estimate of the value of the project before considering Bulud Co's offer. Show all relevant calculations; (14 marks)

(ii) An estimate of the value of the project taking into account Bulud Co's offer. Show all relevant calculations; (9 marks)

(iii) A discussion of the assumptions made in parts (i) and (ii) above and the additional business risks which Chmura Co should consider before it makes the final decision whether or not to undertake the project. (14 marks)

Professional marks will be awarded in part (b) for the format, structure and presentation of the report. (4 marks)

(50 marks)

Fubuki Co, an unlisted company based in Megaera, has been manufacturing electrical parts used in mobility vehicles for people with disabilities and the elderly, for many years. These parts are exported to various manufacturers worldwide but at present there are no local manufacturers of mobility vehicles in Megaera. Retailers in Megaera normally import mobility vehicles and sell them at an average price of $4,000 each. Fubuki Co wants to manufacture mobility vehicles locally and believes that it can sell vehicles of equivalent quality locally at a discount of 37·5% to the current average retail price.

Although this is a completely new venture for Fubuki Co, it will be in addition to the company's core business. Fubuki Co's directors expect to develop the project for a period of four years and then sell it for $16 million to a private equity firm. Megaera's government has been positive about the venture and has offered Fubuki Co a subsidised loan of up to 80% of the investment funds required, at a rate of 200 basis points below Fubuki Co's borrowing rate. Currently Fubuki Co can borrow at 300 basis points above the five-year government debt yield rate.

A feasibility study commissioned by the directors, at a cost of $250,000, has produced the following information.

1. Initial cost of acquiring suitable premises will be $11 million, and plant and machinery used in the manufacture will cost $3 million. Acquiring the premises and installing the machinery is a quick process and manufacturing can commence almost immediately.
2. It is expected that in the first year 1,300 units will be manufactured and sold. Unit sales will grow by 40% in each of the next two years before falling to an annual growth rate of 5% for the final year. After the first year the selling price per unit is expected to increase by 3% per year.
3. In the first year, it is estimated that the total direct material, labour and variable overheads costs will be $1,200 per unit produced. After the first year, the direct costs are expected to increase by an annual inflation rate of 8%.
4. Annual fixed overhead costs would be $2·5 million of which 60% are centrally allocated overheads. The fixed overhead costs will increase by 5% per year after the first year.
5. Fubuki Co will need to make working capital available of 15% of the anticipated sales revenue for the year, at the beginning of each year. The working capital is expected to be released at the end of the fourth year when the project is sold.

Fubuki Co's tax rate is 25% per year on taxable profits. Tax is payable in the same year as when the profits are earned. Tax allowable depreciation is available on the plant and machinery on a straight-line basis. It is anticipated that the value attributable to the plant and machinery after four years is $400,000 of the price at which the project is sold. No tax allowable depreciation is available on the premises.

Fubuki Co uses 8% as its discount rate for new projects but feels that this rate may not be appropriate for this new type of investment. It intends to raise the full amount of funds through debt finance and take advantage of the government's offer of a subsidised loan. Issue costs are 4% of the gross finance required. It can be assumed that the debt capacity available to the company is equivalent to the actual amount of debt finance raised for the project.

Although no other companies produce mobility vehicles in Megaera, Haizum Co, a listed company, produces electrical-powered vehicles using similar technology to that required for the mobility vehicles. Haizum Co's cost of equity is estimated to be 14% and it pays tax at 28%. Haizum Co has 15 million shares in issue trading at $2·53 each and $40 million bonds trading at $94·88 per $100. The five-year government debt yield is currently estimated at 4·5% and the market risk premium at 4%.

Required:

(a) Evaluate, on financial grounds, whether Fubuki Co should proceed with the project. (17 marks)

(b) Discuss the appropriateness of the evaluation method used and explain any assumptions made in part (a) above. (8 marks)

(25 marks)

Assignment 6: Burung

You have recently commenced working for Burung Co and are reviewing a four-year project which the company is considering for investment. The project is in a business activity which is very different from Burung Co's current line of business.

The following net present value estimate has been made for the project:

All figures are in $ million

Year	**0**	**1**	**2**	**3**	**4**
Sales revenue		23·03	36·60	49·07	27·14
Direct project costs		(13·82)	(21·96)	(29·44)	(16·28)
Interest		(1·20)	(1·20)	(1·20)	(1·20)
Profit		8·01	13·44	18·43	9·66
Tax (20%)		(1·60)	(2·69)	(3·69)	(1·93)
Investment/sale	(38·00)				4·00
Cash flows	(38·00)	6·41	10·75	14·74	11·73
Discount factors (7%)	1	0·935	0·873	0·816	0·763
Present values	(38·00)	5·99	9·38	12·03	8·95

Net present value is negative $1·65 million, and therefore the recommendation is that the project should not be accepted.

In calculating the net present value of the project, the following notes were made:

(i) Since the real cost of capital is used to discount cash flows, neither the sales revenue nor the direct project costs have been inflated. It is estimated that the inflation rate applicable to sales revenue is 8% per year and to the direct project costs is 4% per year.

(ii) The project will require an initial investment of $38 million. Of this, $16 million relates to plant and machinery, which is expected to be sold for $4 million when the project ceases, after taking any taxation and inflation impact into account.

(iii) Tax allowable depreciation is available on the plant and machinery at 50% in the first year, followed by 25% per year thereafter on a reducing balance basis. A balancing adjustment is available in the year the plant and machinery is sold. Burung Co pays 20% tax on its annual taxable profits. No tax allowable depreciation is available on the remaining investment assets and they will have a nil value at the end of the project.

(iv) Burung Co uses either a nominal cost of capital of 11% or a real cost of capital of 7% to discount all projects, given that the rate of inflation has been stable at 4% for a number of years.

(v) Interest is based on Burung Co's normal borrowing rate of 150 basis points over the 10-year government yield rate.

(vi) At the beginning of each year, Burung Co will need to provide working capital of 20% of the anticipated sales revenue for the year. Any remaining working capital will be released at the end of the project.

(vii) Working capital and depreciation have not been taken into account in the net present value calculation above, since depreciation is not a cash flow and all the working capital is returned at the end of the project.

It is anticipated that the project will be financed entirely by debt, 60% of which will be obtained from a subsidised loan scheme run by the government, which lends money at a rate of 100 basis points below the 10-year government debt yield rate of 2·5%. Issue costs related to raising the finance are 2% of the gross finance required. The remaining 40% will be funded from Burung Co's normal borrowing sources. It can be assumed that the debt capacity available to Burung Co is equal to the actual amount of debt finance raised for the project.

Burung Co has identified a company, Lintu Co, which operates in the same line of business as that of the project it is considering. Lintu Co is financed by 40 million shares trading at $3·20 each and $34 million debt trading at $94 per $100. Lintu Co's equity beta is estimated at 1·5. The current yield on government treasury bills is 2% and it is estimated that the market risk premium is 8%. Lintu Co pays tax at an annual rate of 20%.

Both Burung Co and Lintu Co pay tax in the same year as when profits are earned.

Required:

(a) Calculate the adjusted present value (APV) for the project, correcting any errors made in the net present value estimate above, and conclude whether the project should be accepted or not. Show all relevant calculations. (15 marks)

(b) Comment on the corrections made to the original net present value estimate and explain the APV approach taken in part (a), including any assumptions made. (10 marks)

(25 marks)

BSOP and VaR

Tisa – continued (do part (c)

CURRENCY RISK

- Kenduri Co (June 2013)
- Armstrong (S/D 2015)
- Casasophia (June 2011)

Kenduri Co is a large multinational company based in the UK with a number of subsidiary companies around the world. Currently, foreign exchange exposure as a result of transactions between Kenduri Co and its subsidiary companies is managed by each company individually. Kenduri Co is considering whether or not to manage the foreign exchange exposure using multilateral netting from the UK, with the Sterling Pound (£) as the base currency. If multilateral netting is undertaken, spot mid-rates would be used.

The following cash flows are due in three months between Kenduri Co and three of its subsidiary companies. The subsidiary companies are Lakama Co, based in the United States (currency US$), Jaia Co, based in Canada (currency CAD) and Gochiso Co, based in Japan (currency JPY).

Owed by	Owed to	Amount
Kenduri Co	Lakama Co	US$ 4·5 million
Kenduri Co	Jaia Co	CAD 1·1 million
Gochiso Co	Jaia Co	CAD 3·2 million
Gochiso Co	Lakama Co	US$ 1·4 million
Jaia Co	Lakama Co	US$ 1·5 million
Jaia Co	Kenduri Co	CAD 3·4 million
Lakama Co	Gochiso Co	JPY 320 million
Lakama Co	Kenduri Co	US$ 2·1 million

Exchange rates available to Kenduri Co

	US$/£1	CAD/£1	JPY/£1
Spot	1·5938–1·5962	1·5690–1·5710	131·91–133·59
3-month forward	1·5996–1·6037	1·5652–1·5678	129·15–131·05

Currency options available to Kenduri Co
Contract size £62,500, Exercise price quotation: US$/£1, Premium: cents per £1

	Call Options		Put Options	
Exercise price	3-month expiry	6-month expiry	3-month expiry	6-month expiry
1·60	1·55	2·25	2·08	2·23
1·62	0·98	1·58	3·42	3·73

It can be assumed that option contracts expire at the end of the relevant month

Annual interest rates available to Kenduri Co and subsidiaries

	Borrowing rate	Investing rate
UK	4·0%	2·8%
United States	4·8%	3·1%
Canada	3·4%	2·1%
Japan	2·2%	0·5%

Required:

(a) Advise Kenduri Co on, and recommend, an appropriate hedging strategy for the US$ cash flows it is due to receive or pay in three months, from Lakama Co. Show all relevant calculations to support the advice given. (12 marks)

(b) Calculate, using a tabular format (transactions matrix), the impact of undertaking multilateral netting by Kenduri Co and its three subsidiary companies for the cash flows due in three months. Briefly discuss why some governments allow companies to undertake multilateral netting, while others do not. (10 marks)

(c) When examining different currency options and their risk factors, it was noticed that a long call option had a high gamma value. Explain the possible characteristics of a long call option with a high gamma value. (3 marks)

(25 marks)

Assignment 7: Armstrong

The Armstrong Group is a multinational group of companies. Today is 1 September. The treasury manager at Massie Co, one of Armstrong Group's subsidiaries based in Europe, has just received notification from the group's head office that it intends to introduce a system of netting to settle balances owed within the group every six months. Previously inter-group indebtedness was settled between the two companies concerned.

The predicted balances owing to, and owed by, the group companies at the end of February are as follows:

Owed by	Owed to	Local currency million (m)
Armstrong (USA)	Horan (South Africa)	US $12·17
Horan (South Africa)	Massie (Europe)	SA R42·65
Giffen (Denmark)	Armstrong (USA)	D Kr21·29
Massie (Europe)	Armstrong (USA)	US $19·78
Armstrong (USA)	Massie (Europe)	€1·57
Horan (South Africa)	Giffen (Denmark)	D Kr16·35
Giffen (Denmark)	Massie (Europe)	€1·55

The predicted exchange rates, used in the calculations of the balances to be settled, are as follows:

	D Kr	US$	SA R	€
1 D Kr =	1·0000	0·1823	1·9554	0·1341
1 US $ =	5·4855	1·0000	10·7296	0·7358
1 SA R =	0·5114	0·0932	1·0000	0·0686
1 € =	7·4571	1·3591	14·5773	1·0000

Settlement will be made in dollars, the currency of Armstrong Group, the parent company. Settlement will be made in the order that the company owing the largest net amount in dollars will first settle with the company owed the smallest net amount in dollars.

Note: D Kr is Danish Krone, SA R is South African Rand, US $ is United States dollar and € is Euro.

Required:

(a) (i) Calculate the inter-group transfers which are forecast to occur for the next period. (8 marks)

Assignment 8: Casasophia

Casasophia Co, based in a European country that uses the Euro (€), constructs and maintains advanced energy efficient commercial properties around the world. It has just completed a major project in the USA and is due to receive the final payment of US$20 million in four months.

Casasophia Co is planning to commence a major construction and maintenance project in Mazabia, a small African country, in six months' time. This government-owned project is expected to last for three years during which time Casasophia Co will complete the construction of state-of-the-art energy efficient properties and provide training to a local Mazabian company in maintaining the properties. The carbon-neutral status of the building project has attracted some grant funding from the European Union and these funds will be provided to the Mazabian government in Mazabian Shillings (MShs).

Exchange Rates available to Casasophia

	Per €1	Per €1
Spot	US$1·3585–US$1·3618	MShs116–MShs128
4-month forward	US$1·3588–US$1·3623	Not available

Currency Futures (Contract size €125,000, Quotation: US$ per €1)

2-month expiry	1·3633
5-month expiry	1·3698

Currency Options (Contract size €125,000, Exercise price quotation: US$ per €1, cents per Euro)

	Calls		Puts	
Exercise price	2-month expiry	5-month expiry	2-month expiry	5-month expiry
1·36	2·35	2·80	2·47	2·98
1·38	1·88	2·23	4·23	4·64

Required:

(a) Advise Casasophia Co on, and recommend, an appropriate hedging strategy for the US$ income it is due to receive in four months. Include all relevant calculations. (15 marks)

INTEREST RATE RISK

- Alceto (December 2011)
- Awan (December 2013)
- CMC (June 2014)

Assignment 9: Awan Co

Awan Co is expecting to receive $48,000,000 on 1 February 2014, which will be invested until it is required for a large project on 1 June 2014. Due to uncertainty in the markets, the company is of the opinion that it is likely that interest rates will fluctuate significantly over the coming months, although it is difficult to predict whether they will increase or decrease.

Awan Co's treasury team want to hedge the company against adverse movements in interest rates using one of the following derivative products:

Forward rate agreements (FRAs);
Interest rate futures; or
Options on interest rate futures.

Awan Co can invest funds at the relevant inter-bank rate less 20 basis points. The current inter-bank rate is 4·09%. However, Awan Co is of the opinion that interest rates could increase or decrease by as much as 0·9% over the coming months.

The following information and quotes are provided from an appropriate exchange on $ futures and options. Margin requirements can be ignored.

Three-month $ futures, $2,000,000 contract size
Prices are quoted in basis points at 100 – annual % yield

December 2013: 94·80
March 2014: 94·76
June 2014: 94·69

Options on three-month $ futures, $2,000,000 contract size, option premiums are in annual %

Calls			Strike	Puts		
December	March	June		December	March	June
0·342	0·432	0·523	94·50	0·090	0·119	0·271
0·097	0·121	0·289	95·00	0·312	0·417	0·520

Voblaka Bank has offered the following FRA rates to Awan Co:

1–7: 4·37%
3–4: 4·78%
3–7: 4·82%
4–7: 4·87%

It can be assumed that settlement for the futures and options contracts is at the end of the month and that basis diminishes to zero at contract maturity at a constant rate, based on monthly time intervals. Assume that it is 1 November 2013 now and that there is no basis risk.

Required:

(a) Based on the three hedging choices Awan Co is considering, recommend a hedging strategy for the $48,000,000 investment, if interest rates increase or decrease by 0·9%. Support your answer with appropriate calculations and discussion. (19 marks)

Assignment 10: CMC

Cocoa-Mocha-Chai (CMC) Co is a large listed company based in Switzerland and uses Swiss Francs as its currency.

CMC has a loan taken out to part-fund the setting up of four branches. Interest will be payable on the loan at a fixed annual rate of 2·2% or a floating annual rate based on the yield curve rate plus 0·40%. CMC wishes to protect itself from currency and interest rate exposure.

An interest rate swap contract is available with a counterparty, where the counterparty can borrow at an annual floating rate based on the yield curve rate plus 0·8% or an annual fixed rate of 3·8%. Pecunia Bank would charge a fee of 20 basis points each to act as the intermediary of the swap. Both parties will benefit equally from the swap contract.

Required: Demonstrate how CMC would benefit from a SWAP agreement with the Counterparty. **(6 Marks)**

MERGERS AND ACQUISITIONS

- Nente (June 2012)
- Sigra (December 2012)

Nente Co, an unlisted company, designs and develops tools and parts for specialist machinery. The company was formed four years ago by three friends, who own 20% of the equity capital in total, and a consortium of five business angel organisations, who own the remaining 80%, in roughly equal proportions. Nente Co also has a large amount of debt finance in the form of variable rate loans. Initially the amount of annual interest payable on these loans was low and allowed Nente Co to invest internally generated funds to expand its business. Recently though, due to a rapid increase in interest rates, there has been limited scope for future expansion and no new product development.

The Board of Directors, consisting of the three friends and a representative from each business angel organisation, met recently to discuss how to secure the company's future prospects. Two proposals were put forward, as follows:

Proposal 1
To accept a takeover offer from Mije Co, a listed company, which develops and manufactures specialist machinery tools and parts. The takeover offer is for $2·95 cash per share or a share-for-share exchange where two Mije Co shares would be offered for three Nente Co shares. Mije Co would need to get the final approval from its shareholders if either offer is accepted;

Proposal 2
To pursue an opportunity to develop a small prototype product that just breaks even financially, but gives the company exclusive rights to produce a follow-on product within two years.

The meeting concluded without agreement on which proposal to pursue.

After the meeting, Mije Co was consulted about the exclusive rights. Mije Co's directors indicated that they had not considered the rights in their computations and were willing to continue with the takeover offer on the same terms without them.

Currently, Mije Co has 10 million shares in issue and these are trading for $4·80 each. Mije Co's price to earnings (P/E) ratio is 15. It has sufficient cash to pay for Nente Co's equity and a substantial proportion of its debt, and believes that this will enable Nente Co to operate on a P/E level of 15 as well. In addition to this, Mije Co believes that it can find cost-based synergies of $150,000 after tax per year for the foreseeable future. Mije Co's current profit after tax is $3,200,000.

The following financial information relates to Nente Co and to the development of the new product.

Nente Co financial information

Extract from the most recent income statement

	$'000
Sales revenue	8,780
Profit before interest and tax	1,230
Interest	(455)
Tax	(155)
Profit after tax	620
Dividends	Nil

Extract from the most recent statement of financial position

	$'000
Net non-current assets	10,060
Current assets	690
Total Assets	10,750
Share capital (40c per share par value)	960
Reserves	1,400
Non-current liabilities: Variable rate loans	6,500
Current liabilities	1,890
Total liabilities and capital	10,750

In arriving at the profit after tax amount, Nente Co deducted tax allowable depreciation and other non-cash expenses totalling $1,206,000. It requires an annual cash investment of $1,010,000 in non-current assets and working capital to continue its operations.

Nente Co's profits before interest and tax in its first year of operation were $970,000 and have been growing steadily in each of the following three years, to their current level. Nente Co's cash flows grew at the same rate as well, but it is likely that this growth rate will reduce to 25% of the original rate for the foreseeable future.

Nente Co currently pays interest of 7% per year on its loans, which is 380 basis points over the government base rate, and corporation tax of 20% on profits after interest. It is estimated that an overall cost of capital of 11% is reasonable compensation for the risk undertaken on an investment of this nature.

New product development (Proposal 2)

Developing the new follow-on product will require an investment of $2,500,000 initially. The total expected cash flows and present values of the product over its five-year life, with a volatility of 42% standard deviation, are as follows:

Year(s)	Now	1	2	3 to 7 (in total)
Cash flows ($'000)	–	–	(2,500)	3,950
Present values ($'000)	–	–	(2,029)	2,434

Required:

Prepare a report for the Board of Directors of Nente Co that:

(i) Estimates the current value of a Nente Co share, using the free cash flow to firm methodology; (7 marks)

(ii) Estimates the percentage gain in value to a Nente Co share and a Mije Co share under each payment offer; (8 marks)

(iii) Estimates the percentage gain in the value of the follow-on product to a Nente Co share, based on its cash flows and on the assumption that the production can be delayed following acquisition of the exclusive rights of production; (8 marks)

(iv) Discusses the likely reaction of Nente Co and Mije Co shareholders to the takeover offer, including the assumptions made in the estimates above and how the follow-on product's value can be utilised by Nente Co. (8 marks)

Professional marks will be awarded in question 1 for the presentation, structure and clarity of the answer. (4 marks)

(35 marks)

Assignment 11: Sigra

Sigra Co is a listed company producing confectionary products which it sells around the world. It wants to acquire Dentro Co, an unlisted company producing high quality, luxury chocolates. Sigra Co proposes to pay for the acquisition using one of the following three methods:

Method 1
A cash offer of $5·00 per Dentro Co share; or

Method 2
An offer of three of its shares for two of Dentro Co's shares; or

Method 3
An offer of a 2% coupon bond in exchange for 16 Dentro Co's shares. The bond will be redeemed in three years at its par value of $100.

Extracts from the latest financial statements of both companies are as follows:

	Sigra Co $'000	Dentro Co $'000
Sales revenue	44,210	4,680
Profit before tax	6,190	780
Taxation	(1,240)	(155)
Profit after tax	4,950	625
Dividends	(2,700)	(275)
Retained earnings for the year	2,250	350
Non-current assets	22,450	3,350
Current assets	3,450	247
Non-current liabilities	9,700	873
Current liabilities	3,600	436
Share capital (40c per share)	4,400	500
Reserves	8,200	1,788

Sigra Co's current share price is $3·60 per share and it has estimated that Dentro Co's price to earnings ratio is 12·5% higher than Sigra Co's current price to earnings ratio. Sigra Co's non-current liabilities include a 6% bond redeemable in three years at par which is currently trading at $104 per $100 par value.

Sigra Co estimates that it could achieve synergy savings of 30% of Dentro Co's estimated equity value by eliminating duplicated administrative functions, selling excess non-current assets and through reducing the workforce numbers, if the acquisition were successful.

Required:

(a) Estimate the percentage gain on a Dentro Co share under each of the above three payment methods. Comment on the answers obtained. (16 marks)

CORPORATE RECONTRUCTION

- Doric (December 2010) – Assignment 12
- Proteus (December 2011) – Assignment 13

Doric Co, a listed company, has two manufacturing divisions: parts and fridges. It has been manufacturing parts for domestic refrigeration and air conditioning systems for a number of years, which it sells to producers of fridges and air conditioners worldwide. It also sells around 30% of the parts it manufactures to its fridge production division. It started producing and selling its own brand of fridges a few years ago. After limited initial success, competition in the fridge market became very tough and revenue and profits have been declining. Without further investment there are currently few growth prospects in either the parts or the fridge divisions. Doric Co borrowed heavily to finance the development and launch of its fridges, and has now reached its maximum overdraft limit. The markets have taken a pessimistic view of the company and its share price has declined to 50c per share from a high of $2·83 per share around three years ago.

Extracts from the most recent financial statements:

Financial position as at 30 November 2010	**$m**
Assets	
Non-Current Assets	
Land and buildings	70
Machinery and equipment	50
	120
Current Assets	
Inventory	180
Receivables	40
	220
Total Assets	340
Equity and Liabilities	
Share capital (40c per share par value)	40
Reserves	20
	60
Non-Current Liabilities	
7% Unsecured bonds 2020	120
Other unsecured loans (currently $5^1/_3$% interest)	30
	150
Current Liabilities	
Payables	70
Bank overdraft (currently 10% interest)	60
	130
Total Liabilities and capital	340

Income for the year ended 30 November 2010

			$m
Sales revenue:	Parts division		170
	Fridge division		340
Costs prior to depreciation, interest payments and tax:		Parts division	(120)
		Fridge division	(370)
Tax allowable depreciation			(18)
Finance cost (interest)			(16)
Tax			Nil
Loss			(14)

A survey from the refrigeration and air conditioning parts market has indicated that there is potential for Doric Co to manufacture parts for mobile refrigeration units used in cargo planes and containers. If this venture goes ahead then the parts division before-tax profits are expected to grow by 5% per year. The proposed venture would need an initial one-off investment of $50 million.

Suggested proposals

The Board of Directors has arranged for a meeting to discuss how to proceed and is considering each of the following proposals:

1. To cease trading and close down the company entirely.
2. To undertake corporate restructuring in order to reduce the level of debt and obtain the additional capital investment required to continue current operations.
3. To close the fridge division and continue the parts division through a leveraged management buy-out, involving some executive directors and managers from the parts division. The new company will then pursue its original parts business as well as the development of the parts for mobile refrigeration business, described above. All the current and long-term liabilities will be initially repaid using the proceeds from the sale of the fridge division. The finance raised from the management buy-out will pay for any remaining liabilities, the additional capital investment required to continue operations and re-purchase the shares at a premium of 20%.

The following information has been provided for each proposal:

Cease trading

Estimated realisable values of assets not sold as going concern are:

	$ million
Land and buildings	60
Machinery and equipment	40
Inventory	90
Receivables	20

Corporate restructuring

The existing ordinary shares will be cancelled and ordinary shareholders will be issued with 40 million new $1 ordinary shares in exchange for a cash payment at par. The existing unsecured bonds will be cancelled and replaced with 270 million of $1 ordinary shares. The bond holders will contribute $90 million in cash. All the shares will be listed and traded. The bank overdraft will be converted into a secured ten-year loan with a fixed annual interest rate of 7%. The other unsecured loans will be repaid. In addition to this, the directors of the restructured company will get 4 million $1 share options for an exercise price of $1·10, which will expire in four years.

An additional one-off capital investment of $80 million in machinery and equipment is necessary to increase sales revenue for both divisions by 7%, with no change to the costs. After the one-off 7% growth, sales will continue at the new level for the foreseeable future.

It is expected that the Doric's cost of capital rate will reduce by 550 basis points following the restructuring from the current rate.

Management buy-out

The parts division is half the size of the fridge division in terms of the assets and liabilities attributable to it. If the management buy-out proposal is chosen, a pro rata additional capital investment will be made to machinery and equipment on a one-off basis to increase sales revenue of the parts division by 7%. Sales revenue will then continue at the new level for the foreseeable future.

All liabilities categories have equal claim for repayment against the company's assets.

It is expected that Doric's cost of capital rate will decrease by 100 basis points following the management buy-out from the current rate.

The following additional information has been provided:

Redundancy and other costs will be approximately $54 million if the whole company is closed, and pro rata for individual divisions that are closed. These costs have priority for payment before any other liabilities in case of closure. The taxation effects relating to this may be ignored.

Corporation tax on profits is 20% and losses cannot be carried forward for tax purposes. Assume that tax is payable in the year incurred.

All the non-current assets, including land and buildings, are eligible for tax allowable depreciation of 15% annually on the book values. The annual reinvestment needed to keep operations at their current levels is roughly equivalent to the tax allowable depreciation. The $50 million investment in the mobile refrigeration business is not eligible for any tax allowable depreciation.

Doric's current cost of capital is 12%.

Required:

Prepare a report for the Board of Directors, evaluating the financial and non-financial impact of all the three proposals to Doric Co's main stakeholder groups, that includes:

(i) An estimate of the return the debt holders and shareholders would receive in the event that Doric Co ceases trading and is closed down. (3 marks)

(ii) An estimate of the income position and the value of Doric Co in the event that the restructuring proposal is selected. State any assumptions made. (8 marks)

(iii) An estimate of the amount of additional finance needed and the value of Doric Co if the management buy-out proposal is selected. State any assumptions made. (8 marks)

(iv) A discussion of the impact of each proposal on the existing shareholders, the unsecured bond holders, and the executive directors and managers involved in the management buy-out. Suggest which proposal is likely to be selected. (12 marks)

Professional marks will be awarded in question 1 for the appropriateness and format of the report. (4 marks)

(35 marks)

Proteus Co, a large listed company, has a number of subsidiaries in different industries but its main line of business is developing surveillance systems and intruder alarms. It has decided to sell a number of companies that it considers are peripheral to its core activities. One of these subsidiary companies is Tyche Co, a company involved in managing the congestion monitoring and charging systems that have been developed by Proteus Co. Tyche Co is a profitable business and it is anticipated that its revenues and costs will continue to increase at their current rate of 8% per year for the foreseeable future.

Tyche Co's managers and some employees want to buy the company through a leveraged management buy-out. An independent assessment estimates Tyche Co's market value at $81 million if Proteus Co agrees to cancel its current loan to Tyche Co. The managers and employees involved in the buy-out will invest $12 million for 75% of the equity in the company, with another $4 million coming from a venture capitalist for the remaining 25% equity.

Palaemon Bank has agreed to lend the balance of the required funds in the form of a 9% loan. The interest is payable at the end of the year, on the loan amount outstanding at the start of each year. A covenant on the loan states that the following debt-equity ratios should not be exceeded at the end of each year for the next five years:

Year	1	2	3	4	5
Debt / Equity (%)	350%	250%	200%	150%	125%

Shown below is an extract of the latest annual income statement for Tyche Co:

	$'000
Sales Revenue	60,000
Materials and consumables	12,000
Labour costs	22,000
Other costs	4,000
Allocated overhead charge payable to Proteus Co	14,000
Interest paid	2,000
Taxable Profit	6,000
Taxation	1,500
Retained Earnings	4,500

As part of the management buy-out agreement, it is expected that Proteus Co will provide management services costing $12 million for the first year of the management buy-out, increasing by 8% per year thereafter.

The current tax rate is 25% on profits and it is expected that 25% of the after-tax profits will be payable as dividends every year. The remaining profits will be allocated to reserves. It is expected that Tyche Co will repay $3 million of the outstanding loan at the end of each of the next five years from the cash flows generated from its business activity.

Required:

(a) Briefly discuss the possible benefits to Proteus Co of disposing Tyche Co through a management buy-out. (4 marks)

(b) Calculate whether the debt-equity covenant imposed by Palaemon Bank on Tyche Co will be breached over the five-year period. (9 marks)

(c) Discuss briefly the implications of the results obtained in part (b) and outline two possible actions Tyche Co may take if the covenant is in danger of being breached. (5 marks)

(18 marks)