

STRATEGIC CORPORATE FINANCE

PROFESSIONAL 2 EXAMINATION - APRIL 2015

NOTES:

Section A - Answer Question 1; and

Section B - Answer **any two** from Questions 2,3 and 4.

(Should you provide answers to more questions than required in Section B, you must draw a clearly distinguishable line through the answer not to be marked. Otherwise, only the first two answers provided will be marked.)

STRATEGIC CORPORATE FINANCE TABLES ARE PROVIDED

Time Allowed

3.5 hours plus **20 minutes** to read the paper.

Examination Format

This is an open book examination. Hard copy material may be consulted during this examination subject to the limitations advised on the Institute's website.

Reading Time

During the reading time you may write notes on the examination paper, but you may not commence writing in your answer booklet.

Marks

Marks for each question are shown. A mark of 50 or more is required to achieve a pass in this paper.

Answers

Start your answer to each question on a new page.

You are reminded to pay particular attention to your communication skills. Care must be taken regarding the format and literacy of your solutions. The marking system will take into account the content of your answers and the extent to which the answers are supported with relevant legislation, case law or examples, where appropriate.

Answer Booklets

List on the cover of each answer booklet, in the space provided, the number of each question attempted. Additional instructions are shown on the front cover of each answer booklet.

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND

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CASE STUDY – Potemkin

Brian Marshall looks out of his office window at the Bandon River as it slowly meanders towards the sea at Kinsale. Brian is the Chief Executive Officer (CEO) of Potemkin plc (Potemkin) and he is sitting in Potemkin's Head office near Inishannon, Co. Cork. He is pondering the decisions made at the board meeting that has just ended. It has been decided to invest at least some of the company's large amount of spare liquid capital in expanding the business. The amounts of cash and marketable securities on Potemkin's balance sheet have been giving Brian headaches. The board meeting finished in the past half hour and he is relieved that he has persuaded the board to invest Potemkin's "war chest". He has further persuaded them that there are now only two viable alternatives for the expansion of the company.

Potemkin manufactures dolls of all shapes and sizes. It was originally founded by Tika Nyzaradze about 30 years ago. Tika was CEO when Potemkin was floated on the Enterprise Securities Market (ESM) of the Irish Stock Exchange 10 years ago. She is now the Chairman of the Board of Directors. Potemkin originally started manufacturing Russian, Babushka or Matryoshka dolls in Baltimore, West Cork. It gradually expanded operations and moved to a larger premises at its current location. It became a public company a few years after winning the contract to produce dolls and models based on the hit TV series 'Battalions'. Although this series is set in the future, some of the weapons used by the soldiers are strangely retrospective. The toys that Potemkin makes are essentially upmarket dolls and toy soldiers. There are all kinds of doll imaginable and the toy soldiers are skilfully constructed to replicate the major characters from the 'Battalions' series. 'Battalions' has been running for 10 years now and Potemkin has done very well as a result. The sales of the 'Battalions' figures is the main reason that Potemkin sought a public listing and is also responsible for Potemkin's "war chest" of cash and marketable securities. It is now time, however, for Potemkin to explore new horizons or return the cash to its shareholders.

Today's board meeting primarily concerned this expansion. Potemkin's products at the moment can be split into two types a) Dolls and b) Toy Soldiers. Both lines are sold mainly to upmarket toy stores in the UK and Ireland. Some products are also exported to other EU countries. The producers of 'Battalions' are currently putting the finishing touches to a brand new TV series. This series is also futuristic and combative but unlike in 'Battalions', the new series will have lots of specialised weaponry such as light-sabers, tanks, space ships, and transporters of all sizes. While Potemkin has exclusive rights to manufacture the 'Battalions' figures for the Irish and UK market, the producers of the series are keen to give Potemkin the exclusive worldwide rights to manufacture all the toys based on the new series. The main market for the toys will be in the USA. However, Potemkin has no experience of operating in the US market. Brian and Tika see this new TV series as a potential blockbuster and are keen to take advantage of the offer of exclusive rights to manufacture the associated toys. The Board has agreed that such an approach is well worth exploring and has asked Brian and Tika to come back with clear proposals as to how Potemkin would enter the US market for toys. The Board has specifically asked Brian and Tika to decide i) if the US expansion should be undertaken organically, that is by Potemkin building its own facility in the US from scratch or ii) if they should purchase a US toy manufacturer. The following week, Brian and Tika meet for lunch in Kinsale to discuss the proposal. They invite you, Potemkin's financial advisor, along. Tika outlines details of an American toy company that she has been watching with a view to purchase. She points out that this company sells its products, toy guns and action figures, to toy shops all over the US. Accordingly, it has a good distribution network which Potemkin could use to get started in the US.

Brian outlines the nature of the new products and explains that the US factory that Potemkin might have to build will only manufacture products for the US market. The West Cork plant will make the same products for the Irish, UK and European markets. Potemkin would not sell all of its current range of dolls in the US believing that there would not be sufficient numbers of US children that would find the Matryoshka or Babushka dolls attractive. Having had an informative and enjoyable lunch, Brian and Tika give you their projections for the two proposals. They request that you analyse these projections and develop them so that a decision can be made regarding the best way to proceed. Tika emphasises that while she is confident that the company should expand based on the contract for the new TV series she does not really know which is the correct approach. Brian, on the other hand, clearly favours the takeover of the US company saying that it is now time for Potemkin to take a large step forward and put its cash resources to good use.

During the next week, you visit the target company in the US and also the 'green field' site on which a new factory will be built should Potemkin choose not to buy the US toy-maker. After a week of research and pouring over the information supplied, you come up with the projections outlined under Option A on Page 3. You decide that whatever happens in West Cork does not affect your recommendation as to whether Potemkin should expand organically or by acquisition in the US.

The current financial position of Potemkin is outlined in Table 1 below.

Table 1:

Income Statement to 31 March 2015

	€ Millions
Sales	100
Net Income	20
Taxation	2.5
Net Income after Tax	<u>17.5</u>
Dividends	<u>5</u>
Retained	12.5

Statement of Financial Position at 31 March 2015

	€ Millions		€ Millions
Fixed Assets	20	Equity Shareholders	80
Short-term Investments	40		
Working Capital	20		
Net Assets	<u>80</u>		<u>80</u>

Note: Working Capital includes €10m balance at the bank which earns Potemkin interest at 1% per annum.

Potemkin has 100 million shares in issue and these are currently trading at a price of €1.20 per share.

Tika owns 15 million shares and Brian owns 50,000 shares.

Option A – Organic Expansion

Your estimates of the costs involved here include your own fees of €10,000, which you will receive regardless of whether the project goes ahead or not. Tika has identified a plot of land for the new factory which will cost \$1 million. The building costs of the factory are estimated at \$2 million. Twenty five per cent of this amount will be paid now and the balance will be paid in one year's time when the factory is completed. Machinery will have to be purchased for \$1 million. It is proposed that this machinery would be purchased immediately and put in a rented premises until Potemkin's new factory is ready. This will ensure that production can commence immediately. The rent for the temporary premises is estimated to be \$30,000, payable in advance. The cost of moving the machinery to the new factory, when constructed, is estimated at \$10,000.

Working capital of \$120,000 will be required immediately. The average contribution per unit is estimated at \$5. This contribution takes the royalty of \$1 per product to be paid to the producers of the new TV series into account. The producers will also be paid an annual fixed fee of \$50,000 in arrears. It is estimated that 200,000 units would be sold in the first year. This would rise to 400,000 in year 2 and 500,000 in year 3. Sales would remain at this level for year 4 and in year 5 drop back to 250,000 units. It is expected that the NPV of the cash flows after year 5 will be zero. Five operatives will be required to operate the machinery in the first year. This will increase to ten for years 2-4. The salary for such operatives is \$40,000 per annum. However, it is expected that two of the operatives will be made redundant in year 5 when production tapers off. Redundancy costs are estimated as being approximately equal to one year's salary. A production manager would be recruited to oversee the operation of the plant, with an annual salary of \$80,000. Fixed production costs would be \$100,000 per annum. It is expected that Brian and Tika would each devote 20% of their time to the US operation should Potemkin decide in favour of organic growth in the US. Brian receives a salary of €250,000 per annum and Tika earns a director's fee of €200,000. Airfares for Brian and Tika to the US are expected to be in the region of €30,000 per annum (approximately €15,000 each).

Option B – Purchase Ticonderoga Corporation

Ticonderoga Corp. is a publicly owned stock in the US. It is controlled by Bert Brazier, though its shares are quoted on the over the counter market since it is not large enough to list on the NYSE or the NASDAQ. It manufactures toy guns and action figures sold to toy shops throughout North America but does not have any products like the 'Battalions' soldiers that Potemkin manufactures. Brian thinks it would be a good fit since its existing distribution channels could be used to expedite the distribution of 'Battalions' and the new products to toy shops in the US and Canada. Its plant however could not be adapted to produce the toys based on the new TV series.

Should Potemkin purchase Ticonderoga it would save \$1 million on the cost of the factory. This is because Ticonderoga has additional land on which its productive capacity could be expanded. Ticonderoga would also be able to sell 100,000 extra units in years 1 and 2. Sales thereafter, and the remaining costs and revenues would remain the same as outlined in Option A above.

Bert Brazier is approaching 65 years of age and is willing to sell at the right price. He has met Brian and Tika and has informed them that he would be very happy to sell his controlling interest in Ticonderoga to Potemkin for \$6 per share. Bert reckons that the toy market in the US will continue to grow at a rate of 2% per annum for the foreseeable future. The latest price quoted for one of Ticonderoga's 10 million shares is \$5.30. This would give him a premium of 70 cent or approximately 13.2% on the current share price. The greater the number of shareholders that followed the better, but once Potemkin had control of the board of Ticonderoga it could run the company as it saw fit.

Having sifted through Tika's and Brian's preliminary research using publicly available information, you estimate the following forecasted financial statements and growth rates for Ticonderoga (**see Table 2**). These projections assume that Ticonderoga continues its existing business under the current management. No allowance has been made for the synergies outlined above regarding the use of Ticonderoga's distribution channels. You estimate that the long-run growth estimate of Bert and Brian of 2% per annum from 2019 is probably correct. Ticonderoga's financial year end is March and Table 2 outlines its projected income statements from 2016 to 2019.

Table 2:**Ticonderoga****Income Statement \$'000**

	2015A*	2016	2017	2018	2019
Sales	150,000	153,000	156,060	159,181	162,365
Operating Expenses	146,000	148,920	151,898	154,936	158,035
Operating Income	4,000	4,080	4,162	4,245	4,330
Interest	360	320	337	358	338
PBT	3,640	3,760	3,825	3,887	3,992
Taxation	1,274	1,316	1,339	1,360	1,397
Net Profit After Tax	<u>2,366</u>	<u>2,444</u>	<u>2,486</u>	<u>2,527</u>	<u>2,595</u>
Dividends	<u>1,000</u>	<u>1,000</u>	<u>1,000</u>	<u>1,100</u>	<u>1,100</u>
Addition to Equity	1,366	1,444	1,486	1,427	1,495

Balance Sheet \$'000

	2015A*	2016	2017	2018	2019
Fixed Assets	28,000	26,010	24,970	27,061	24,355
Net Current Assets	15,000	18,360	21,848	20,694	24,355
Operating Assets	43,000	44,370	46,818	47,754	48,710
Cash	<u>0</u>	<u>500</u>	<u>62</u>	<u>48</u>	<u>2</u>
Net Assets	<u>43,000</u>	<u>44,870</u>	<u>46,880</u>	<u>47,802</u>	<u>48,712</u>
Shareholders' Equity	35,000	36,444	37,930	39,356	40,852
Debt	<u>8,000</u>	<u>8,426</u>	<u>8,950</u>	<u>8,446</u>	<u>7,860</u>
Total Financing	<u>43,000</u>	<u>44,870</u>	<u>46,880</u>	<u>47,802</u>	<u>48,712</u>

A* = Actual**Additional Information:**

1. The beta of Potemkin's stock is estimated at 0.9 by its stockbrokers.
2. The market risk premium in both the US and in Ireland is estimated at 5%.
3. The risk free rate of interest in the US is 0.61% and in Ireland it is 1.5%.
4. You can take the exchange rate between the Euro and the US Dollar to be \$1.25/€1.
5. The beta of Ticonderoga is 0.95.
6. Ticonderoga pays interest on its debt at 4%.

END OF CASE STUDY

SECTION A - Compulsory Question.

Explain fully all statements and assumptions made in arriving at your answers.

1.

REQUIREMENT:

- (a) Evaluate whether:
- (i) The construction of a factory to manufacture toys in the US is a worthwhile project from the perspective of Potemkin's shareholders; and (20 Marks)
 - (ii) The purchase of Ticonderoga at \$6 per share is a worthwhile investment for Potemkin. (20 Marks)
- (b) What would you advise Potemkin to do with regards to possible expansion into the US? Justify your answer. (10 Marks)

[Total: 50 Marks]

SECTION B – Answer only 2 questions from this section

2.

REQUIREMENT:

- (a) In computing the weighted average cost of capital in Question 1 above, you may have adjusted the cost of debt to allow for the fact that interest is allowable for tax (Modigliani and Miller 1963). Evaluate critically whether this approach is justified in the context of Ticonderoga which must pay corporation tax at the US rate of approximately 35% and also in the context of Ireland where the corporate tax rate is only 12.5%. (10 Marks)
- (b) Potemkin plc obviously has surplus cash. Analyse why this cash might be causing Brian a headache? (10 Marks)
- (c) Bearing in mind that mergers and acquisitions may be classified in several ways, describe the various ways in which Potemkin's proposed takeover of Ticonderoga might be classified. (5 Marks)

[Total: 25 Marks]

3.

REQUIREMENT:

- (a) Evaluate how Potemkin's current activities expose the company to foreign exchange risk. (6 Marks)
- (b) Appraise the additional foreign currency risks that Potemkin could be exposed to, arising from the construction of a manufacturing facility in the US or the acquisition of Ticonderoga. (6 Marks)
- (c) Recommend appropriate action that Potemkin should take to mitigate the foreign currency risks referred to in (a) and (b) above. (6 Marks)
- (d) Critique why Brian may have a different view to Tika regarding the best way to expand the business into the US? Outline any conflicting incentives between the shareholders of Potemkin, such as Tika and CEO, Brian Marshall, that are evident in the Case Study. (7 marks)

[Total: 25 Marks]

4.

REQUIREMENT:

Assume that the takeover deal goes ahead, as suggested by Brian, and that both Potemkin's and Ticonderoga's shares are correctly valued by the market prior to and after the takeover.

- (a) Assume there are synergies of \$20 million arising from the takeover of Ticonderoga by Potemkin and the costs involved amount to \$2 million. If Potemkin pays \$7 per share for Ticonderoga, assess how much would Potemkin's shareholders gain or lose? What about the consequences for Ticonderoga's shareholders?
(4 Marks)
- (b) Instead of a cash offer, assume that Potemkin offers four of its shares for each one of Ticonderoga's shares. How much would each of its own shareholders gain or lose?
(4 Marks)
- (c) Assess how much would Ticonderoga's shareholders gain or lose under the share offer.
(4 Marks)
- (d) Suppose that expectations are not realised and there are no synergies from the merger. How much would each group of shareholders gain or lose under the cash offer?
(4 Marks)
- (e) Again, assuming that the expected synergies do not materialise, how much would each group of shareholders gain or lose under the share offer. How is the shortfall, due to the failure to achieve any of the \$20 million in synergies, distributed between Potemkin's and Ticonderoga's shareholders under the share offer and contrast this with the cash offer.
(4 Marks)
- (f) Outline and explain two circumstances in which the managers of an acquiring company can gain from an acquisition, while at the same time shareholder wealth is destroyed.
(5 Marks)

[Total: 25 Marks]

END OF PAPER

SUGGESTED SOLUTIONS

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND STRATEGIC CORPORATE FINANCE

PROFESSIONAL 2 EXAMINATION - APRIL 2015

SOLUTION 1

(a)

- (i) Is the construction of a factory to manufacture toys in the US a worthwhile project from the perspective of Potemkin's shareholders?

We evaluate this question by computing the NPV of the cash flows anticipated from the project.

We first compute the appropriate discount rate. From Table 1 Potemkin is an all equity company.

Therefore we can compute its cost of capital as the cost of equity using the CAPM formula.

$$K_e = E(R_i) = R_f + \beta_i \{E(R_m) - R_f\}$$

Calculation of the cost of Capital for Potemkin

R _f	1.5
Beta	0.9
R _m -R _f	5
Cost of Capital (K _e)	6

We next use the information in the question to project the cash flows and discount them at 6%.

Time	Potemkin					
	Option 1	Organic Growth in the US \$'000				
	0	1	2	3	4	5
Machinery	-1,000					
Land	-1,000					
Buildings	-500	-1,500				
Rent	-30					
Transfer of Machinery	-10					
Contribution		1,000	2,000	2,500	2,500	1,250
Fixed Costs		-100	-100	-100	-100	-100
Production Mnger		-80	-80	-80	-80	-80
Operatives		-200	-400	-400	-400	-320
Redundancy						-80
Air Fares		-24	-24	-24	-24	-24
Fixed Royalty		-50	-50	-50	-50	-50
NCF	-2,530	-964	1346	1846	1846	596
Discount Rate	1.000	1.060	1.124	1.191	1.262	1.338
DCF	-2,530.00	-909.43	1,197.94	,1549.94	1,462.20	445.37
Cumulative DCF		-3,439.43	-2,241.50	-691.56	770.64	1,216.01

NPV = 1216.01

Therefore the project has a positive NPV so is viable.

- (ii) However, we must also look at the alternative approach because it may have an even more positive NPV.

First we estimate the value of Ticonderoga by estimating its free cash flow and discounting this at its cost of capital.

The cost of capital of Ticonderoga is estimated as follows.

Since the corporate tax rate in the US is 35% we do allow for this benefit.

Rf	0.61
Rm-Rf	5
Beta	0.95
Cost of Equity	5.36

Cost of Debt ($K_D \cdot (1-T)$)	2.6
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Millions of Dollars

Market Value of Equity (\$5.3 by 10m.)	53
Value of Debt	8
Value of Ticonderoga	61

E/V	0.868852
D/V	0.131148

WACC	4.998033	Say 5%
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E/V*Ke	4.657049	
E/V*Kd(1-T)	0.340984	
WACC	4.998033	Round to 5%

We use this WACC to discount the after Tax FCF from operations in order to get the enterprise value. We then subtract the value of debt to get the value of equity.

The suggested solution checks these calculations by discounting the residual operating income (ReOI) and gets the same value for equity.

Computation of Free Cash Flow

Operating Income After Tax	2,764	2,823	2,884	2,933
ΔNOA	1,370	2,448	936	955
Free Cash Flow (OI - ΔNOA)	<u>1,394</u>	<u>375</u>	<u>1,948</u>	<u>1,977</u>
Cash Flow Statement				
Dividends	1,000	1,000	1,100	1,100
Increase (Reduction) in Cash	500	-438	-15	-46
Reduction (Increase) in Debt	-426	-524	505	586
Interest on Debt	320	337	358	338
FCF	<u>1,394</u>	<u>375</u>	<u>1,948</u>	<u>1,978</u>

FCF	1,394	375	1,948	1,977
Discount Factor	1.050	1.103	1.158	1.216
DFCF	1328	340	1683	1627
Terminal Value				67,234
PVDFCF to 2019	4,977			
PVTV	55,314			
Enterprise Value	60,291			
Value of Debt	8,000			
Value of Equity	52,291			

Operating Income Aft Tax	2,764	2,823	2,884	2,933	
Capital Charge		2,150	2,219	2,341	2,388
ReOI		614	605	544	545
Discount Factor		1.050	1.103	1.158	1.216
Discounted ReOI		585	548	470	448
TV					18,525
PV of ReOI to 2019	2,051				
PV of TV	15,240				
Book Value	35,000				
Value of Equity	52,291				
Number of Shares	10,000				
Worth per share	5.23				

It is clear from the above that the company is worth pretty much what it is trading for. If one were to take the \$5.23 as an exact amount (which it is not – it is only an estimate) one would say Ticonderoga is slightly overvalued by the market.

This would suggest that Potemkin should not purchase Ticonderoga since it will have to have a premium (i.e. more than the current market price) to gain control.

- (b) However, we have not yet taken account of the synergies that the purchase of Ticonderoga would bring.

The benefits are given as a \$1 million saving on the cost of the factory and increased sales in both years 1 and 2 of 100,000 units. These increased sales would give incremental cash flows of \$500,000 in each year. The present value of these incremental cash flows discounted at 6% is \$471,698 + \$444,998 = \$916,696. Therefore we can add approximately \$1.92 dollars to the value of Ticonderoga.

The overpayment per share is 77 cent if Potemkin purchases Ticonderoga for \$6 per share. So the overall overpayment for Ticonderoga's 10 million shares is \$7,700,000. A check on this figure is that Ticonderoga is currently trading at \$53 million but is worth \$52.3. The difference is \$700,000. But Potemkin would have to pay a premium for control of \$7 million (\$60m less \$53m). There is an overall cost here of \$7.7 million dollars which outweigh the benefits of \$1.92 gained through synergies. Accordingly, the recommendation must be to expand into the US but unless a cheaper alternative can be found to Ticonderoga it would be best to set up a green field site in the USA.

SOLUTION 2

- (a) This answer demands some debate about whether the corporate tax advantage to debt is real or illusory. I am outlining a fairly comprehensive answer below but would not expect students to deal with all of these matters (particularly personal debt rates in their answers). However, I do expect some discussion on other market imperfections that will inhibit the ability of the firm and its shareholders to benefit from the corporation tax shield provided by corporate debt. For example bankruptcy costs of debt will become more apparent when the firm is highly levered. Increased leverage increases the probability of bankruptcy. This is because bankruptcy comes about when a firm is unable to meet its obligations to creditors. Leverage imposes a fixed cash flow obligation on companies and this increases the probability of default. Thus the expected value of bankruptcy costs is increased.

The adjustment of the cost of debt by multiplying by $1-T$ (where T is the corporation tax rate) assumes that there are usable tax shields from debt. Essentially one is assuming that the profits of the firm will be such over the term of the loan that the tax bill that otherwise would be paid on the firm's income is reduced by the interest payment on debt times the tax rate. Thus the operating profits after deducting non-debt tax shields (NDTS) must be $\geq$ the interest paid on the debt for each year of the loan. If a firm has many NDTS this may not be true. Note: personal taxes and agency costs and bankruptcy costs are also ignored.

MM (1963) on which the corporate tax adjustment is based suggests the more a firm borrows the more valuable it is. This is clearly incorrect. As the firm borrows more, the cost of debt, as well as that of equity will rise. We can only justify the adjustment within a moderate degree of leverage within which the benefits of paying less taxes are likely to accrue to the firm while there are no significant additional costs associated with the debt.

Modigliani and Miller (1963) is a simple extension of MM (1958) in that the only market imperfection that it takes into account is corporation tax. You are making the same assumption, that only market imperfection is corporation tax, when you multiply the cost of debt by $1-T$ when computing WACC.

However, we know that there are NDTS and that there are personal taxes. These will not matter if the personal tax rate on equity income (dividends and capital gains) is the same as the personal tax rate on income from debt (mainly interest). There will be a corporate tax advantage to debt.

Let the personal tax rate on income from debt

Let = the personal tax rate on income from equity.

Let = the corporation tax rate.

It can be shown that the corporate tax advantage to debt in the presence of personal taxes is. One Euro of operating income to equity becomes after corporate and personal tax. One euro of operating income to debt becomes). If more there is more money left from the stream of operating income after tax then there is an advantage to debt. In other words if this ratio > 1 there is a tax advantage to corporate debt. If it is less there is a tax disadvantage to debt. A euro of operating earnings to equity after tax is greater than a euro of operating earnings to equity: it is best not to borrow in such a scenario.

From this we can deduce that if personal taxes for debt and equity are equal we are back to MM (1963) i.e. a tax advantage to borrowing the above equation reduces to .

Also, if then there is no advantage to more or less borrowing so capital structure is irrelevant. We are back to the original MM (1958) provided there are no other market imperfections.

In the US the corporate tax rate is approximately 35% so there is likely to be some advantage to borrowing. Also individuals can pay very low tax rates on capital gains and dividends. The equation above is approximately $(1-.15)/(1-.15)(1-.35)$ which is > 1 .

In Ireland the corporate tax rate is only 12.5% which attenuates the tax shield generated by debt and the advantages of borrowing. If we assume that firms in Ireland borrow from Banks who also pay tax at the corporate rate the situation is far from clear since some of this money can flow to the debt and equity owners of the banks.

In the case of Ticonderoga I used the MM (1963) adjustment in computing the cost of capital since it has a very moderate degree of leverage (which implies no bankruptcy costs) and is operating in a high corporate tax environment.

- (b) If a company does not have sufficient cash it has a problem. However, Brian seems to have a problem in that Potemkin has too much cash and marketable securities. It may be a problem for Brian but it should not be a problem for the shareholders of Potemkin. If Potemkin cannot invest in positive NPV projects it can return the cash to the shareholder either through a special dividend or a share repurchase. The problem from Brian's point of view is that a persistent excess of cash could be perceived stemming from a paucity of ideas on his part regarding what to do with this capital. After all, shareholders can put money in the bank themselves. They do not need Potemkin to do this for them. Also a company with a cash mountain may become a takeover target. This is a good scenario for the shareholders but not management. The former can expect to receive a premium for their stock in the company and the latter might expect to lose their employment.

It is clear that if Potemkin did not have a project like the US one it should return the surplus cash to the shareholders. Brian, unlike the outside shareholders, does not appear to want the increased dividend. One problem that he may have is that it may increase expectations of more dividends in the future. But there are ways around this by declaring a once off special dividend or repurchasing shares.

- (c) Ticonderoga is in the same business, the manufacture of toys, as Potemkin accordingly, it could be classified as a horizontal merger.

Ticonderoga is operating in a different country to Potemkin therefore it can be classified as an international merger.

The premise behind the acquisition of Ticonderoga is to allow Potemkin access to its distribution channels in the US: this should provide quicker sales penetration to the US market. Accordingly, the proposed acquisition could be classified as synergistic rather than disciplinary.

SOLUTION 3

- (a) Potemkin sells Toys in Ireland. If it only did this it would have exchange rate exposure since many toys are imported especially from the far East and if the Euro strengthens against other currencies these imports will be relatively cheaper than Potemkin's toys. Thus even if it did not export a single toy Potemkin would be exposed to FX risk. This type of risk is long run economic exposure.

Potemkin also exports to the UK. It has two types of economic exposure here. There is the long run price exposure if sterling changes value. If sterling depreciates against the euro it will be more difficult for Potemkin to compete based on price. If sterling appreciates it will make Potemkin more competitive. An Irish exporter to the UK will typically have to invoice its customers in sterling. Accordingly, a sterling price will be set but the euro equivalent will not be received for a number of months. This makes the precise amount of euro to be received from a sale uncertain. This is transactions exposure.

- (b) Having operations in the US will add another dimension to the exchange risk that Potemkin faces. It will probably not face transactions exposure since it will be manufacturing toys in the US. However, to the extent that it exports some dolls from Ireland to the US it will face such exposure. Its economic exposure will take a different form. The value of its US assets in Euro terms will change as the dollar varies against the euro. If the dollar appreciates it will make Potemkin's US assets more valuable and if it depreciates the reverse will be true.

It will also face translation exposure since there will be dollar denominated assets in its balance sheet.

- (c) Mitigation of risks in (a)

1. Economic exposure to sterling – best borrow in sterling – but Potemkin has no need of borrowing so this is not really an option. It may want to get a listing on the AIM. This may be going too far (too expensive a technique) to mitigate the FX risk. It really depends on how sensitive the value of the company is to the GBP/Euro rate.
2. Transactions exposure – financial hedges – sell sterling forward or money market hedge.

Overall stay flexible and have a sterling bank account and monitor the cash flows to be received in that currency in the cash budget.

Mitigation of risks in (b)

1. Finance in dollars – the dollar receipts could be used to repay the dollar loans. The balance sheet would suggest however that no borrowings are required (the purchase of Ticonderoga is not recommended and the cost of the green field site and building the factory is only about \$2.5 million). Nonetheless there is a distinct corporate tax advantage to borrowing in the US as well. Thus borrowing should be seriously considered. This is especially so since there is clear debt capacity and the tax shield of debt ought to be valuable in the US. This approach would result in a substantial once off dividend being paid. This is a good scenario for the shareholders – thoughtful expansion with a positive NPV project and returns at the same time in the form of dividends.

- (d) The purchase of Ticonderoga would substantially enlarge Potemkin and in due course give Brian cause for a much higher salary.

The purchase of Ticonderoga is likely to be a negative NPV transaction but it is the only one of the two options that will use up the excess liquid assets of Potemkin.

The solution is clear from the shareholders perspective – expand organically. It is not quite so clear from the perspective of the management whose objectives may not be the same as those of the shareholders.

SOLUTION 4

- (a) Potemkin pays $\$7 \times 10$ million or \$70 million dollars for Ticonderoga.

The shareholders of Ticonderoga gain $(\$7 - \$5.30)$ by 10 Million = \$17,000,000

Potemkin is assumed to be fairly valued at 100 million by 1.20 = 120 million euro which translates to \$150.

Ticonderoga is fairly valued at \$5.3 by 10 million = \$53 million.

If there are synergies of \$20 million dollars then the combined company would be worth

$\$53\text{m} + \$150\text{m} + \$20\text{m} - \$2\text{m} = \$221\text{m}$.

Potemkin bought \$53 million worth of assets and \$20 m. in synergies = \$73 million:

It paid \$70 plus cost of \$2 = \$72 million

Therefore Potemkin gained \$1 million

The overall gain on the acquisition is $\$221 - \$150 - \$53 = \18 million

\$17 million goes to Ticonderoga's shareholders and \$1 million to Potemkin's shareholders.

- (b) Four shares of Potemkin are worth 1.20 by 4 = €4.80 which equates to \$6 (4.80×1.25)

If Potemkin uses this form of consideration it must issue 10 million by 4 = 40 million new shares. This will bring the total number of shares in Potemkin to 140 million.

Following the takeover the company will be worth \$221 million so each share is worth \$1.5786 dollars.

Potemkin's shareholders will own 100 million by \$1.5786 = \$157,857

Their shareholding was originally worth \$150 million so they have gained \$7,857.

In euros Potemkin gains €126.286m less €120m = €6.286m.

- (c) Ticonderoga's former shareholders will own $40 \times 1.5786 = \$63.143$ million.

Therefore they make a gain of \$63.143 million less \$53 million = \$10.143

The total gain comes to \$18 million as before.

- (d) Ticonderoga's shareholders make the same gains as in (a) above i.e. \$17 million.

Potemkin's shareholders now have assets worth $\$150\text{m} + \$53\text{m} - \$2\text{m} = \201 million.

They previously had assets worth \$150m and paid \$70 million so they have lost \$19.

The overall loss is equal to the transactions costs i.e. \$2 since there are no synergies.

This is made of a \$19 million loss to Potemkin's shareholders and a \$17 million gain for Ticonderoga's shareholders.

- (e) Under the share offer the combined company is now worth \$201 million.

So each share is worth $\$201\text{m}/140 = \1.436

Potemkin's shareholders are worth 100m by $\$1.43571 = \143.571

This is a \$6.429 reduction in value from \$150 million

Ticonderoga's shares are worth 40 by $\$1.43571 = \57.429 this is a gain of \$4.429 m from \$53m.

The overall loss is \$2m (\$4.429 less \$6.429). This \$2m is just the cost of the merger.

Note that it always useful to compute the total gain / loss and each group of shareholders participation in the gain or loss as a check on calculations.

There is a reduction in synergies of \$20 million relative to (b) above.

Potemkin's shareholders have gone from a gain of \$7,857 to a loss of \$6,429 i.e. a drop of \$14.286 million or 71.43 % of the \$20 of gains that disappeared. This is because the own $100/140 = 71.43\%$ of the combined firm. Similarly Ticonderoga's shareholders have gone from a gain of \$10.143m to a gain of \$4.429 a reduction of \$5.714 which is 28.57% of the 20 million fall in synergies. Ticonderoga's shareholders now own $40/140 = 28.57\%$ of the combined or merged firm.

Note that in the share transaction the target's shareholders share in any reduction in value from that originally expected unlike in the cash transaction.

- (f) First, the managers will now be managing a larger and more complex firm so on this basis can legitimately claim a pay rise: they gain. The firm may be larger and more complex but value can still be destroyed if the merger does not add to shareholder wealth, i.e. if too much is paid for it as in part (e) of this question.

Secondly, managers will be presiding over a more diversified firm. The firm's risk will have reduced. This will make the manager's position more secure since he has all of his human capital associated with the firm. However, if shareholders are already well-diversified there is no gain for them in the diversification of the firm. The managers may buy a firm that costs more than it is worth destroying shareholder wealth while at the same time improving their own risk profile. This is why conglomerate diversification is not good for shareholders.