December 2007

Question 1

Suntona plc is a UK specialist retailer and is considering a project in the US. There is no similar US company to Suntona. Suntona has an asset beta of 1.10, and a debt beta of 0.25. The stock market risk premium is 6% in both the UK and the US. Suntona's target debt-equity ratio is 40:60. The company's pre-tax cost of debt is 6.00%. The UK has a one year risk free rate of 4.50% – it is 2.75% in the US – and the term structure of interest rates is flat in both countries over the next five years. Suntona's tax rate is 30% (assume US tax rate also 30%).

Required:

a. What is the required rate of return (WACC%) on the project denominated in US dollars?
(7 marks)

b. Explain the two methods by which foreign projects can be evaluated.
(5 marks)

c. The spot rate is $1.90/£1. Calculate the forward rates for the next five years.
(4 marks)

d. The company has estimated that the project incremental cash flows (FCF*) for the next five years are $30m, $40m, $60m, $70m, and $30m, respectively. The initial outlay for the project is $135m. What is the NPV?
(6 marks)

e. Where do very good projects come from and why is it so hard to find and maintain them?
(8 marks)

Case Solution 1

(a) **What is the required rate of return (WACC%) on the project denominated in US dollars?**
(7 marks)

Cost of capital calculation

		Weighted beta
Asset beta	1.1	
Debt beta	0.25	0.1
Equity beta	1.6667	1
		1.1
risk free rate	0.045	
mkt risk prem	0.06	
re =	0.145	
rd =	0.06	

		Weighted cost	After tax	
cost of equity	0.145		0.0870	
cost of debt	0.06		0.0168	
tax rate	0.30		0.1038	**UK cost of capital**
equity weight	0.600		0.1038	10.38%
debt weight	0.400			

US cost of capital

0.0853 8.53%

The calculation:

$$1.0853\ (1 + \text{UK cost of cap}) \times \text{interest rate differential}$$
$$(1.1038 \times 0.9833) = 1.0853$$

(b) **Explain the two methods by which foreign projects can be evaluated.**
(5 marks)

Method 1 – take the foreign cash flows as given, work out a foreign discount rate, discount the cash flows by that, calculate NPV and convert it into £ at the current spot rate.

Method 2 – take the current spot rate and the interest rates that exist between the 2 countries and work out the forward exchange rates for each of the 5 years. Convert the foreign cash flows into domestic cash flows using the forward rates and discount the £ cash flows with the £ cost of capital. Calculate the NPV.

Both methods will provide the same answer.

(c) **The spot rate is \$1.90/£1. Calculate the forward rates for the next five years.**
(4 marks)

Forward exchange rate calculations

	Spot rate	Forward x/r – (two methods of calculating forward rates)				
Year	**0**	**1**	**2**	**3**	**4**	**5**
Exchange rate \$/£1:	**1.900**	1.868	1.837	1.806	1.776	1.746
	1.0275	US interest rate i.e. (1 + FORN)		calc is $1.900 \times [(1.0275)^n/(1.045)^n]$		
	1.045	UK interest rate i.e. (1 + DOM)				
Int rate differential:	1.900	1.868	1.837	1.806	1.776	1.746
0.9833	calc is 1.900 × int rate differential for yr1 then each fwd rate × int rate differential					

(d) **The company has estimated that the project incremental cash flows (FCF*) for the next five years are \$30m, \$40m, \$60m, \$70m, and \$30m, respectively. The initial outlay for the project is \$135m. What is the NPV?**
(6 marks)

Method 1: discount US\$ cash flows by a US interest rate, then convert NPV into £

[see cost of capital calc for discount rate]

Cash flows in \$		Discount rate = 8.53%					
Year	**0**	**1**	**2**	**3**	**4**	**5**	
Cash flow \$	–135	30	40	60	70	30	**US \$ cash flows**
1.0853	1	0.921	0.849	0.782	0.721	0.664	US \$
Disc cash flows	–135	27.64	33.96	46.93	50.45	19.92	\$43.91
							\$NPV

Convert the \$ NPV into £ using the spot rate, £NPV = £23.11

OR

Method 2: convert US\$ cash flows into £ using spot & fwd rates for years 0–5, then discount with UK interest rate

Cash flows in £		Discount rate = 10.38%					
Year	**0**	**1**	**2**	**3**	**4**	**5**	
Cash flow £	–71.05	16.06	21.78	33.22	39.42	17.18	**UK £ cash flows**
1.1038	1	0.906	0.821	0.744	0.674	0.610	discount factor
Disc cash flows	–71.05	14.55	17.87	24.70	26.55	10.49	**£23.11**
							£NPV

(e) **Where do very good projects come from and why is it so hard to find and maintain them?**
(8 marks)

Very good projects are hard to find. Companies cannot expect to earn high NPVs for long. The nature of competitive markets is that once other companies see the returns that a good project is making they will attempt to enter that segment of the market and start competing away the gains. The NPVs will start to fall. Very good projects can be attained if you have effective barriers that prevent other companies from copying or entering your market space. By building up a very special, trusted brand name, the company may be able to charge premium prices – as Apple did a few years ago with its i-pod range. The nature of markets is that the gains from very good projects will tend to be competed away. But companies should keep looking and try to harvest as many of these projects as they can.

Question 2

1. A company wishes to use more short term debt rather than longer term debt because it is usually cheaper. They also want to maintain a low level of current assets; current liabilities will make up a high proportion of total liabilities.
   Comment on the return and risk to the company from these actions. And discuss more generally return and risk with regard to managing a company's working capital.
   (10 marks)
2. For each of the main elements of working capital, explain how companies might exercise better control over these items.
   (10 marks)

Case Solution 2

1. **Comment on the return and risk to the company from these actions. And discuss more generally return and risk with regard to managing a company's working capital.**
   (10 marks)

   The company in question is being very aggressive in its working capital management. Short-term debt usually has a lower cost than long term debt, but it is riskier. Short-term debt has to be continually rolled over (renewed). Interest rates might rise, cash flows at the company may suffer a shortfall – a large customer may take longer than expected to pay their bills. If the company is short of cash and can not pay the bankers, it is likely to suffer penalties. Because the company is running such a high level of current liabilities and a low level of current assets, there may be times where it does not have enough inventory to meet demand, which will result in customers going elsewhere. On the surface it looks like the policy could boost profits – they are financing themselves at a cheaper rate, but this has to be weighed against the increased risks the company is taking.

   Looking at managing working capital, in general, we would ask are short term assets higher or lower risk than long term assets? Short-term assets are inventory, cash, marketable securities, etc. Long-term assets are plant, equipment, machinery, etc. Just examining the above list you can see that the short-term assets are very close to cash, whereas with the long-term assets they are more difficult to turn into cash. The short-term assets are more liquid; they can be turned into cash quickly without much loss in value. Short-term assets can have a wide range of uses by many companies, whereas the longer term assets are much more specific to particular companies, e.g. certain machines may have very limited uses, so there would not be many potential purchasers of the machines.

   The short-term assets have low risk so they will have low return also. The machinery cited above may have a unique use which may be able to generate very high rates of return because there are very few alternatives. So long term assets will generate greater rates of return.

   With regard to financing, short term financing is riskier because it has to be renewed or rolled over more often. There is a risk that the lender may not renew the borrowing. Longer term finance is taken out for years so there is not the same pressure on renewal.

The differences between short and long-term finance depend on the reversibility differences between the types of finance. The company agrees to service the debt for the term. Short term finance, if not needed, can be cancelled relatively quickly; this is not the case for long-term debt. Short-term finance has lower costs but this means higher returns. But if a firm has too high a level of long-term finance, it will be paying interest for the use of finance when the funds aren't needed.

A firm may adopt what is known as a maturity matching approach. This is where the firm would only be servicing long term debt when the business was in a seasonal trough; as the business picked up in its peak period, it would finance itself more with short term debt and the short term debt would be paid off with the cash generated from that peak in short term activity.

The risk and return characteristic of a firm's financing is that short-term financings exhibit relatively higher expected risk and return, and long-term financings, lower risk and return. This is the opposite of the risk return characteristic of its assets.

2. **For each of the main elements of working capital, explain how companies might exercise better control over these items.**

   (10 marks)

   The elements of working capital are, on the current assets side, cash, marketable securities, accounts receivable, and inventory. On the current liabilities side, there is accounts payable, and the short-term loans and other financings.

   Managers adopt policies for managing short-term assets. With cash and marketable securities, there may be a policy whereby if cash falls to a certain level, marketable securities will be sold to replenish the cash levels. A simple economic order quantity model can be used to determine the optimal reorder points, or the more sophisticated Miller-Orr cash replenishment model can be used. These models aim to minimise transaction costs and lost interest.

   Inventory management is similar to management of cash and marketable securities in that economic order quantity models will be used to minimise order costs and maintain inventory levels.

   Management of accounts receivable is more difficult. The company needs to get the balance correct between offering too much credit, which would boost sales, but may result in high bad debts, and too little credit, which will hold back sales in comparison, but minimise bad debts. The company can buy credit reference reports which will indicate the payment history of prospective customers. There is a cost to this, but it means the company might be able to avoid non-paying customers. Another way to manage the timing of the cash flow from customers is to offer discounts for early payment. Here the company has to be wary of just granting discounts to customers who would have paid on time anyway, and the company still has a bad debt problem.

   With regard to accounts payable on the current liabilities side, the question here will be: should the company pay early to take advantage of a discount offered by a customer? The company can work out the cost of finance if they do not take up the discount and pay early, comparing the company's short term borrowing cost against the rate implied by not taking up the discount. Usually the discount would be attractive to the company so should be taken up.

   Working capital is best seen as being 'managed' in an ongoing process, rather than being decided upon in discrete terms.

   The rule of thumb is to match maturities of assets and financings. This helps highlight the important differences between short- and long-term commitments which the company makes in its asset portfolios and financings and, in particular, the risk and return differences among them.

   Working capital management involves two levels of activity:

   – The 'hands-on' application of management techniques to specific asset and financing decisions (e.g. how much cash, or inventory to have on hand at any one time, what credit conditions to set for customers to buy on credit, or whether or not a discount should be taken by paying a supplier before a bill is finally due).
   – The optimal setting of policies for such decisions so that each of these small decisions is almost automatically determined by the company's well considered policy.

   Working capital management cannot be considered independent of a company's cash budget. Without a plan as to the generation and usage of cash over time, the best management techniques have no data upon which to operate. An up-to-date or real time cash budget is a necessity for effective working capital management.