

Ofood4U in 2004

Sarah Hall had been struggling to maintain the demands of the Chairmanship of the fast-growing company and family life, and felt that she could no longer cope with both. She was also rather worried about how quickly the company had grown and felt out of her depth. Sarah Hall was also concerned that her husband was too involved with the company and should be benefiting financially from the company's success, instead of investing in it further. At the Board meeting in March 2004, she resigned and it was agreed that Alan Hall would temporarily take over as Chairman, in addition to his responsibilities as Sales and Marketing Director. The company is currently considering what skills and characteristics are needed for the role of Chairman, prior to recruiting and appointing a new Chairman. The company is also looking to recruit two or three non-executive directors who would be able to bring fresh ideas and commercial experience.

In addition to Sarah Hall leaving the company in March 2004, another problem arose in early April 2004 when Jonathan Winters was taken ill. Jonathan Winters is responsible for all warehousing and distribution operations, and is currently still off sick from work suffering from a stress-related illness. At this early stage of his illness it is not known when he will return to work, or whether he will have to take early retirement.

Amy Mullen was very concerned that Ofood4U currently had over 280 employees and many of them had been told when they had been recruited that they would be able to participate in a share ownership scheme. However, at present only the original seven Directors hold shares in Ofood4U. The company wishes to raise finance for expansion and the Board was considering asking staff whether they wanted to invest in the company. It would also be relevant for the seven Directors themselves to consider whether they wished to invest further in the company.

At the Board meeting in March 2004, Derek Smythe stated that the company should be looking at ways to finance the company's expansion. He undertook to prepare a proposal for the next quarterly Board meeting in June 2004. Derek Smythe stated that he considered that the company should become listed in the future. While some Board members want to retain the company's independence, they remain to be convinced.

Derek Smythe was also worried that his small finance team was too inexperienced and overstretched to cope with the demands of the rapidly-expanding business. Furthermore, the additional time spent with Geddes Shah, identifying and implementing improvements to the IT systems to provide more reliable and timely management information, has taken up much of the time of his senior finance staff.

Expansion plans

The Internet and mail-order business was continuing to grow but with the increased competition, both in terms of price and choice, the company was starting to lose some of its customers, mainly to high-street supermarkets. Alan Hall felt that with the increased competition, the five-year plan (shown in *Appendix 3* on page 18) may have *overstated* turnover. It is estimated that the reduced level of turnover could adversely affect profits and cash flows generated by approximately 10%. The company is reviewing its current five-year plan and two new opportunities have arisen, aside from those that are included in the plan, as detailed below.

TURN OVER

Ofood4U shops

Richard Hall considers that Ofood4U should have more control over producing and selling its own brand goods and that the company should ensure that operational plans are put in place to achieve the five-year plan of operating 25 shops by the end of 2009. At the end of 2003, the company had two shops operational and a third shop was planned to open in November 2004. No further sites had yet been identified, although the company's five-year plan included the opening of between three and five shops each year. The plan assumed that all shops would be rented on a short-term basis.

The forecast capital expenditure included in the five-year plan is £6.6 million on fixtures and fittings and refrigeration equipment over the next five years for 22 shops. There is no capital expenditure planned for purchase of shops. The five-year plan shows that by 2009, the operating profit from Ofood4U shops will grow rapidly with the expansion of shops and will be £8.3 million, and will represent 45% of the company's operating profit. Even if the forecasts for operating profit are overstated by 10%, this new retail area of Ofood4U's business will be significant.

The first two shops are still loss-making and Richard Hall was losing confidence in Robert Cooper's ability to turn them into profitable shops. Alan Hall and Richard Hall were both confident that the locations of the two chosen shops were good and the shops had attracted some favourable publicity. They were starting to realise that perhaps Robert Cooper did not have the management skills necessary to manage the shops and motivate the staff. Furthermore, the company's IT systems are structured to monitor and provide management information on the home-delivery business. Very little management information is currently available for the retailing area of the business and the IT systems installed at the two Ofood4U shops that are operational have not proved satisfactory. Geddes Shah and Robert Cooper are currently reviewing whether the IT systems for shops should be replaced.

Ofood4U shops in FFT centres

In March 2004, a leading firm of garden centres, FFT, which was expanding in the UK, had approached Ofood4U. It wants to sub-let areas of its garden centres to a variety of shops. Ofood4U was offered up to 15 sites in the UK on a three-year trial. On detailed investigation of this proposal, Robert Cooper and Alan Hall considered that only the 10 larger FFT sites were suitable for possible Ofood4U shops. This possible route for expansion is *not* included in the five-year plan.

The terms of the arrangement are a royalty of 10% of turnover and a fixed annual rental for each site of £0.5 million per year for the three-year contract period (these cost items are included in the net after-tax cash flows shown in the table on page 23). FFT wants a firm commitment from Ofood4U to open outlets at a minimum of 10 sites and FFT requires an answer by July 2004. Derek Smythe continued to be very reluctant to expand too fast but prepared the forecast cash flows shown on page 23. A paper was being prepared by Derek Smythe for the June 2004 Board meeting, when it was envisaged that a decision on whether Ofood4U should open shops in FFT centres would be made. The company considers that a suitable risk-adjusted discount rate for evaluating this proposal is 12% post tax.

Both Richard Hall and Peter Collins, the Procurement Director, were in favour of this proposal and were flattered that Ofood4U had been offered this opportunity, which they felt would not arise again.

Figures below are for all ten shops at FFT centres:

	<i>Probability</i>	<i>2004 £ million</i>	<i>2005 £ million</i>	<i>2006 £ million</i>	<i>2007 £ million</i>
Capital expenditure		3.0	-	-	-
Net after-tax cash inflows:					
High growth	70%		5.5	6.9	8.9
Low growth	30%		1.2	1.5	1.6
Expected net after-tax cash inflows			4.2	5.3	6.7

The cash flows above are for all ten shops and they incorporate rental and royalty payments.

If Ofood4U decided to open shops in FFT centres, it has not yet been decided whether the company should put its planned expansion of other shops on hold or not.

Proposed strategic alliance with TZ

Ofood4U has extended its range of prepared organic foods, both packaged and bottled, to cover large ranges of foods, but at the end of 2003 it still had not launched its own brand of baby food. It was an area that Jane Cole had researched, and Ofood4U planned to launch a range of baby foods during 2005. This planned new range of baby foods is included in the figures shown in the five-year plan (shown as *Appendix 3* on page 18).

In May 2004, Ofood4U began talks with a leading international food manufacturing and retailing company, TZ plc (TZ), which has several divisions. The current turnover for the whole of TZ is £1,100 million. The baby food division of TZ is aware that a number of competitors in the baby food market have been selling a growing range of organic baby food for some time, and its current range of non-organic baby foods has experienced a significant decline in sales. It had considered the potential market for this product to be too small but is now more confident that a market exists. TZ has approached Ofood4U to form a strategic alliance to prepare and launch a new range of organic baby foods. The proposed strategic alliance with TZ is *not* included in the five-year plan.

The nature of the proposed strategic alliance would be that TZ and Ofood4U work together to manufacture, launch and sell branded baby foods in a legal arrangement, but there would be no exchange of equity between the two companies. TZ has drafted the strategic alliance whereby all cash flows, net of agreed shared costs, would be split **70% to TZ and 30% to Ofood4U**. TZ has stated that it is not prepared to offer Ofood4U a larger share of the strategic alliance, which it states it already considers generous, given the much smaller size of Ofood4U.

Under the strategic alliance, the proposed agreement would be that Ofood4U would be responsible for selection and procurement of organic produce, preparation of all recipes and foods and managing the food manufacturing process. Ofood4U would also have the responsibility of food packaging and labelling using the agreed joint brand names (Ofood4U and TZ), which would appear on all products. While TZ has offered that some of the manufacturing of the new range of organic foods could be undertaken within TZ's existing food processing plants, Ofood4U could choose to use its current food manufacturers for this new range.

TZ would be responsible for the distribution and sales of the new range of baby foods, through its supply chain to supermarkets, both in the UK and overseas. TZ would also be responsible for all marketing. It is envisaged that over 50% of sales would be outside of the UK. Alan Hall considers this an excellent opportunity to get the Ofood4U name established in households, and as a stepping-stone for expansion overseas and he welcomes the approach from TZ. He is also pleased that TZ has even approached Ofood4U and that this demonstrated what a strong reputation Ofood4U has already established.

TURN OVER

TZ has a number of conditions to this potential contract, which are as follows:

- three-year agreement to supply organically produced baby food;
- Ofood4U should not produce and sell any other organic baby foods during this three-year period.
- after three years, a new agreement may be negotiated but neither company would have any commitment to continue.

The total forecast net post-tax operating cash flows for baby foods produced under this strategic alliance are as follows:

	2004	2005	2006	2007
	£ million	£ million	£ million	£ million
Capital expenditure	2.7			
Total forecast net post-tax operating cash flows (due to TZ and Ofood4U)		11.0	13.7	17.0

It is assumed that the risk-adjusted discount rate for the proposed strategic alliance is 10% post tax.

Alan Hall has considered the implications for this proposed strategic alliance and feels that this is an opportunity that is unlikely to be offered to Ofood4U again. However, Richard Hall feels that Ofood4U does not need to form a strategic alliance to market a range of baby foods, and that the cash flows generated by sales in the UK will have to be shared with TZ. Richard Hall also argued that the fact that TZ has approached Ofood4U demonstrates that TZ considers that Ofood4U has a good reputation in the marketplace. He feels that he does not want the company to be dictated to by a large company such as TZ. Another fear that Richard Hall has stated is that if the strategic alliance was successful, then TZ could even consider making an offer for Ofood4U in the future, so as to secure its market share and sources of organic produce.

It was considered that this strategic alliance would require much management time and that Ofood4U would be unable to procure the volume of organic produce required if it also decided to open shops in FFT centres. Therefore, the company would *only* be able to expand into FFT centres *or* to manufacture baby food for TZ in a strategic alliance, *but not both*.

Ofood4U to sell its own range of baby foods

The five-year plan envisaged that Ofood4U would launch and sell its own range of baby foods from 2005, which it would be unable to do if it entered into the proposed strategic alliance with TZ. The forecast net operating cash flows that would result from the range of Ofood4U's baby foods that *are included in the five-year plan* are shown below. It is assumed that the risk-adjusted discount rate for the production of its own range of baby foods is 10% post tax.

	2004	2005	2006	2007	2008 onwards
	£ million	£ million	£ million	£ million	£ million
Capital expenditure	0.7				
Net post-tax operating cash flows for Ofood4U's range of baby foods		1.1	1.4	1.7	2.1

Cash flow requirements

For the first time, Ofood4U was planning to pay a dividend in 2004. Up until now all cash had been re-invested in the company and had either funded working capital or the purchase of assets, such as refrigeration and kitchen equipment and IT equipment.

At the end of 2003, all of the company's offices, warehousing and distribution operations were accommodated in rented premises on several sites located close to each other. The company was struggling to operate out of its existing premises and there was no room for any expansion. The five-year plan envisaged that the company would purchase and move to a purpose-built site that would accommodate all of the requirements for Ofood4U, assuming growth as shown in the five-year plan in *Appendix 3* on page 18. The cost of this move is forecast to be £18 million in 2006, and this new property would provide the company with a base that would be able to accommodate the business on one site, rather than the current arrangements spread over several sites.

The future after-tax cash flows, before interest and capital expenditure, is forecast in the five-year plan to be £59.0 million, as shown in *Appendix 3*. However, as stated in the *Expansion plans* section on page 21, Alan Hall now considers that this could be overstated by up to 10% and that a more realistic figure for the after-tax net operating cash flows before capital expenditure, loan repayments, interest and dividends is now forecast to be around £53 million. However, to achieve these cash flows, the planned capital expenditure would remain at £35.1 million, as shown in *Appendix 3*.

Valuation of Ofood4U

Many of Ofood4U's competitors, who are small, newly-established Internet trading companies, are also unlisted, and so valuation of Ofood4U is difficult. Some competing food retailing businesses, which are listed, have a P/E ratio of 12.0. The company's cost of capital is estimated to be 10% post tax.

Appointment of a consultant

With so many changes and new opportunities occurring within the company, Derek Smythe suggested to his fellow Directors that the company should obtain some external advice on its expansion plans. The other Directors agreed and asked Derek Smythe to organise this. In May 2004, Derek Smythe chose to ask the firm of accountants that he used to work for, and who had worked closely with Ofood4U in its initial years, to assist. The consultant appointed was familiar with Ofood4U's fast growth to date and has much experience with small companies.

The consultant was briefed on the opportunities that were currently available and about the company's current operations and future plans, and was asked to prepare a report for the next Board meeting in June 2004.

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Maths tables follow

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Present value table

Present value of \$1, that is $(1-r)^{-n}$ where r = interest rate; n = number of periods until payment or receipt.

Periods (<i>n</i>)	Interest rates (<i>r</i>)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149

Periods (<i>n</i>)	Interest rates (<i>r</i>)									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.079	0.065
16	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026

Periods (<i>n</i>)	Interest rates (<i>r</i>)									
	21%	22%	23%	24%	25%	26%	27%	28%	29%	30%
1	0.826	0.820	0.813	0.806	0.800	0.794	0.787	0.781	0.775	0.769
2	0.683	0.672	0.661	0.650	0.640	0.630	0.620	0.610	0.601	0.592
3	0.564	0.551	0.537	0.524	0.512	0.500	0.488	0.477	0.466	0.455
4	0.467	0.451	0.437	0.423	0.410	0.397	0.384	0.373	0.361	0.350
5	0.386	0.370	0.355	0.341	0.328	0.315	0.303	0.291	0.280	0.269
6	0.319	0.303	0.289	0.275	0.262	0.250	0.238	0.227	0.217	0.207
7	0.263	0.249	0.235	0.222	0.210	0.198	0.188	0.178	0.168	0.159
8	0.218	0.204	0.191	0.179	0.168	0.157	0.148	0.139	0.130	0.123
9	0.180	0.167	0.155	0.144	0.134	0.125	0.116	0.108	0.101	0.094
10	0.149	0.137	0.126	0.116	0.107	0.099	0.092	0.085	0.078	0.073
11	0.123	0.112	0.103	0.094	0.086	0.079	0.072	0.066	0.061	0.056
12	0.102	0.092	0.083	0.076	0.069	0.062	0.057	0.052	-	-
13	0.084	0.075	0.068	0.061	0.055	-	-	-	-	-
14	0.069	0.062	0.055	-	-	-	-	-	-	-
15	0.057	0.051	-	-	-	-	-	-	-	-

Cumulative present value of \$1 per annum, Receivable or Payable at the end of each year for n years $\frac{1-(1+r)^{-n}}{r}$

Periods (n)	Interest rates (r)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201
19	17.226	15.679	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.878	13.590	12.462	11.470	10.594	9.818	9.129	8.514

Periods (n)	Interest rates (r)									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870

Periods (n)	Interest rates (r)									
	21%	22%	23%	24%	25%	26%	27%	28%	29%	30%
1	0.826	0.820	0.813	0.806	0.800	0.794	0.787	0.781	0.775	0.769
2	1.509	1.492	1.474	1.457	1.440	1.424	1.407	1.392	1.376	1.361
3	2.074	2.042	2.011	1.981	1.952	1.923	1.896	1.868	1.842	1.816
4	2.540	2.494	2.448	2.404	2.362	2.320	2.280	2.241	2.203	2.166
5	2.926	2.864	2.803	2.745	2.689	2.635	2.583	2.532	2.483	2.436
6	3.245	3.167	3.092	3.020	2.951	2.885	2.821	2.759	2.700	2.643
7	3.508	3.416	3.327	3.242	3.161	3.083	3.009	2.937	2.868	2.802
8	3.726	3.619	3.518	3.421	3.329	3.241	3.156	3.076	2.999	2.925
9	3.905	3.786	3.673	3.566	3.463	3.366	3.273	3.184	3.100	3.019
10	4.054	3.923	3.799	3.682	3.571	3.465	3.364	3.269	3.178	3.092
11	4.177	4.035	3.902	3.776	3.656	3.544	3.437	3.335	3.239	3.147
12	4.278	4.127	3.985	3.851	3.725	3.606	3.493	3.387	3.286	3.190
13	4.362	4.203	4.053	3.912	3.780	3.656	3.538	3.427	3.322	3.223
14	4.432	4.265	4.108	3.962	3.824	3.695	3.573	3.459	3.351	3.249
15	4.489	4.315	4.153	4.001	3.859	3.726	3.601	3.483	3.373	3.268
16	4.536	4.357	4.189	4.033	3.887	3.751	3.623	3.503	3.390	3.283
17	4.576	4.391	4.219	4.059	3.910	3.771	3.640	3.518	3.403	3.295
18	4.608	4.419	4.243	4.080	3.928	3.786	3.654	3.529	3.413	3.304
19	4.635	4.442	4.263	4.097	3.942	3.799	3.664	3.539	3.421	3.311
20	4.657	4.460	4.279	4.110	3.954	3.808	3.673	3.546	3.427	3.316

FORMULAE

Valuation Models

- (i) Irredeemable preference share, paying a constant annual dividend, d , in perpetuity, where P_0 is the ex-div value:

$$P_0 = \frac{d}{k_{\text{pref}}}$$

- (ii) Ordinary (Equity) share, paying a constant annual dividend, d , in perpetuity, where P_0 is the ex-div value:

$$P_0 = \frac{d}{k_e}$$

- (iii) Ordinary (Equity) share, paying an annual dividend, d , growing in perpetuity at a constant rate, g , where P_0 is the ex-div value:

$$P_0 = \frac{d_1}{k_e - g} \text{ or } P_0 = \frac{d_0 [1 + g]}{k_e - g}$$

- (iv) Irredeemable (Undated) debt, paying annual after tax interest, $i(1-t)$, in perpetuity, where P_0 is the ex-interest value:

$$P_0 = \frac{i[1 - t]}{k_{\text{dnet}}}$$

or, without tax:

$$P_0 = \frac{i}{k_d}$$

- (v) Future value of S , of a sum X , invested for n periods, compounded at $r\%$ interest:

$$S = X[1 + r]^n$$

- (vi) Present value of £1 payable or receivable in n years, discounted at $r\%$ per annum:

$$PV = \frac{1}{[1 + r]^n}$$

- (vii) Present value of an annuity of £1 per annum, receivable or payable for n years, commencing in one year, discounted at $r\%$ per annum:

$$PV = \frac{1}{r} \left[1 - \frac{1}{[1 + r]^n} \right]$$

- (viii) Present value of £1 per annum, payable or receivable in perpetuity, commencing in one year, discounted at $r\%$ per annum:

$$PV = \frac{1}{r}$$

- (ix) Present value of £1 per annum, receivable or payable, commencing in one year, growing in perpetuity at a constant rate of $g\%$ per annum, discounted at $r\%$ per annum:

$$PV = \frac{1}{r - g}$$

Cost of Capital

- (i) Cost of irredeemable preference capital, paying an annual dividend, d , in perpetuity, and having a current ex-div price P_0 :

$$k_{pref} = \frac{d}{P_0}$$

- (ii) Cost of irredeemable debt capital, paying annual net interest, $i(1 - t)$, and having a current ex-interest price P_0 :

$$k_{dnet} = \frac{i[1 - t]}{P_0}$$

- (iii) Cost of ordinary (equity) share capital, paying an annual dividend, d , in perpetuity, and having a current ex-div price P_0 :

$$k_e = \frac{d}{P_0}$$

- (iv) Cost of ordinary (equity) share capital, having a current ex-div price, P_0 , having just paid a dividend, d_0 , with the dividend growing in perpetuity by a constant $g\%$ per annum:

$$k_e = \frac{d_1}{P_0} + g \quad \text{or} \quad k_e = \frac{d_0[1 + g]}{P_0} + g$$

- (v) Cost of ordinary (equity) share capital, using the CAPM:

$$k_e = R_f + [R_m - R_f]\beta$$

- (vi) Weighted average cost of capital, k_0 :

$$k_0 = k_e \left[\frac{V_E}{V_E + V_D} \right] + k_d \left[\frac{V_D}{V_E + V_D} \right]$$

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FLCS

*Management Accounting – Case
Study*

Thursday afternoon