University of Stellenbosch

Graduate School of Business

Financial Management

Group Assignment

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from: Group 5

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Declaration

Hereby We, Group 5 of the Fulltime MBA Class, declare that this group work is our own original work and that all sources have been accurately reported and acknowledged, and that this document has not previously in its entirety or in part been submitted at any university in order to obtain an academic qualification.

Bellville, 2002-06-27

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Contents

List of Tables

1 Introduction

The purpose of the assignment is to valuate an unlisted company looking at historical data and applying future projections. A firm within the IT support industry will be valuated in an analysis of the sales growth rate and the self sustainable growth rate, an application of the Du Pont analysis on the firm, a closer look at the funding structure and the optimal capital structure. The process of valuation will concentrate on an analysis of the free cash flow to firm and the free cash flow to equity as well as the weighted average cost of capital, the market value added and the economic value added.

2 The Industry

The IT industry is becoming increasingly difficult to categorise because many companies operate in multiple market segments. However the industry can be broadly divided into hardware, software and services segments.

Table 2.1 illustrates the key segments of the South African IT market as well as the vendor revenues per segment. The figures seem to be the latest available.

	1997	1998	1999	2000F	2001F
Computer Hardware	9 500	10 700	12 100	13 500	15 200
Software Products	3 300	3 900	4 700	5 600	6 700
IT Services	6 000	7 200	8 700	10 400	12 600
Overall Growth	18 700	21 800	25 400	29 500	34 500

Table 2.1: Vendor revenues in Major Segments of the IT Market in SA

Software and services markets continue to exhibit high growth rates of close to 20% per annum. Part of this growth is fuelled by a trend towards companies outsourcing more of their IT functions than ever before. Other stimulants are network implementation, and growth in applications such as enterprise resource planning. The company analysed forms part of the IT Services category.

3 Financial Statements

	1999	**2000**	**2001**	**2002F**
Revenue	R 2,453,940	R 3,023,676	R 3,268,485	R 3,464,594
Other Income	R 540	R 216	R 468	R 0
Interest received	R 540	R 216	R 468	R 0
Total Income	R 2,454,480	R 3,023,892	R 3,268,953	R 3,464,594
Expenditures	R 2,179,548	R 3,001,833	R 3,182,292	R 3,326,010
PBIT	R 337,392	R 29,835	R 89,235	R 145,098
Interest	R 62,460	R 7,776	R 2,574	R 6,514
PBT	R 274,932	R 22,059	R 86,661	R 138,584
Tax @ 30 %	R 0	R 576	R 26,001	R 41,575
PAT	R 274,932	R 21,483	R 60,660	R 97,009
Retained Income beginning	-R 295,047	-R 20,115	R 1,368	R 62,028
Retained Income ending	-R 20,115	R 1,368	R 62,028	R 159,037

Table 3.1: Income Statements

	1999	**2000**	**2001**	**2002F**
Assets				
Fixed Assets	R 97,947	R 70,227	R 40,374	R 20,539
Current Assets	R 122,976	R 26,973	R 56,898	R 223,753
Cash	R 59,940	R 26,973	R 56,898	R 223,753
Deferred Tax	R 63,036	R 0	R 0	R 0
$\sum$	R 220,923	R 97,200	R 97,272	R 244,292
Equity and Liabilities				
Equity	-R 16,290	R 5,193	R 65,853	R 162,862
Stockholders Equity	R 3,825	R 3,825	R 3,825	R 3,825
Retained Earnings	-R 20,115	R 1,368	R 62,028	R 159,037
Long term Loan	R 96,957	R 91,431	R 30,987	R 81,431
Current Liabilities	R 140,256	R 576	R 432	R 0
Accrued Tax	R 0	R 576	R 432	R 0
Accounts Payable	R 140,256	R 0	R 0	R 0
$\sum$	R 220,923	R 97,200	R 97,272	R 244,292

Table 3.2: Balance Sheets

4 Sales Growth Rate and SSGR

	1999	**2000**	**2001**	**2002F**
Sales Growth	40.00%	23.22%	8.10%	6.00%
SSGR	-94%	-132%	1168%	147%

Table 4.1: Sales Growth and SSGR

The Self Sustainable Growth Rate (SSGR) in table 4.1 is calculated according to Hawawini & Vialler (1999):

$$\text{SSGR} = \frac{\text{Retained Earnings}}{\text{Owners Equity}}$$

Looking at table 4.1 shows a very funny SSGR for 2000 and 2001, mostly because of negative or small figures for the Equity. Since the equity should show proper figures in the future, we can rely on the future figure for 2002.

To enable the firm to grow in the future, it needs a level of profit to sustian this growth rate. This growth could be financed by debt or an increase in shareholders equity or a mix of debt and equity.the sustainable groth rate can be considered as the maximum groth in sales the firm can afford without changing its present debt/equity raatio or operating profit margin and or capital turnover. The above table indicate that in the first and second year the SSGR is negative resulting from a negative equity. In 2001 the company had a positive SSGR as retained earnings increased at a larger propotion to dividends(which was zero). In 2002 we had a reasonable indication that the company can afford to grow given its growth rate of 6% and still finance this with its present debt/equity ratio.

5 Du Pont Analysis

	1999	**2000**	**2001**	**2002F**
Operating Profit Margin	0.14	0.01	0.03	0.04
Capital Turnover	30.42	31.29	33.75	14.18
Financial Cost Ratio	0.81	0.74	0.97	0.96
Financial Structure Ratio	-4.95	18.61	1.47	1.50
Tax Effect	1.00	0.97	0.70	0.70
Multiplied ROE	-16.88	4.14	0.92	0.60

Table 5.1: Calculated Values for ROE

The Return on Equity (ROE) shows the firms profitability, the management of its assets and the extent to which fincial leverage has been used. According to Damodaran (2001), ROE is computed using the following equation:

$$\text{ROE} = \frac{\text{PAT}}{\text{Book Value of Common Equity}}$$

Table 5.1 shows a negative ROE in 1999, derived from a negative Equity in the same year. The ROE could be levered up by increasing the amount of debt. As long as the firms RONA before interest and tax does not exceed the interest paid on debt, the firm could add debt resulting in a higher leverage and higher ROE.

ROE is a measure of the profitability of the firm s equity capital i.e. owners funds. The ROE is considered as the most comprehensive indicator of profitability as it is the final outcome that include all firms activities and decisions made during a given year. These activities include investing, financing and tax related decisions and operating decisions. As the equity was R (16,290) for the first year we will dicard this and thus not consider this in our analysis. The ROE in the later years is better, which indicate that a operating profit is at a good level compared to equity.

6 Capital Structure

	1999	**2000**	**2001**	**2002F**
Invested Capital				
Cash	R 59,940	R 26,973	R 56,898	R 224,292
WCR	-R 77,220	-R 576	-R 432	R 0
Net FA	R 97,947	R 70,227	R 40,374	R 20,000
$\sum$	R 80,667	R 96,624	R 96,840	R 244,292
Capital Employed				
Equity	-R 16,290	R 5,193	R 65,853	R 162,862
LTL	R 96,957	R 91,431	R 30,987	R 81,431
$\sum$	R 80,667	R 96,624	R 96,840	R 244,292

Table 6.1: Managerial Balance Sheets

Firms should choose the mix of debt and equity by trading off the benefit of borrowing against the cost. There are three alternative views of how firms should choose the financing mix. Where the firm is in the life cycle, by looking at other firms in their business and firm's have a strong preference as to the kind of financing they will use.

This firm is in the start-up faze of the companies life cycle. There are no tax benefits to the company in 1999 because of the loss the company uncured. Bankruptcy cost will be very high because of negative and low earnings the first three years, agency cost are very high as firm has almost no assets. Low amounts of debt are uncured because of the firms need for flexibility, the firm look for ways to establish it self.

Analyzing the managerial balance sheet can give an indication of the companies capital structure. There is no working capital requirement, and that is because of the nature of the business. Invested capital as a percentage of revenues is small. 1999 3,2%, 2000 3,2%, 2001 2,9%.

From 1999 to 2001 the company made use of long-term debt to finance fix assets.

7 Optimal Capital Structure

It is important to determine the capital structure where firm value is maximised. To establish this level, the optimal level of debt as expressed in the debt to equity ratio should be determined. The levered value can be expressed using the following formula:

$$V_L = V_U + PV_{ITS} - PV_{CFD} \tag{7.1}$$

According to Hawawini & Vialler (1999), the optimal level is where the increase in the present value of financial distress cost (PV_{CFD}) from extra borrowing is equal to the increase in the present value interest tax shield (PV_{ITS}). This means that the 1st differentiations must be equal at this optimal point. Since the estimations of bancrupcy cost made by Damodaran (2001) are not taking into account higher probabilities for higher amount of debt, other equations should take place for this. The exponential equation

$$PC_{CFD} = 2 \cdot 0.50 \cdot 0.2 \cdot \left[1 + \left(\frac{D}{E}\right)^2\right] \cdot E$$

take the higher cost for higher level of debt into account. The probability for bancrupcy is 0.5 and the cost is estimated as 20 % of assets, taking one plus the square of the debt to equity ratio in order to highlight the riskyness of debt. In this equation, the level of cost is 20 % of assets at a debt to equity ratio of 1.

$$PV_{ITS} = \text{Debt} \cdot T_C = \frac{D}{E} \cdot E \cdot T_C \tag{7.2}$$

$$PV_{CFD} = 2 \cdot 0.5 \cdot 0.3 \cdot \left[1 + \left(\frac{D}{E}\right)^2\right] \cdot E \tag{7.3}$$

The first differences are then computed as follows:

$$\begin{aligned} PV'_{ITS} &= E \cdot T_C \\ PV'_{CFD} &= 2 \cdot 0.5 \cdot 0.3 \cdot 2 \cdot \frac{D}{E} \cdot E \end{aligned}$$

These 1st differences can be set equal to each other, and we get the value for the debt to equity ratio. The figure for E is – based on the nature of the D/E ratio – 1.

$$\begin{aligned} T_C &= 0.6 \cdot \frac{D}{E} \\ \frac{D}{E} &= \frac{0.3}{0.6} = \mathbf{0.5} \end{aligned}$$

Sure, we used a lot of assumptions in order to get to the figure, and the easiest way would have been to look at the comparable company Datatech (which has a D/E ratio 0.5). For the predicted years we used this figure, which was already close to the D/E ratio utilised by the unlisted company (0.47).

8 Valuation

In the valuation of a firm there must be a distinction between the value of the firm's assets and the value of its equity. In the first method, the valuation by comparables, the information of the listed company, Datatech was used. Datatech's primary business function is IT support and consulting. The unlisted company, under valuation, has IT support as its main function.

Datatech's levered Alsi40 beta is 1.97 with a debt/equity ratio of 0.5 and corporate tax rate of 30%. The unlevered beta was calculated as 1.459. In the calculation of the optimal capital structure in chapter 7, the optimal debt/equity ratio of the unlisted company was calculated as 0.5. The cost of equity was calculated as 22.64%, using the following equation:

$$C_E = R_f + \beta_L \cdot (R_m - R_f) \tag{8.1}$$

A 11.8 % risk-free rate[1] and a market risk premium $(R_m - R_f)$ of 5.5%[2] is used in this case. The current Cost of Debt for our campany is 8 %.

The weighted average cost of capital (WACC) was determined by using the following equation:

$$\text{WACC} = R_E \cdot \frac{E}{D+E} + R_D \cdot (1 - T_C) \cdot \frac{D}{D+E} \tag{8.2}$$

The WACC percentage was calculated as 16.96%. and reflects the proportion of debt and equity employed to finance the assets and their respective costs.

The valuation of the unlisted company's assets is estimated by making use of the discounted cash flow (DCF) approach. According to the DCF method, the value of an asset is determined by the capacity of that asset to generate future cash flows. To estimate the DCF value of a

[1] Based on long term government bond (R150) yield in SA.

[2] The 5.5% world market risk premium is similar to that used by Stulz (1995). We did not take into account a country risk premium.

company's assts, the expected cash flows that the asset will generate in the future must first be calculated and then discounted at a required rate of return (WACC) that reflects the risk.

The future cash flows to the firm (FCFF) were calculated using the following formula:

$$\text{FCFF} = \text{EBIT} \cdot (1 - T_C) + \text{Depreciation} - \Delta\text{WCR} - \text{Net Capital Expenditures} \quad (8.3)$$

The FCFE is basically the FCFF minus Interest. All the calculated figures are shown in table 8.1 on page 11. The residual value of assets (FCFF) at the end of year 2006 was calculated to the amount of R 1,113,564, as a constant future growth rate of 3% is expected. The DCF value of assets at 16.96% (WACC), was calculated and the total market value of the firm equals R 914,184. The DCF value of the FDFE values gives us the Market value of

	2002	**2003**	**2004**	**2005**	**2006**	**2007**
Revenue	3,464,594	3,637,824	3,783,337	3,934,670	4,092,057	
Expenditures	3,326,010	3,455,933	3,594,170	3,737,937	3,887,454	
PBIT	145,098	193,499	206,071	219,146	232,744	
Interest	6,514	11,607	16,904	22,413	28,142	
PBT	138,584	181,891	189,167	196,734	204,603	
Tax @ 30 %	41,575	54,567	56,750	59,020	61,381	
PAT	97,009	127,324	132,417	137,713	143,222	
FCFF	95,584	128,065	135,377	142,981	150,890	150,890
FCFE	89,070	116,458	118,473	120,569	122,748	122,748
Residual FCFF						1,113,564
Residual FCFE						905,880
Disc. FCFF	81,726	93,623	84,619	76,415	68,950	508,851
Disc. FCFE	76,156	85,137	74,053	64,437	56,091	353,933

Table 8.1: DCF figures

equity of R 709,806. By deducting the Value of equity from the value of the firm, we get the market value of debt (R 204,377).

Maximising MVA is consistent with maximising shareholder's value. The MVA value of a firm increases when positive net present value cash flows are generated. The drivers for value creation are return on invested capital (ROIC), cost of capital (WACC) and the firm's ability to grow. The return spread is ROIC minus WACC, representing an increase in value creation when positive and decrease in value creation when negative. The MVA can be computed using the following equation:

$$\text{MVA} = \frac{(\text{ROIC} - \text{WACC}) \cdot \text{Invested Capital}}{\text{WACC} - \text{Constant Growth Rate}} \tag{8.4}$$

	1999	**2000**	**2001**	**2002F**
SGR	40%	23,22%	8,10%	6,00%
ROIC	292,78%	30,88%	92,15%	59,40%
EVA	R 222,496	R 13,451	R 72,814	R 103,674
MVA	-R 965,555	-R 214,851	R 821,806	R 946,222

Table 8.2: Market Value Added

In the case investigated positive economic value adding (EVA) cash flows were generated in all the historic and future years. The market value adding (MVA) in the years 1999 and 2000 was negative because of Sales Growth higher than WACC and thereafter turned positively in the following years. The firm has shown a very high growth in 1999 and 2000, but high growth alone can not necessarily generate positive market value adding.

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