

# Generally accepted accounting principles and carlton



The Carlton Polish Company Duisenberg School of Finance 04-03-2013 1.

Comparable Economic Laboratory (EL) is like Carlton a leading manufacturer in chemical supplies. However this company is much bigger, internationally operating and directly supplying to end-users, mainly institutions. The product range being offered is most in line with the products offered by Carlton Polish. Another comparison is the compounded growth rate of sales: EL has a growth rate of 13% and Carlton of 14.59%. To further add on that, the working capital turnover rates are quite similar. Nonetheless of some small differences, EL would be a good comparable. See appendix, exhibit 1.1 and 1.2) Crompton & Knowles (CK) has a broader product range than Carlton. Next to that the company also manufactures plastic and rubber extrusions machines that tend to be more cyclical than the other products. On top of that, the compounded growth rate of CK's sales is negative (-3.9%), and the return on assets is substantially lower. This makes CK a weaker comparable for Carlton. NHC Corporation has a broader product range than Carlton, because it also provides welding supplies and replacements parts for electricity and plumbing.

However the company is also growing fast and has a similar return on sales. NHC is not a strong comparable, since the product differences seem to be too large. Oakite Products is also a producer of chemical supplies, but provides these products as an integral part of the manufacturing process and also engages in contract cleaning. Their product range therefore differs with respect to the contract cleaning. But looking at the return on assets and sales, this company also seems to be a rather good comparable. For the

valuations the weighted average of the betas of Oakite and Economics Laboratory are therefore used for the cost of equity.

Economics Laboratory is a better comparable for the reasons mentioned above, and will just be weighted more heavily than Oakite. These betas however should first be de-levered and consequently be levered to adjust for Carlton's leverage structure. 2. Cost of Capital Because the debt level is significantly changing in the Carlton Polish case we have chosen to use the Adjusted Present Value method as a more accurate valuation method. Consequently, we have not used the WACC as the cost of capital as it assumes that the leverage remains the same.

We deliberately chose to value the company without debt and therefore the appropriate cost of capital for this case is the riskiness of assets. Debt is in this case thus assumed to be riskless and have a beta of 0 (see Exhibit 2. 1). Apart from this we have valued the tax shield separately and discounted it with the cost of debt. Beta assets:  $\beta_{\text{Equity}} * \text{Equity} / (\text{enterprise value})$  Cost of capital: CAPM with the beta of assets instead of the equity beta. Overall, we get to a cost of assets of 15.46%. 3. Valuation Adjusted Present Value As mentioned above we have used the Adjusted Present Value for Carlton's valuation.

As we found the 'base' case proforma a bit too enthusiastic, we have looked at 3 different scenarios; worst case, base case and best case. The difference between these scenarios is mostly the sales growth and relating cost of goods sold etc. For the inputs such as sales we have used the ratios given in the proforma shown below. Table 1: Assumptions | Worst| Base| Best| Sales

growth (annual growth)| 9%| 10%| 11%| COGS (% of sales)| 55, 30%| 54, 80%| 54, 30%| SG&A (% of sales)| 24, 80%| 24, 30%| 23, 80%| Exec. salaries (annual growth)| 10%| 10%| 5%

Current Assets (% sales)| 22, 60%| 23, 10%| 23, 60%| Current Liabilities (% sales)| 9, 50%| 9, 00%| 8, 50%| Net fixed assets (% sales)| 1, 20%| 1, 70%| 2, 20%| Stable Growth| 2, 50%| 3, 50%| 4, 50%| With our base case scenario we get to a firm value of \$8. 027. 430 plus a present value of the tax shield of \$972. 150. The terminal value of the tax shield consists of: Outstanding debt\*  $\frac{R_d}{1+g}$  Overall, by putting different weights on the scenarios we get to a purchase price of \$2. 226. 340. \*Note that we assumed that the interest rate, tax rate and inflation rate remained stable.

Relative valuation When looking at the relative valuation we have used the P/E ratios of Oakite Products and Economics Laboratory as there were found to be the most comparable companies (see Q1). We put a weight of 65% on Economics Laboratory as we found this to be a better fit and a weight of 35% on Oakite. By using the relative valuation method we get to a firm value of \$9. 796. 600 and a selling price of \$3. 187. 580 (Exhibit 2. 2) Table 2:

Valuation outcomes (in thousands) Concluding from the valuation above, we would advise Charlie Carlton to buy the shares of Jim Miller.

We base our advice on the APV valuation purchase price as we feel like the relative valuation does not provide us with a representative estimate. We do not consider the relative valuation since in our opinion the comparable firms are too different from Carlton to use their P/E ratios. As we can see from our NPV valuation, the purchase price as a weighted average of the different

scenarios lies below the estimated selling price of \$2. 500. 000. If Charlie would pay the \$2. 500. 000 he would overpay by  $\pm$ \$300. 000. We therefore advise Charlie to pay not more than \$2. 226. 000 for the 50% share of the company (Exhibit 2. ). However, with this advice we do assume that Charlie will be able to pay back the corresponding bank loan to finance the deal.

#### 4. Term Sheet

When a bank provides a loan, it wants to make sure that the borrower repays the debt. Looking at Carlton's profile, they seem like a good loan candidate based on the company's growth rate, which has been in excess of the industry growth for the past years. Furthermore, the company's margins have been stable. On top of that, based on the valuation shown above, the Debt Service Coverage Ratio is after including all the debt higher than one (Exhibit 4. 1) and the Interest Service Coverage Ratio is also higher than 1 (Exhibit 4. 2), even in the worst case. This shows us that the company would be able to fully repay its debt and interest. The bank could therefore safely finance the company without being afraid of credit risk, but should change their term sheet. The bank is providing senior debt with an overall low interest rate, which should be secured by collateral as unforeseen circumstances can change even worse predicted scenario. The bank may not necessarily receive the full amount owed by Carlton, because for instance taxes will always have a higher priority.

If the bank asks for underlying collateral, this can be sold to repay the loan. As such, senior debt is considered lower risk and carries a relatively low interest rate. To even further limit the risk for the bank, the term sheet can be more improved. The bank should change the term concerning executive compensation. Right now the executives are able to even increase their

compensation based on the growth of sales. We believe that their also should be a clause included that the compensation could also be adjusted downwards with negative growth.

There is also nothing mentioned about the possibility that the company might not be able to pay the interest or the debt payments. The company needs to have some incentive to make the repayment prior to other expenses, for instance by charging a fee in the case of an overdue payment. Another incentive could be that the bank will have some control in the company's operations in the case the company lags in its payments. This could be a good strategy to detect bad management behavior or bad financial circumstances. Terms that also could be changed are all related to the constraints put on the operational aspect of Carlton.

All the constraints on working capital, capital expenditures and not entering another lease agreement constrain Carlton in the sense of future growth prospects. With no big expansion possibility for the next 5 years it is hard to see how Carlton will continue to be such a high growth company in the long-run. It would be better to have fewer constraints on the terms and make the max amount they can spend on capital expenditures, working capital and the ability to enter into a lease agreement as a percentage of the sales. 5.

Default

The financing is structured for this transaction in the following way: \$2. 5 million will be paid for Miller's part of which \$ 1. 5 million will be paid cash. This cash will partly come from a loan with the bank of \$1, 365, 000. The other part of the cash payment will be paid by using excess cash of \$135,

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000. The remainder will be paid by a \$1 million note to Miller (See Exhibit 5. 1). When looking at the Standard&Poor's median financial ratio rating to see whether the debt raised is too high, we look at all the three scenario's that are plausible for Carlton and the relative rating (See exhibit 5. ). We can see that the interest coverage ratio fulfills the BBB rating and only in the worst case scenario does the interest and full rental coverage reach the lowest rating (BB). The operating income and sales ratio shows a high rating. We can thus conclude that according to this rating there is no real reason to foresee default. The debt with this bank loan would not be too high. As seen in question 4, the Debt Service Coverage Ratio is also good enough even in worse scenario's to cover its entire principal payments and interest.

Therefore according to this ratio we can conclude that the debt from this bank loan will be covered for its entire maturity and is not too high. We also looked at the Z-ratio's. Edward Altman developed Altman's Z in 1968. Altman's Z is a multiple discriminant which analyses the financial health of a company and provide a useful decision rule to predict financial distress in firms. Based the financial statement of 1982 and the formula for private companies, the Altman's Z indicates that the company with a score of 5. 08 is very stable/safe, even after restructuring with a score of 6. 01. See exhibit 5. 3) This also indicates that the company will not fall into bankruptcy. 6. Alternative ways of financing The company needs to raise half of its actual value to buy out the shareholder so " Mr. Carlton takes active control of the company again". This buy-out constitutes as a management buy-out. In order to get a total share owning of 100% of the company, Carlton would have to get debt funding to prevent other owners from entering the firm.

Concerning his objective to obtain funding to pay-out Miller and get 100% control over the company, this seems like the best strategy.

However, if Carlton would not mind to give up some of his ownership, there are more options available. The first possibility would be debt in the form of warrants which are convertible into a form of common stock might be a possibility to finance the buy-out of Miller. This however gives the holders of the warrants control in the company according to the amount they invest in and when they convert it. Another way of financing the transaction is to take the company public by an IPO. By using such a strategy to raise capital, Carlton also has a source of funding for future financing needs, while getting rid of Miller.

Unfortunately the feasibility is questionable since Carlton is a small company, even though the company's growth rate has been in excess of the industry growth for the past years, and the company's margins have been stable. The attractiveness of Carlton's stock to investors would also be questionable, since dividends will probably not be paid out as show in the past, and the salary of the director is high, which will make the return on equity for the investor less. Concluding, with this method Carlton will be able to get rid of Miller, but will not have 100% control.

Another option to get rid of Miller is to let another buyer in, e. g. a strategic buyer. This could be a company that for instance needs the distribution channel or factory of Carlton, and thus want to have a share in the company. But, also in this case, control of Carlton will probably go to the shareholders whom acquire Miller's part. Financing by a VC would not be feasible, since



they finance start-up companies with some innovative technology or service, which goes hand-in-hand with a lot of monitoring and control of the VC in the company.

Private Equity financing could also not be plausible since they usually take-over the whole undervalued company, which is not performing well, and with the right management they make it operate better. In contrast, Carlton is already performing well in the terms of growth and sales. Financing by crowd funding or business angels would also not be feasible since Carlton is no start-up and the actual reason of the funding is to buy-out the other shareholder.

Appendix Exhibit 1. 1 Comparable Carlton| Economics Laboratory| Crompton| NCH Corporation| Oakite| Sector| Chemical supplies for cleaning| Chemical supplies for cleaning| Chemical supplies for cleaning| Chemical supplies for cleaning| Chemical supplies for cleaning| Products & services| Chemical supplies to the independent distributor industry| Cleaning and sanitizing products and related chemical specialties and equipment for the application of the products| Specialty chemicals and plastics and rubber extrusion machinery| maintenance products as specialty chemicals, replacement fasteners, welding supplies and replacement electrical and plumbing parts| Proprietary chemical products for cleaning and treating metal and contract cleaning| Customers| Consumers and distributors| Mostly institutions| -| -| -| Distribution channel| Independent distributors| Distribute directly to end-users| -| -| -| Geography| Only situated in the US and has mostly the Eastern part of Northern America| Internationally situated and spread over the US| -| -| -| Exhibit 1. 2 Comparable by ratio

Ratios| Carlton| Economics Laboratory| Crompton| NCH Corporation| Oakite|  
 Working capital| \$1. 384. 000 | \$118. 400. 000 | \$51. 000. 000 | \$113. 000.  
 000 | \$16. 500. 000 | Working capital turnover| 6, 72| 5, 66| 4, 18| 3, 08| 4,  
 58| Growth in sales (Compounded)| 18, 50%| 13, 00%| -3, 90%| 10, 10%| 7,  
 90%| Debt-to-equity ratio| 628%| 94%| 88%| 30%| 40%| Long-term-debt-to-  
 total-capital ratio| 79%| 34%| 28%| 3%| 6%| Debt-to-total-assets ratio| 48%|  
 97%| 44%| 21%| 28%| Return on sales| 3%| 5%| 2%| 4%| 4%| Return on  
 common stockholders' equity| 87%| 15%| 8%| 9%| 12%| Return on assets|  
 11%| 8%| 4%| 6%| 8%| Enterprise Value| Not known | \$535. 763. 520 | \$213.  
 696. 00 | \$216. 560. 000 | \$47. 436. 000 | Exhibit 2. 1 Cost of capital Input|  
 Assumptions| Risk free rate| 13, 0%| Economic report of the president| Asset  
 Beta| 0, 33 | | Equity Beta| 2, 70| 65% Economics Laboratory & 35% Oakite|  
 Debt Beta| 0, 00| | Risk Premium| 7, 4%| | Debt| 3. 421. 440, 00 | Existing  
 loan, Bank loan, Seller note| Equity| 480. 000, 00 | Retained earnings| D/E| 7,  
 13| | Cost of debt| 16, 1%| Interest rate long-term BBB bonds - 1982| Cost of  
 equity| 33, 02%| | Cost of Assets| 15, 46%| | Tax| 52%| Exhibit 11-3 Case|  
 Prime Lending| 11, 5%| Wall Street Journal| Market Return| 20, 42%|  
 Damodoran| | | Exhibit 2. Input relative valuation Name| Lev. Beta| Unlev.  
 Beta| P/E| Total LT-debt| Total equity| Economics Laboratory| 1, 1| 0, 76| 11,  
 1x| 206. 600 | 220. 000 | Oakite Products| 0, 55| 0, 46| 13, 3x| 10. 700 | 27.  
 000 | Carlton | 2, 70| 0, 61| 12, 2x| 3. 421. 440 | 480. 000 | Relative Valuation  
 | 9. 796, 60 | | | | Exhibit 2. 3 Proformas Adjusted Present Value- Base Case  
 Adjusted Present Value- Best Case Adjusted Present Value- Worst Case  
 Exhibit 4. 1 Debt Service Coverage Ratio Exhibit 4. 2 Interest Service  
 coverage Ratio Exhibit 5. 1 Capital structure for the buy-out Exhibit 5. 2  
 S&P's financial ratings  
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Best case scenario| 1983| 1984| 1985| 1986| 1987| average| rating| Pretax Interest Coverage base case| 3, 17 | 4, 09 | 5, 20 | 6, 70 | 9, 21 | 5, 67 | BBB| Pretax Interest and Full Rental Coverage| 1, 99 | 2, 60 | 3, 18 | 3, 89 | 4, 92 | 3, 31 | BBB| Cash Flow/ Long-term Debt| | | | | | | | Cash Flow/ Total Debt| | | | | | | | Pretax Return on Average Long-Term Capital Employed| | | | | | | | Operating Income/Sales| 14, 76%| 15, 60%| 16, 04%| 16, 44%| 16, 82%| 15, 93%| AA| Long-term Debt/Capitalization| | | | | | | | Total Debt/Capitalization including Short-term Debt| | | | | | | | Total Debt/Capitalization including Short-term Debt (including | | | | | | | |

Base case scenario| 1983| 1984| 1985| 1986| 1987| average| rating| Pretax Interest Coverage base case| 2, 92 | 3, 68 | 4, 57 | 5, 76 | 7, 77 | 4, 94 | BBB| Pretax Interest and Full Rental Coverage| 1, 83 | 2, 34 | 2, 79 | 3, 35 | 4, 15 | 2, 89 | BBB| Cash Flow/ Long-term Debt| | | | | | | | Cash Flow/ Total Debt| | | | | | | | Pretax Return on Average Long-Term Capital Employed| | | | | | | | Operating Income/Sales| 13, 70%| 14, 28%| 14, 48%| 14, 67%| 14, 83%| 14, 39%| AA| Long-term Debt/Capitalization| | | | | | | | Total Debt/Capitalization including Short-term Debt| | | | | | | | Total Debt/Capitalization including Short-term Debt (including | | | | | | | |

Worst case scenario| 1983| 1984| 1985| 1986| 1987| average| rating| Pretax Interest Coverage base case| 2, 67 | 3, 33 | 4, 08 | 5, 09 | 6, 78 | 4, 39 | BBB| Pretax Interest and Full Rental Coverage| 1, 67 | 2, 12 | 2, 49 | 2, 96 | 3, 62 | 2, 57 | BB| Cash Flow/ Long-term Debt| | | | | | | | Cash Flow/ Total Debt| | | | | | | | Pretax Return on Average Long-Term Capital Employed| | | | | | | | Operating Income/Sales| 12, 63%| 13, 16%| 13, 31%| 13, 44%| 13, 55%| 13, 22%| A| Long-term Debt/Capitalization| | | | | | | | Total Debt/Capitalization

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including Short-term Debt | | | | | Total Debt/Capitalization including Short-term Debt (including | | | | | | Altman Z score

It diagnose the probability that a firm will go bankrupt within a two-year period. Although, studies of Altman's Z have yielded mixed results. Higher values indicate that firms " carry out more actions at a fast pace, while low scores indicate that firms carry out few total actions and respond slowly". Users should look at the trend of the business over time as they interpret the score rather than just looking at the score, which is only a snapshot in time. The predictions varied due to the instability of relationships among the variables within the equation over time. Altman Z score It diagnose the probability that a firm will go bankrupt within a two-year period. Although, studies of Altman's Z have yielded mixed results.

Higher values indicate that firms " carry out more actions at a fast pace, while low scores indicate that firms carry out few total actions and respond slowly". Users should look at the trend of the business over time as they interpret the score rather than just looking at the score, which is only a snapshot in time. The predictions varied due to the instability of relationships among the variables within the equation over time. Exhibit 5. 3 Z-ratio's

Balance Sheet	1982	restructured	1982	restructured	Assets	Liabilities
Cash	€ 459	€ 209	Accounts Payables	€ 376	€ 376	
Accounts Receivable	€ 1. 480	€ 1. 80	Current maturities	€ 60	€ 60	
Inventory	€ 413	€ 413	Other current liabilities	€ 461	€ 461	
Other current assets	€ 44	€ 44	IRS tax settlement	€ 115	€ -	
Total current assets	€ 2. 396	€ 2. 146	Total current liabilities	€ 1. 012	€ 897	
Net plant & equipment	€ 100	€ 100	Long-term debt	€ 1. 228	€ 3.	

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593 | | Other fixed assets| € 62 | € 62 | Shareholders' equity| € 318 | € 2.  
 182-| | Total assets | € 2. 558 | € 2. 308 | Total liabilities| € 2. 58 | € 2. 308 | |  
 | 1982| 1983| Working capital| € 1. 384 | | Retained Earnings| € 162 | | EBIT|  
 € 803 | € 1401, 70 | Sales | € 9. 303 | | Interest| € 179 | € 480, 00 | \*base  
 case EBIT for 1983 | Altman Z formula| 1982| Restructured| X1=| Working  
 capital / total assets| 0, 54| 0, 60| X2=| Retained earnings/total assets| 0, 06|  
 0, 07| X3=| Earnings before taxes and interest/total assets| 0, 31| 0, 61|  
 X4=| Equity/total liabilities| 0, 12| -0, 95| X5=| Sales/total assets| 3, 64| 4,  
 03| Z=|  $0, 717 * X1 + 0, 847 * X2 + 3, 107 * X3 + 0, 42 * X4 + 0, 998 * X5$ | 5, 08| 6, 01|  
 Outcome shows: \* 1. 23 or less - " Distress" Zone| \* From 1. 23 to 2. 9 - "  
 Grey" Zone| \* 2. 9 or more - " Safe" Zone|