

Duport analysis: the number game

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DuPont Analysis: Playing The Numbers Game! The summary of this case is that a newly joined CFO of a company, Plastichem Inc. , was able to turn the company's unfortunate situation around when he first arrived. Yet, five years later, Plastichem has gone through some difficult times including their stock price/ratings severely dropping with no understanding as to why. The case ends with the CFO attempting to figure out what went wrong with the numbers he was given. To determine the liquidity, we used the quick ratio, current ratio, and interest coverage ratio.

From these equations, the higher the ratios meant the better of the company's financial condition, or more liquidity. The acceptable ratios vary from different industries. In general, company's quick ratio should be 1 or higher, and its current ratio should be above 1.5 to be considered liquid. In the comparison between two companies' ratios, DCM Molding has shown a better financial condition on average in the past four years, and Plastichem has barely met the acceptable average or is below the average in the past four years. Quick Ratio = (Cash and marketable securities + A/R + Other Current Asset)/ Current Liabilities | Year| 2004| 2003| 2002| 2001| Plastichem| 0.86| 1.141| 1.039| 0.826| DCM Molding| 0.99| 0.93| 1.114| 1.568| | Year| | 2004| 2003| 2002| 2001| Plastichem| 1.301| 1.523| 1.462| 1.309| DCM Molding| 1.632| 1.518| 1.826| 2.095| | Year| | 2004| 2003| 2002| 2001| Plastichem| 0.763| 1.9113| 1.962| 2.442| DCM Molding| 4.667| 1.217| 4.217| 8.6| To measure the leverage, we calculated the debt-equity ratio. Plastichem had a relatively high Debt-Equity Ratio, which indicated that Plastichem was using many debts to finance its growth.

High Debt-Equity Ratio also indicated that Plasticchem bore more risk because the cost of debt (interest). The company would make more profit if the incremental profit exceeds the incremental cost of debt; however, the company may lose more money/ make less money if the incremental profit is less than the incremental cost of debt.

Year	2004	2003	2002	2001
Plasticchem	-19.331	5.076	4.862	1.355
DCM Molding	1.192	1.477	1.274	0.714

To determine the profitability, we calculate the Profit Margin, ROE, and ROA. By looking at the ratios, Plasticchem's profit has dropped in the past four years.

The high leverage may have enlarged the loss of the company. On the other hand, DCM Molding has shown a steady income/profit over the years.

Year	2004	2003	2002	2001
Plasticchem	-24.14%	0.68%	3.45%	5.65%
DCM Molding	5.91%	6.19%	5.37%	5.09%

Year	2004	2003	2002	2001
Plasticchem	?	3.53%	6.38%	17.30%
DCM Molding	17.76%	18.64%	17.44%	10.95%

Year	2004	2003	2002	2001
Plasticchem	-26.90%	0.58%	1.09%	7.34%
DCM Molding	8.10%	7.53%	7.66%	6.39%

A common size balance sheet is a different type of balance sheet that shows each dollar amount in a form of percentage of a common number from the actual balance sheet. Common size balance sheet is useful in comparing companies that have a different scale of operations. This type of balance sheet helps in observing at the firms as a common sized and it also helps in comparing the changes in various segments over a period of time.

PLASTICHEM INCORPORATED				
	2004	2003	2002	2001
Sales	100.00%	100.00%	100.00%	100.00%
Cost of Sales	74.81%	62.76%	63.39%	65.04%
Gross				

Operating profit| 25. 19%| 37. 24%| 36. 61%| 34. 6%| Selling, General & Admin. Expenses| 13. 27%| 18. 54%| 18. 66%| 20. 73%| EBITDA| 11. 92%| 18. 71%| 17. 95%| 14. 23%| Depreciation & Amortization| 6. 16%| 5. 51%| 5. 82%| 4. 41%| EBIT| 5. 76%| 13. 20%| 12. 12%| 9. 82%| Other Income, Net| -0. 17%| 0. 20%| 0. 12%| 0. 08%| Total Income Avail for Interest Exp. | 5. 59%| 13. 40%| 12. 24%| 9. 90%| Interest Expense| 7. 54%| 6. 90%| 6. 18%| 4. 02%| Minority Interest| 0. 00%| 0. 00%| 0. 00%| 0. 00%| Pre-Tax Income| -1. 95%| 6. 50%| 6. 06%| 5. 88%| Income Taxes| 0. 03%| 0. 71%| 2. 61%| 0. 23%| Special Income/Charges| -22. 15%| -5. 10%| 0. 00%| 0. 00%| Net Income from Cont.

Operations| -24. 14%| 0. 68%| 3. 45%| 5. 65%| Net Income from Discont. Oper. | 0. 00%| 0. 00%| 0. 00%| 0. 00%| Net Income from Total Operations| -24. 14%| 0. 68%| 3. 45%| 5. 65%| Normalized Income| -1. 99%| 5. 78%| 3. 49%| 5. 65%| Extraordinary Income| 0. 00%| 0. 00%| 0. 00%| 0. 00%| Income from Cum. Eff. of Acct. Chg. | 0. 00%| 0. 00%| 0. 00%| 0. 00%| Income from Tax Loss Carryforward| 0. 00%| 0. 00%| 0. 00%| 0. 00%| Other Gains| 0. 00%| 0. 00%| -2. 02%| 0. 00%| Total Net Income| -24. 14%| 0. 68%| 1. 43%| 5. 65%| PLASTICHEM INCORPORATED| | | | Annual Balance Sheets (Values in millions)| | | | 2004| 2003| 2002| 2001|

ASSETS | | | | Current Assets| | | | Cash and marketable securities| 1. 20%| 1. 40%| 1. 47%| 0. 60%| Accounts receivable| 17. 34%| 17. 33%| 14. 74%| 21. 03%| Inventory| 10. 31%| 7. 01%| 7. 44%| 12. 88%| Other Current assets| 1. 54%| 2. 21%| 2. 03%| 0. 40%| Total Current Assets| 30. 40%| 27. 94%| 25. 68%| 34. 91%| | | | Non-Current Assets| | | | Property, Plant & Equipment, Gross| 35. 44%| 28. 70%| 25. 85%| 47. 99%| Accumulated depreciation &

	2004	2003	2002	2001
Depletion	14.41%	9.13%	8.15%	19.42%
Property, Plant & Equipment, Net	21.03%	19.57%	17.71%	28.57%
Intangibles	45.67%	50.07%	53.53%	33.0%
Other Non-Current Assets	2.90%	2.41%	3.09%	3.52%
Total Non-Current Assets	69.60%	72.06%	74.32%	65.09%
Total Assets	100.00%	100.00%	100.00%	100.00%
LIABILITIES AND EQUITIES				
Current Liabilities				
Accounts payable	7.71%	6.92%	6.03%	9.76%
Short Term Debt	2.48%	1.63%	1.03%	3.92%
Other current Liabilities	13.17%	9.80%	10.50%	12.98%
Total Current liabilities	23.36%	18.35%	17.56%	26.66%
Non-Current liabilities				
Long-term debt	80.96%	64.35%	65.38%	30.89%
Deferred Income Taxes	0.00%	0.00%	0.00%	0.0%
Other Non-Current Liabilities	1.13%	0.84%	0.00%	0.00%
Minority Interest	0.00%	0.00%	0.00%	0.00%
Total Non-Current Liabilities	82.09%	65.19%	65.38%	30.89%
Total Liabilities	105.46%	83.54%	82.94%	57.55%
Shareholder's Equity	0.00%	0.00%	0.00%	0.00%
Preferred Stock Equity	0.00%	0.00%	0.00%	0.00%
Common Stock Equity	-5.46%	16.46%	17.06%	42.45%
Total equity	-5.46%	16.46%	17.06%	42.45%
Total liabilities and Stock Equity	100.00%	100.00%	100.00%	100.00%
DCM MOLDING				
Annual Balance Sheets (Values in millions)				
Current Assets				
Cash and marketable securities	0.33%	1.25%	0.47%	8.06%
Accounts receivable	19.87%	18.36%	20.31%	19.44%
Inventory	14.32%	13.34%	14.69%	10.83%
Other Current assets	1.89%	1.48%	2.19%	4.72%
Total Current Assets	36.40%	34.44%	37.66%	43.06%
Non-Current Assets				
Property, Plant ; Equipment, Gross	47.28%	42.08%	43.44%	56.39%
Accumulated depreciation ;				

Depletion| 17. 20%| 12. 66%| 11. 09%| 10. 83%| Property, Plant ; Equipment,
 Net| 30. 08%| 29. 42%| 32. 34%| 45. 56%| Intangibles| 33. 0%| 35. 46%| 28.
 44%| 5. 28%| Other Non-Current Assets| 0. 22%| 0. 68%| 1. 56%| 6. 11%|
 Total Non-Current Assets| 63. 60%| 65. 56%| 62. 34%| 56. 94%| Total Assets|
 100. 00%| 100. 00%| 100. 00%| 100. 00%| | | | | LIABILITIES AND EQUITIES| |
 | | | Current Liabilities| | | | Accounts payable| 7. 66%| 8. 10%| 8. 28%| 5.
 56%| Short Term Debt| 7. 44%| 6. 61%| 4. 22%| 7. 50%| Other current
 Liabilities| 7. 21%| 8. 10%| 8. 28%| 7. 50%| Total Current liabilities| 22. 31%|
 22. 69%| 20. 63%| 20. 56%| | | | | Non-Current liabilities| 0. 00%| 0. 00%| 0.
 00%| 0. 00%| Long-term debt| 28. 63%| 31. 93%| 29. 22%| 15. 00%

Deffered Income Taxes| 0. 11%| 0. 57%| 0. 00%| 3. 89%| Other Non-Current
 Liabilities| 3. 33%| 4. 45%| 6. 09%| 2. 22%| Minority Interest| 0. 00%| 0. 00%|
 0. 00%| 0. 00%| Total Non-Current Liabilities| 32. 08%| 36. 94%| 35. 31%| 21.
 11%| Total Liabilities| 54. 38%| 59. 64%| 55. 94%| 41. 67%| | | | |
 Shareholder's Equity| 0. 00%| 0. 00%| 0. 00%| 0. 00%| Preferred Stock
 Equity| 0. 00%| 0. 00%| 0. 00%| 0. 00%| Common Stock Equity| 45. 62%| 40.
 36%| 43. 91%| 58. 33%| Total equity| 45. 62%| 40. 36%| 43. 91%| 58. 33%| |
 | | | | Total liabilities and Stock Equity| 100. 00%| 100. 00%| 100. 00%| 100.
 00%| DCM MOLDING| | | |

Annual Income Statements (Value in Millions)| | | | 2004| 2003| 2002| 2001|
 Sales| 100. 00%| 100. 00%| 100. 00%| 100. 00%| Cost of Sales| 66. 83%| 64.
 85%| 64. 76%| 62. 96%| Gross Operating profit| 33. 17%| 35. 15%| 35. 24%|
 37. 04%| Selling, General & Admin. Expenses| 17. 23%| 18. 65%| 19. 60%|
 22. 22%| EBITDA| 15. 94%| 16. 49%| 15. 64%| 14. 81%| Depreciation &
 Amortization| 4. 61%| 4. 40%| 4. 32%| 4. 86%| EBIT| 11. 33%| 12. 09%| 11.

32%| 9.95%| Other Income, Net| 0.00%| 0.00%| -0.12%| -0.23%| Total
 Income Avail for Interest Exp. | 11.33%| 12.09%| 11.20%| 9.72%| Interest
 Expense| 2.43%| 2.16%| 2.0%| 1.16%| Minority Interest| 0.00%| 0.00%|
 0.00%| 0.00%| Pre-Tax Income| 8.90%| 9.93%| 9.10%| 8.56%| Income
 Taxes| 2.99%| 3.75%| 3.73%| 3.47%| Special Income/Charges| 0.00%| 0.
 00%| 0.00%| 0.00%| Net Income from Cont. Operations| 5.91%| 6.19%| 5.
 37%| 5.09%| Net Income from Discont. Opers. | 0.00%| 0.00%| 0.35%| 0.
 00%| Net Income from Total Operations| 5.91%| 6.19%| 5.72%| 5.09%|
 Normalized Income| 5.91%| 6.19%| 5.37%| 5.09%| Extraordinary Income|
 0.00%| 0.00%| 0.00%| 0.00%| Income from Cum. Eff of Acct. Chg. | 0.
 00%| 0.00%| 0.00%| 0.00%| Income from Tax Loss Carryforward| 0.0%| 0.
 00%| 0.00%| 0.00%| Other Gains| 0.00%| 0.00%| 0.00%| 0.00%| Total
 Net Income| 5.91%| 6.19%| 5.72%| 5.09%| We can see that the cost of the
 sales has been increasing for both the companies. But, the cost of goods sold
 for DCM is less than that of Plastichem. This indicates that DCM has been
 better at controlling their cost so they have a higher gross margin as
 compare to Plastichem. This reduction in the gross profit has lead to the
 reduction on the expenses occur due to selling the goods, but since DCM has
 a higher gross profit than Plastichem, they can also spend more in selling
 their goods.

Plastichem also has more debt compare to DCM, due to which they have a
 higher interest expenses compare to DCM. A DuPont analysis helps us better
 understand the changes in return on equity (ROE). DuPont analysis tells us
 that three things affect ROE: operating efficiency, asset use efficiency, and
 financial leverage. Therefore we break up ROE into its components: $ROE =$

Profit Margin (PM) * Total Asset Turnover (TAT) * Equity Multiplier (EM) |
 2004| Return on Equity| Net Profit Margin| Total Asset Turnover| Equity
 Multiplier| | | | | Plastichem| 0. 00%| -24. 07%| 1. 12| 0. 00|

DCM| | 17. 76%| 5. 91%| 1. 37| 2. 19| | 2003| | | | | | | | | Plastichem| 3.
 53%| 0. 68%| 0. 85| 6. 08| DCM| | 18. 64%| 6. 19%| 1. 22| 2. 48| | 2002| | | |
 | | | | | Plastichem| 6. 38%| 1. 47%| 0. 74| 5. 86| DCM| | 17. 44%| 5. 72%| 1.
 34| 2. 28| | 2001| | | | | | | | | Plastichem| 17. 30%| 5. 65%| 1. 30| 2. 36|

DCM| | 10. 95%| 5. 32%| 1. 20| 1. 71| If we look at the figures we find that
 the reduction in ROE for Plastichem is mainly due to the drop in net profit
 margin. Plastichem increased their use of debt, which resulted in a higher
 EM, but poor PM ensured the fall of ROE.

For DCM, on the other hand, we see that it has been fairly constant as well
 as ROE components. Some of the limitations regarding the various financial
 analyses above are: Many companies near the year or quarter end improve
 the appearance of their figures presenting them in the most attractive way
 possible. The miss misrepresentation of numbers makes the analysis more
 difficult. The analysis may also be unclear by inflation as general price levels
 for goods and services go up and subsequently purchasing power goes
 down, which makes comparison difficult over time.

Many firms also use different accounting methods which make comparing of
 different companies difficult for instance there are two primary accounting
 methods used in USA, cash and accrual accounting. Cash accounting reports
 income and expenses are reported in the year they are received and paid;
 accrual accounting reports income and expenses in the year they are earned
 and incurred. Again making it very difficult to analyze different companies.

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Some additional data Jay and Jack need in order to improve their finding would be to look into the companies accounting practices and see if any off balance sheet items are present.

From there they need to make sure the off balance sheet items are converted to in the balance sheet items to have an appropriate comparison. A statement of cash flows would also be useful in analysis, as it would allow in determining the short-term viability of a company, particularly its ability to pay bills. A statement of cash of cash flows also allows us to view cash and cash equivalents coming in and out of company, giving better understanding as to where money is going and coming from.

Also although looking at numbers may allow analysis to quickly spot differences in financials, I believe you must research companies in how they are run and if they are consistently making good business decisions. After collecting, compiling, and analyzing data we have come to conclusion that DCM Molding has shown a better financial condition on average in the past four years, and Platichem has barely met the acceptable average or is below the average in the past four years. The Platichem had a relatively high Debt-Equity Ratio, which indicated that was using many debts to finance its growth.

The high Debt-Equity Ratio also indicated that Platichem bore more risk because the cost of debt (interest) making things difficult. The cost of the sales for both the companies have increased. But, the cost of goods sold for DCM is less than Platichem. This indicates that DCM has been better at controlling their cost so they have a higher gross margin as compare to Platichem. This reduction in the gross profit has lead to the reduction on the

expenses occur due to selling the goods, but since DCM has a higher gross profit than Plastichem they can also spend more in selling their goods.

So in comparison we see that DCM Molding is doing far better with its figures showing much better results than Plastichem. Recommendation that Jack would be justified in making in his report to Andrew would be Plastichem needs to increase profit margin after looking at the figures we find that the decrease in return on equity for Plastichem is mostly due to the drop in net profit margin. Plastichem increased their use of debt that resulted in a higher equity multiplier, but poor profit margin ensured the fall of return on equity.

Plastichem had a relatively high Debt-Equity Ratio, which indicated that Plastichem was using many debts to finance its growth. It should be treated as a serious problem being that Plastichem's main rival is rated as a strong buy while their stock is rated as a hold. The strong drop in price will create fear for potential and current shareholders. If that fear continues, Plastichem's shareholders might sell their stock at a decreasing rate, causing more issues for the company.

The CFO should do a comparison between Plastichem and DCM's numbers, and find the strengths and weaknesses amongst his company, in particular within its management teams. He should also begin finding ways to pay off Plastichem's debt as well as not accumulating anymore, being that Plastichem is already seen as risky. The CFO should also find a tighter way to control the company's costs. The analysts are very accurate in their recommendations to the two firms. DCM Molding figures showed far better results and stock should rise; While Plastichem might consider selling stocks, if financial performance continues to worsen.