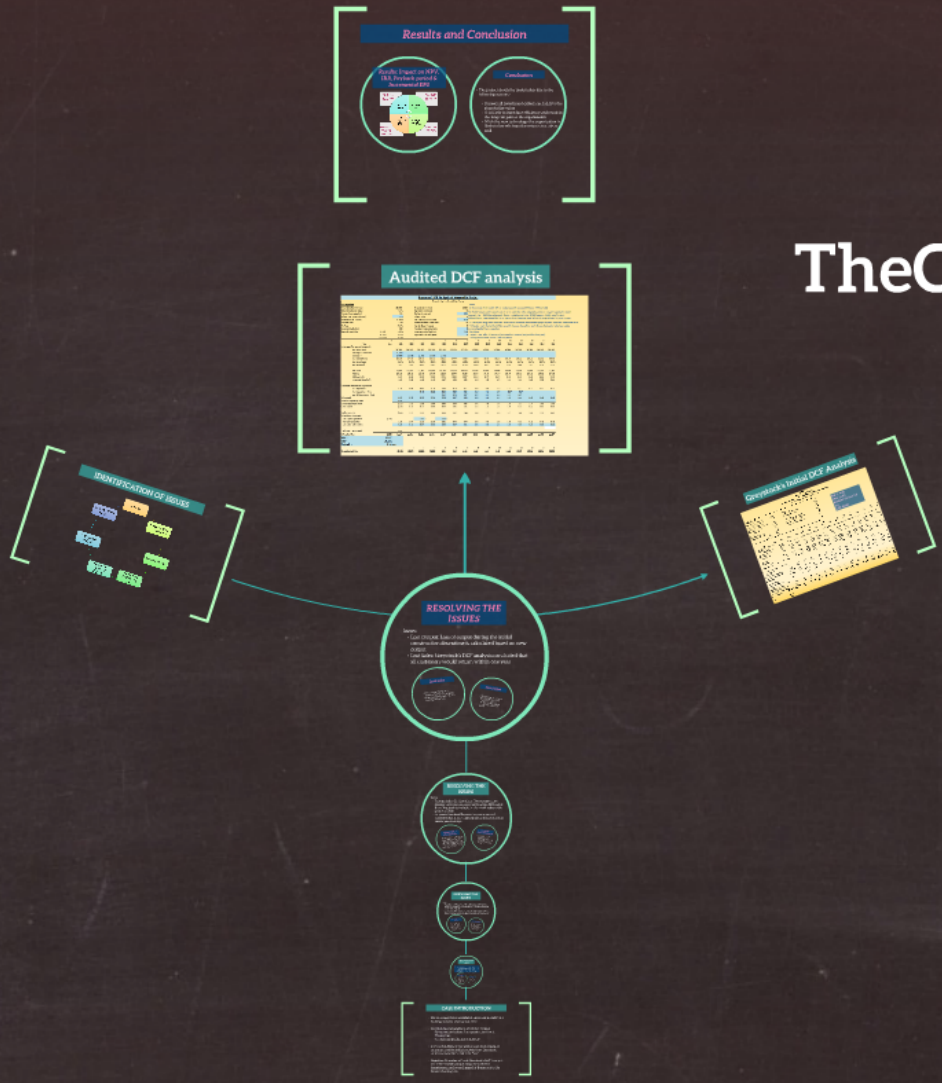

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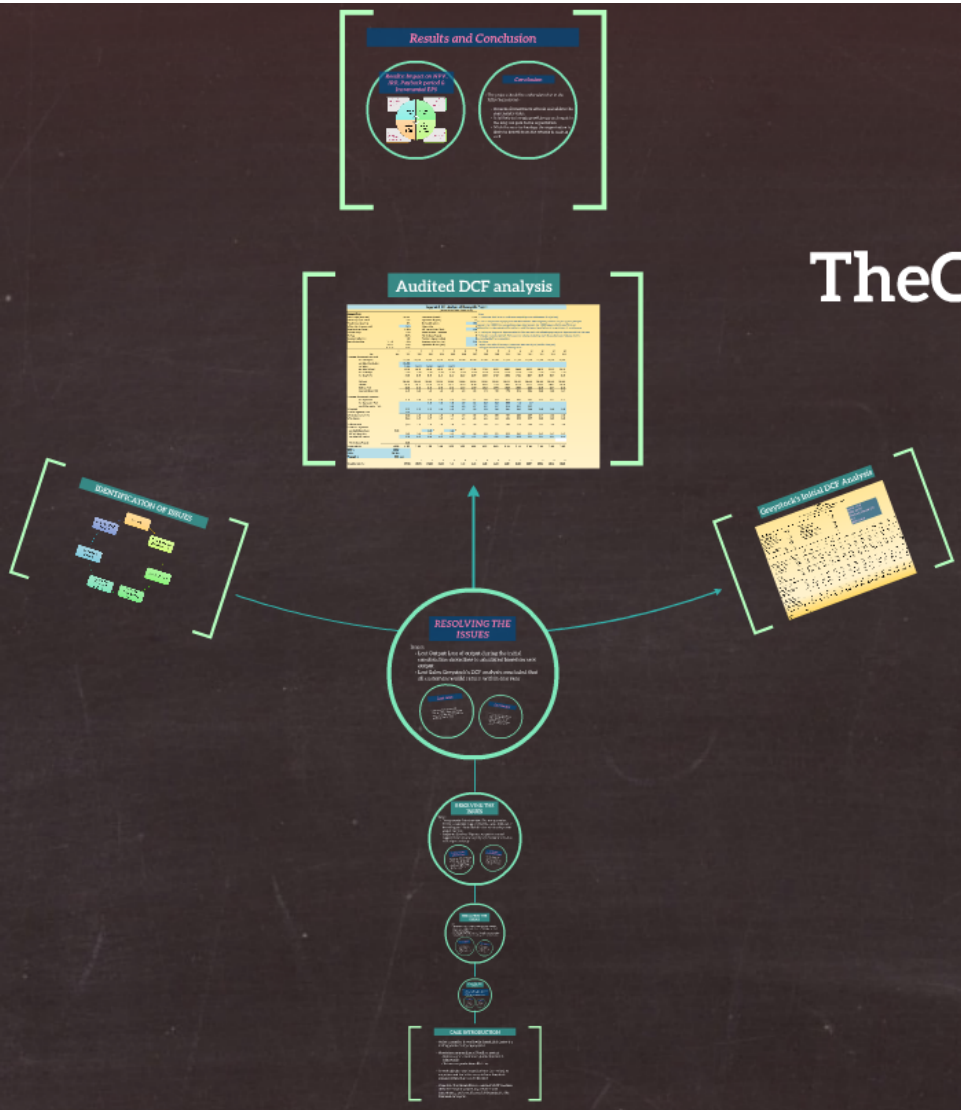
Diamond Chemicals PLC (A): The Merseyside Project



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Diamond Chemicals PLC (A): The Merseyside Project

BY -

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Project Risk and Cost Management

Jose M. Cruz, Ph.D.

CASE INTRODUCTION

- Major competitor in worldwide chemicals industry & a leading producer of polypropylene
- Morris is recommending a £9 million project;
  - Renovate and rationalize a production line at Merseyside
  - To increase production efficiency
- Several objections to the project have been raised at corporate, and the initial analysis from Greystock contains errors that need to be fixed
- Objective: To evaluate Frank Greystock's DCF Analysis of the Merseyside project, impacts to related departments, and overall appeal of the project to the Diamond enterprise.

Greystock's Initial DCF Analysis

Exhibit 2

DIAMOND CHEMICALS (A)

Frank Greystock's DCF Analysis of Merseyside Project

(Financial values in millions of British Pounds)

Assumptions			
Annual Output (metric tons)	250,000	Discount rate	10.0%
Output Gain/Original Output	7.0%	Depreciable Life (years)	15
Price/ton (pounds sterling)	541	Overhead/Investment	3.5%
Inflation Rate (prices and costs)	0.0%	Salvage Value	0
Gross Margin (ex. Deprec.)	12.50%	WIP Inventory/Cost of Goods	3.0%
Old Gross Margin	11.5%	Months Downtime, Construction	1.5
Tax Rate	30.0%	After-tax Scrap Proceeds	0
Investment Outlay (mill.)	9.00	Preliminary Engineering Costs	0.5
Energy Savings/Sales Yr. 1-5	1.25%		
Yr. 6-10	0.8%		
Yr. 11-15	0.0%		

NPV: 9.00
IRR: 25.9%
Payback Period: 3.6 yrs
EPS: 0.018

Year	Now	1 2001	2 2002	3 2003	4 2004	5 2005	6 2006	7 2007	8 2008	9 2009	10 2010	11 2011	12 2012	13 2013	14 2014	15 2015
1. Estimate of Incremental Gross Profit																
New Output (tons)		267,500	267,500	267,500	267,500	267,500	267,500	267,500	267,500	267,500	267,500	267,500	267,500	267,500	267,500	267,500
Lost Output–Construction		(33,438)														
New Sales (Millions)		126.63	144.72	144.72	144.72	144.72	144.72	144.72	144.72	144.72	144.72	144.72	144.72	144.72	144.72	144.72
New Gross Margin		13.8%	13.8%	13.8%	13.8%	13.8%	13.3%	13.3%	13.3%	13.3%	13.3%	12.5%	12.5%	12.5%	12.5%	12.5%
New Gross Profit		17.41	19.90	19.90	19.90	19.90	19.18	19.18	19.18	19.18	19.18	18.09	18.09	18.09	18.09	18.09
Old Output		250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
Old Sales		135.25	135.25	135.25	135.25	135.25	135.25	135.25	135.25	135.25	135.25	135.25	135.25	135.25	135.25	135.25
Old Gross Profit		15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55
Incremental Gross Profit		1.86	4.34	4.34	4.34	4.34	3.62	3.62	3.62	3.62	3.62	2.54	2.54	2.54	2.54	2.54
2. Estimate of Incremental Depreciation																
New Depreciation		1.20	1.04	0.90	0.78	0.68	0.59	0.51	0.44	0.38	0.33	0.43	0.43	0.43	0.43	0.43
3. Overhead		0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
4. Prelim. Engineering Costs		0.50														
5. Pretax Incremental Profit		-0.16	2.99	3.13	3.25	3.35	2.72	2.80	2.87	2.92	2.98	1.79	1.79	1.79	1.79	1.79
6. Tax Expense		-0.05	0.90	0.94	0.97	1.01	0.82	0.84	0.86	0.88	0.89	0.54	0.54	0.54	0.54	0.54
7. After-tax Profit		-0.11	2.09	2.19	2.27	2.35	1.90	1.96	2.01	2.05	2.08	1.25	1.25	1.25	1.25	1.25
8. Cash Flow Adjustments																
Less Capital Expend	-9.00															
Add back Depreciation		1.20	1.04	0.90	0.78	0.68	0.59	0.51	0.44	0.38	0.33	0.43	0.43	0.43	0.43	0.43
Less Added WIP inventory		0.31	-0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
After-tax Scrap Proceeds		0.00														
8. Free Cash Flow	**-9.00**	**1.40**	**2.66**	**3.09**	**3.06**	**3.02**	**2.49**	**2.47**	**2.45**	**2.43**	**2.41**	**1.68**	**1.68**	**1.68**	**1.68**	**1.68**

NPV = **9.00**
IRR = **25.9%**