

Victoria chemicals case study

Business



Victoria Chemicals is one of the leading producers of Polypropelene, a polymer that is used in many products ranging from carpet fibers, automobile automobile components, packaging film and more. When Victoria Chemicals started up in 1967 they built two plants, one in Merseyside, England and one in Rotterdam, Holland. Both plants were identical to each other and produced an equal amount of goods. Morris Greystock, the controller of the Merseyside plant had notice a decline in stock price in from 250 pence per share in 2006 to 180 pence per share in 2007 and knew he had to do something.

Facing pressure from the investors and wanting to increase production efficiency, he decided to renovate the Merseyside plant so Victoria Chemicals can lift itself back to where it once was and continue to be one of the major competitor's in the worldwide chemical industry. After taking all the costs and benefits into consideration, Greystock put together his own analysis in which he based it on four difference components; Earning per Share, Payback Period, Net Present Value, and Internal rate of return.

Soon after many people looked at his analysis and had several questions and suggestions to give to Greystock. We will see soon enough that Greystock's Analysis had many flaws that needed to be fixed and how it really should have been done. II. Victoria Chemicals and it's Capital Expenditures Victoria Chemicals incorporated four different types of methods to determine its capital budgeting proposed projects. They include Earnings per Share (EPS), Pay Back Period (PBP), NPV, and the Internal Rate of Return (IRR).

Of the four methods, the two favorable to use for evaluation would be NPV and IRR while the EPS and PBP would be less favorable to use because of its evaluation process.

Using NPV is a good method to use to evaluate the project because it takes in account for all the costs relevant to the project and includes all the cash flow of the project as seen on exhibit 1. We would also include the IRR because of the beneficial picture that it creates. However, there can be a complication if two scenarios arise.

The first complication can be realized when there is a negative Cash Flow other than the initial year of the implementation of the project and dealing with a mutually exclusive project. Neither one of these scenarios occur for the proposed Victoria Chemicals project.

The pay back period and EPS are not used in the final determination of accepting the project because of their shortfalls. When using EPS to evaluate a project it will be more biased towards shorter term project. This is because EPS focuses on the current cash flows instead of the direct cash flows.

The reason why Pay Back Period isn't a determining factor in accepting a project is because it doesn't take into consideration the time value of money and also ignores any Cash Flow that occurs after the payback period has been reached. III. Transportation Division Dispute The Transport Division suggestion is that the tank car purchases should be included in the initial outlay because the increased output will exhaust the capacity of the current tank cars and thus will make the company purchase them in year 2010 instead of 2012.

This shift in time will alter the timing of the cash flows and will have a direct affect on the incremental depreciation as seen on exhibit 1. While Greystock argues that it shouldn't be included because it will initially use the excess capacity of the Transport Division. IV. Facing Cannibalization The director of sales suggest that if the project is accepted then it means they will have to shift capacity away from the Rotterdam plant and towards in Merseyside in order to compensate for the increased output volume. This process of shifting resources would result in an internal cannibalization.

The director of sales also warns of an oversupply in the market due to stiff competition and the recession that is affecting the economy.

He believes it's not necessary to accept the project because it will create internal cannibalization. As we see on exhibit 2, the worst case scenario of 100% internal cannibalization still produces a positive NPV of 8. 81. The most likely case scenario would produce a possible 50% internal cannibalization and would produce a NPV of 12. 94 as seen on exhibit 2.

Greystock on the other hand believes that cannibalization is not a relevant cash flow.

After reviewing the calculation, the suggestion of director of Sales has merit and is evident that Greystock made a mistake in not including cannibalization in its cash flow. Griffin Tewitt the assistant plant manager proposed to modernize the separate and independent part of the Merseyside works which was the production line producing ethylene-propylene-copolymer rubber (EPC). This proposal would cost GBP1 million and would

improve cash flow by GBP25, 000 ad infinitum and would allow them to produce the EPC at the lowest cost in the world.

Even this advantage, it would still result in a negative project NPV. Tewitt argued that the positive NPV of the poly renovations would be able to sustain the negative NPV of the EPC project.

The important thing to notice is undertaking this project will increase the plant size which directly coincides with the increase in bonus being tied to it. This presents a conflict of interest which is also an agency problem. Another problem is that it would not be very honest because the firm would be hiding critical information from the investors.

From this we can conclude that Dewitt has self-driven motives for undertaking this project instead of looking out for the company and thus we suggest rejecting this proposal. 5).

After looking over Greystock's analysis, Andrew Gowen of the treasury staff had a couple suggestions about what rate should be the one being used. He stated that " Cash flows and discount rates need to be consistent in their assumptions about inflation," which is correct. Historically inflation rates are around 2 to 3%, however in Greystock's analysis, he did not take this into consideration.

This would mean that the real target rate for the company would be at 7%. Trying to stay consistent in the analysis we decided to use a 3% inflation rate and a nominal rate of 10%.

This is more accurate since inflation is something that is a constant so to assume 0% inflation is just unrealistic. As seen in exhibit 3, the inflation is not a determining factor in the NPV. 6. After taking everyone's input into consideration, Greystock's analysis had to take on a large overhaul. First of all, an inflation rate had to be added, we know that inflation must be counted on in the first year.

We decided to let the base year for inflation to be the year before since we thought that it would make more sense to have inflation at the beginning of 2008 instead of it starting in 2009.

Our next step was to take into account cannibalization, which is very important since we want to know how much is Rotterdam losing out on by renovating Merseyside. Once we took into account cannibalization, we needed to reduce the work in process of Rotterdam according to the percentage of cannibalization we thought would be taking place and in our analysis we decided to make it 100%.

The next thing that had to be changed was depreciation for the tank cars. Greystock originally did not include depreciation of tank cars which needs to be included here since they are now accelerating the date of when they would need more tank cars from 2012 to 2010. As stated in the case, the first eight years they were using the DDB method and at the last two years straight-line were used.

There were two minor changes that needed to be made and that was the removal of overhead costs and engineering costs.

The reason for this is because overhead is more to do with allocation, there is no need to add overhead costs into this analysis and secondly, engineering costs is a sunk cost which is not added in determining the NPV of the project because it would be spent regardless of whether they go through with the project or not. After making many changes to the sheet, pretax cash flow had to be calculated properly as seen on exhibit 1 with the new values and since we now added the tank cars into depreciation, capital expenditure of GBP2 million needed to be added for 2011.

Lastly we would get the change in WIP to the correct amount after taking all the changes into consideration. These changes are critical in Greystock's analysis and give out a much more accurate NPV and IRR as seen in exhibit 1 when compared to his original.

The benefits of the Merseyside project to Victoria Chemical include an increase in manufacturing throughput of 7% and the project is expected to improve the firm's gross margin from 11.5% to 12.5%. Another benefit to be realized from the project is an energy savings increase of 1.25% of sales for year 5 and 0.5% of sales for years 6-10.

All of these benefits will be reflected as income revenue on the income statement. As seen on exhibit 4, price per ton is more sensitive to the project NPV and IRR than the inflation rate is. The breakeven point of price per ton is at \$457 as seen on exhibit 4. In comparing the change of inflation rate and NPV, it was discovered that the only situation which causes the project to be of no value is when deflation occurs. The discount rate has an impact on the new project's value as well especially when looked at with the cannibalization.

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