A Hindsight Analysis of Grasim's Takeover of L&T Cement (Now Ultra Tech Cement) and the Application of Real Options Framework

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Abstract

One of the greatest contributions of Options theory to the strategic management arena is the concept of Real Options. This involves deliberately losing out on an initial project with a potential for rich rewards later. The loss in the first project is needed for getting the "right to play". However, all projects which lose out cannot fall under the category of Real Options. For this we need to have sufficient volatility in the flows in the ensuing years as well as sufficient time before which a final decision needs to be taken. Although Real Options have several other facets, we examine here the Real Option of expansion of capacity and synergy. The investor (in this case Grasim) has paid a sizeable premium to L&T for the cement wing which when combined with the existing business of the Aditya Birla Group had the potential to become a star, provided the volatility (in terms of government policy on infrastructure and the general state of the cement industry) work in their favour. Later events showed that this indeed was the case and the investment has turned out to be a great one. The paper

examines the conditions precedent to the identification and frameworking of Real Options and the evlautaion thereof using the example of Grasim and L&T Cement.

Keywords: *Options, Strike price, Volatility, Uncertainty, Investment, Market Capitalization*

Introduction

The takeover by the Aditya Birla group of the cement unit of L&T is a good lesson of Real Options in practice. The concept of investment analysis when an uncertain future possibility looms large, has the following tenets:

- As a first step the investing company will assess projects in the regular way- by taking the investment needed at the stage of takeover evaluated against potential cash flows in the future for a reasonable horizon. If the project is risky, generally the cost of capital will be higher than regular investments. The extent of risk is assessed based on certainty of projections, extent of competition and the overall conditions of growth in the market.

- In case the Net Present Value (NPV) is positive at this stage, all that the company has to do is to "stress" key parameters to ascertain as to whether NPV will remain positive after this. If so, it is now an open and shut case.

- In case there is a negative NPV after this, the investing company examines as to whether the current investment has any Real Option potential (described in brief later in the paper)

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- In case this satisfies a Real Options criterion, an appropriate evaluation method has to be found out. This could be the Binomial approach or the Black Schole s approach or any other hybrid approach.

- Using this evaluation technique we ascertain the value of the Real option and then compare this with the expected loss from the investment proposal. If the value of the option is greater than the loss in the investment proposal, it would be worthwhile to go in for the investment

The trick to the whole approach is that all negative NPV projects will not become candidates for real options. It is only when an uncertainty is there in the scenario analysis that the real options framework can be used. What is more, there should be sufficient time interval for the uncertainty to be clarified. Shorter the time available the lesser the value of the real option.

Many companies have attempted to put through this framework for enabling a suitable valuation of mergers, takeovers and acquisitions. However, it is seen that the framework for evaluation is not uniform from case to case and hence cannot be replicated easily.

Organization of this Paper

We are looking at a real-options situation of a major takeover in the country that took place about 12 years back. The Aditya Birla group took over the cement unit of L&T at a valuation considered very high at that time. Later events

have proved that with the synergy achieved by the group with its existing business interests, this has turned out to be a good deal. We examine the takeover details, possible identification of the Real options syndrome, and the performance of the company post-takeover. We have extensively used the Capitoline database (www.capitaline.com) for the facts and figures relating to Ultra Tech Cements.

We begin with a description of various facets of the Real Options framework, preceded by a background of L&T's cement division and the circumstances that led to the takeover. The consideration aspect is also discussed in detail. WE look at various specific frameworks available for real options and evaluation techniques that could be used. The literature review on real options is examined next.

The results of the company post-merger are analysed to see the extent to which Real Options valuation would have turned out to be right. In the concluding sections we examine the key parameters that could be seen as well as takeaway remarks.

The Company's Background

Ultra Tech Cement was originally incorporated in the year 2000 as L&T cement. This was then a 100% subsidiary of L&T. In 2003, 4 crore shares of this company were taken over by the Aditya Birla group at a price of Rs.23.03 crore. In terms of the Scheme of Arrangement, the Cement business of L&T was demerged into the Company and all assets and liabilities of the Cement business of L&T as of April 1, 2003

were transferred to and vested in the Company as a going concern. The financial performance of the Cement business for the year ended March 31, 2004 have been incorporated in the books of the Company. The following press note issued jointly by L&T and the Aditya Birla Group is relevant:

"Larsen & Toubro Limited (L&T) and Grasim Industries Limited (Grasim) announced that the process of implementation of the scheme of demerger of the cement division of L&T has been completed and Grasim has acquired majority stake in UltraTech CemCo Limited (UltraTech), the demerged cement business of L&T. The Scheme of Arrangement for demerger of cement business sanctioned by the Honourable High Court of Bombay became effective from Friday, May 14, 2004 and accordingly the cement business undertaking was transferred to and vested in UltraTech CemCo Limited. Grasim had made a successful open offer bid for 30% of the equity of UltraTech with a view of taking Management control. Concurrently, Grasim acquired 8.5% equity stake of UltraTech from L&T, and Grasim and its associates have sold 14.95% of their holding in the demerged L&T to L&T Employees' Welfare Foundation".

There is a background to this acquisition. Reliance Industries which had acquired a little over 10% stake in L&T wanted to take over the company as a whole and not just the cement unit. This was fought hard by L&T and ultimately Reliance could not get enough support for the takeover. Later this stake was sold off by Reliance to the Aditya Birla Group (Grasim)

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The deal between Reliance and Grasim involved a sale consideration of Rs. 766.50 crore at a price of Rs. 306.60 per share, a whopping -46% over the market price of Rs. 208/ 210. Grasim followed this up with a further buying of 4.48% stake at a price of Rs. 176.75 per share from the market, thereby taking its share in L&T to a little less than 15%.

Meanwhile, L&T decided to shift the cement unit into a subsidiary, with 75% holding by the company itself and the balance by the shareholders of L&T. This was done with the view that Grasim was after the cement business and not the company as a whole. In the process, Grasim's stake in the cement subsidiary came to only 3.75%.

While disputing this in court, Grasim also made an offer to L&T to buy the cement subsidiary. In the proposal Grasim valued the cement unit at Rs.130 per share and the other businesses at Rs. 162.5 per share, thereby bringing L&T valuation to Rs. 292.50 per share. Side by side, thanks to the court ruling Grasim make an open offer for shares, but did not get a good response. Meanwhile through market operations, Grasim acquired a little less than 1% further stake, thereby bringing its total stake to over 15%. It also secured a place in the Board of L&T.

After a complex restructuring of L&T, the company was allotted 20%o the stake in Ultra Tech cement and the balance 80% was allotted to shareholders of L&T in the proportion of their holding. Side by side, L&T would sell 8.5% of its holding in Ultra Tech Cement to Grasim. This coupled with a 30% open offer, would bring Grasim's stake to over 50%.

The strategy behind the acquistion was that this enabled the Aditya Birla group to become a prominent player in the cement industry. Now, with the breakthrough in infrastructure that was expected (but not sure when), the group became poised for super growth in the cement arena.

Real Option Theories

Among all the tools in his control, the CFO would be well advised to use the Option Theory the most in uncertain situations. An Option contract derives value from uncertainty. If the outcome is more or less certain, there is no great value in holding an option to use it. But if the outcome is highly uncertain, the option assumes significance in that it could be used if the conditions are favourable or otherwise simply discarded. So the Option way of thinking could be brought into management and specific decision-situations could be thought of as options. If it were sufficiently worthwhile to have an option to play, then it would be a much better alternative for the CFO than taking the full plunge. The price one has to pay for keeping the option will then become the only important consideration. These options in capital budgeting decisions could be in the form of the Option to Abandon, Option to Wait and Option to Time. An Option to abandon gives the company the right to go all out on a project and back out if the going is not good enough. The payoff, if such abandonment does take place after a brief period of time, when reckoned with the other flows, will tell us how important the right to back away is. As a corollary, the more valuable this option, the more we may be prepared to pay for having the option. Thus, an abandonment analysis will help the CFO in deciding upon

the amounts to be foregone in order to retain the choice. The Option to Wait gives the company more time to decide whether to plunge into the project. Obviously this will apply only to cases where the circumstances of business would not change dramatically in the interim. For example, in specific mining contracts, if a company is given some time to decide whether to take up a contract or not, that would enable it to study the market conditions and environment before taking the plunge. The CFO would be prepared to pay a price for the right to wait and this could then be thought of as the option premium. The Option to time is not necessarily one that is given by the counter party. Based on a study of the market conditions the company can decide the best period to strike. But for this the infrastructure and other wherewithal must be in place. This is brought about by the option for which the CFO will be prepared to part with a premium.

While conceptually, Real Options are a very interesting possibility in corporate capital budgeting, difficulties have been experienced on two counts – valuation of such options and the question of maximum investment in such options. Valuation of Real Options cannot be as straight forward as the valuation of an equity option. This is because inherently a corporate decision-making situation involves a number of other levels of uncertainty than contemplated by the five inputs to the share option model. Attempts have been made by academics in recent years to correlate the inputs of a share option with that of the real option. In the process, the following similarity could be reached:

Inputs in Share Options	Similar Inputs in Real Options
Time to Maturity	The time that can be taken before exercising the right to option. For instance if an option to plunge ahead could be deferred for a maximum of two years and could be exercised any time in that period, this would tantamount to an American call option for two years.
Share Price	This is the value of the investment – its NPV if undertaken now. Obviously, if the NPV is already good, we have nothing to discuss, but if the NPV is not quite good or even negative now, but likely to turn positive on the happening of specific set of incidents, then we have a real option on hand. The present NPV is the equivalent here of the current share price
Risk Free return	Academics are divided as to whether one should take the risk free return itself for the purpose of analysis of real options or should take the WACC of the firm. Either way, this is easily determinable.
Exercise Price	The investment that the company will have to finally make to embark upon the project or capital budgeting decision
Variance of returns	This can be easily substituted with the variability of the NPV under various scenarios. Again, it has to be borne in mind that the higher the variability, the better the value of the option.

If data analysis could be done on the above lines, the Black –Scholes Model itself could be directly used to give a first estimate of the value of the option. Alternatively, in case the uncertainty boils down to the happening of one of only two possible events, the Binomial Option Pricing Model could be used to determine the right price of the option.

But, importantly, it is the question identification of the existence of Options that is of greater significance to the CFO. Once identified, these options could be valued by using one or more of the above models. But how do we spot an option-like situation from the strategic perspective?

Luehrman in his paper Investment Opportunities as Real Options gives a framework for identifying whether a real option exists at all in a given situation. According to this framework, the two principal requisites for a situation to be called an option are the existence of a modified NPV (called NPVq) and the presence of considerable cumulative variance of returns. The modified NPV (NPVq) is calculated as the NPV of inflows divided by the PV of outflows. In other words, the expected inflows are not discounted but the outflows are. If the NPVq>1, it shows that the project is having a positive potential. Both NPVq and cumulative variance must be present together for a real option to be worthwhile. If the modified NPV is greater than 1, but there is no cumulative variance present, it means that the outcome is more or less certain, which in turn makes the option unattractive. Similarly, if there is considerable cumulative variance, but this is not accompanied with a NPV q>1, it means that although there is considerable

uncertainty, this does not work out to the favour of the organization, because whatever the circumstances, the NPV cannot be positive. The author also highlights specific situations wherein there could be a borderline case where either the modified NPV or the cumulative variance is not presently attractive, but could be strategically nurtured to become so. This is so when a major technological change is expected to take place, or the opening up of an economy is likely to result in an uncertain demand scenario in the future.

All in all, Real Option theory presents a very exciting opportunity to the CFO to give financial meaning to strategic alternatives. The only factor that has to be kept in mind is that too much of investment into these options would result in a definite erosion of capital, unless some of them fructify. The analogous situation is an investment in share options continuously. The company must have a positive strategy for these options and also have a rough upper ceiling of amounts that could be locked up in these ventures.

Literature Review

There are a number of very interesting papers on the real options approach- both in terms of frame working and evaluation. Peters, Waples and Golden (2014), look at the conceptual framework as between Corporate Social Responsibility and Real Options. The authors argue that many times, the behaviour towards Corporate Social Responsibility will act as the incentive for real options;

and will affect the way they view these. They go on to propose a new model that would influence the character of social responsibility into the strategic decision-making forming part of the real options way of thinking.

Nicholls, Lewis, Zhang and Jiang (2014) bring the integration of real options framework and evaluation into the Net Present Value (NPV) model, creating an Expanded Net Present Value (ENPV). This is particularly important since volatility is an important component in options evaluation. To assess volatility in a real options environment, one needs a number of estimations. These will give rise to an option price and in turn a break even level at which it is worthwhile for the organization to pursue the project. The authors state that this breakeven option value determines an implied breakeven volatility. So the methodology goes into the value that is needed first and then tries to ascertain the volatility that would be needed to meet this. If that volatility appears reasonable then the real option can be pursued. In our paper, this would means that Grasim would not have to actually assess the potential gain with real options for the acquisition, but only have to determine the volatility level which needs to be there to make this realistic.

The use of real options framework in the area of mobile communications has been examined by Franklin Jr. (2015). The approach is to evaluate the option to invest in each individual element, leading to an overall value. The approach address uncertainty clearly. In fact, the worth of the real options framework arises only uncertainty

Research and Development projects (R&D) projects are good examples of the real options approach. Metelski, Ramirez and Arteage-Ortiz (2014) look at the R&D expenditure in small and medium companies to ascertain the relationship between, R&D, option value and level of capital expenditure. While the study is limited in scope given the context of our paper, it gives the approach needed in uncertain conditions like R&D.

Bouvard (2012). An entrepreneur even with private information about success, will need outside financing for funding a project. Because of the information asymmetry the way the options reward comes down to various stakeholders will be different. As the authors say, this paper "extends the standard real option model and examines the optimal financial contract between an entrepreneur with private information and an outside investor in the presence of costly experimentation".

Guthrie (2014) surveys the theoretical literature on the effect of firm's investment flexibility on the cross section of expected stock returns. The author asserts that "Real options analysis derives firms' value maximizing investment policies as functions of exogenous fundamental drivers of profitability and calculates firms' market values as functions of the same variables". The purpose is to get relationship between expected stock returns and the returns suggested by the fundamentals of the firm.

Klingebiel Adner (2015) examines three dimensions of resource allocation behavior that enable a distinction

between real options logic and alternative resource allocation regimes- sequencing, low initial commitment and real location. The author then measures these in a product innovation context to test for the logic in relation to its alternatives. The author claims that "our findings imply that insufficient identification of real options logic picks up confounding effects which may provide an explanation for the inconclusive results in prior studies of real options and performance". In the context of our paper, this demarcation does not appear relevant, since it is a question of an initial commitment followed by sequencing. The real option valuation is confined to two issues – whether the initial price paid is reasonable and whether there will be a rich reward should volatility turn in Grasim's favour.

What Happened?

The latest financial figures of Ultra Tech Cement tell their own story:

One can see from Table 1 that the company has grown leaps and bounds and the market capitalization is way higher than suggested by the consideration about 11 years back. A number of factors including synergy, and favourable conditions in the overall environment paved the way for this. This is what Real Options is all about. The company after taking over L&T cement wing, would not have expanded or worked towards making this a big brand, if conditions had not been favourable. That way it can be thought of as an abandonment option. Alternatively, the timing for expansion is also decided based on market conditions and it is a real option from this angle as well.

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Table 1 : Broad Financial Parameters of Ultratech Cement for the Last Three Years

UltraTech Cement Ltd			
Rs. Crore			
Year ended->	**Mar-13**	**Mar-14**	**Mar-15**
Equity Paid Up	274.18	274.24	274.4
Networth	15,234.82	17,097.51	18,857.68
Capital Employed	20,779.19	22,437.07	26,436.56
Gross Block	21,382.22	25,077.77	31,780.26
Current Assets (Incl. Def. Tax)	4,856.92	5,447.40	5,742.65
Current Liabilities and Provisions (Incl. Def. Tax)	6,797.35	7,496.01	9,131.60
Total Assets/Liabilities (excl Reval & W.off)	27,576.54	29,933.08	35,568.16
Gross Sales	22,861.98	23,005.05	25,998.86
Net Sales	20,179.96	20,279.80	22,936.17
PBT	3,825.40	2,775.51	2,886.25
PAT	2,655.43	2,144.47	2,014.73
CP	3,600.80	3,196.73	3,147.84
Market Capitalisation	51,216.82	60,028.39	78,891.33
High Date (NSE)	30-Nov-12	31-Mar-14	04-Mar-15

High Price (NSE)	2,154.20	2,195.00	3,398.00
Low Date (NSE)	07-May-12	04-Sep-13	08-May-14
Low Price (NSE)	1,342.00	1,402.35	1,950.50
Debt-Equity Ratio	0.34	0.33	0.35
Long Term Debt-Equity Ratio	0.27	0.26	0.25
Current Ratio	0.62	0.62	0.56
Fixed Assets Ratio	1.13	0.99	0.92
Inventory Ratio	10.42	9.75	10.16
Debtors Ratio	25.64	20.02	20.93
Interest Cover Ratio	19.24	9.7	5.73
Value of Output/Total Assets	0.76	0.7	0.7
Value of Output/Gross Block	0.92	0.87	0.81

The utilization of funds by the company over the last three years can be seen from Table 2:

Table flows to next page ....

Table 2 : Sources and Uses of Funds of Ultratech Cement.

UltraTech Cement Ltd			
Rs. Crore			
Year	Mar-13	Mar-14	Mar-15
SOURCES OF FUNDS			
Cash profit	3,535.63	3,010.50	3,721.64
Increase in equity	0.11	0.06	0.16
Increase in loan funds	1,268.53	0	2,239.32
Decrease in investments	0	0	182.92
Decrease in working capital	773.34	0	925.27
Others	38.37	0	0
Total Inflow	5,615.98	3,010.56	7,069.31
APPLICATION OF FUNDS			
Decrease in networth	33.78	35.02	7.76
Decrease in loan funds	0	204.81	0
Increase in gross block	4,015.49	2,151.77	6,814.59
Increase in investments	1,319.95	282.95	0
Increase in working capital	0	89.19	0
Dividend	246.76	246.82	246.96
Total Outflow	5,615.98	3,010.56	7,069.31

Source : http://www.capitaline.com

When one takes the industry as a whole the following ratios emerge in comparison, as presented in Table 3.

Industry : Cement - Major - North India										
Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	Latest
No.Of Companies	19	19	18	21	18	20	19	12	5	28
Key Ratios										
Debt-Equity Ratio	0.73	0.49	0.39	0.38	0.42	0.43	0.42	0.47	0.44	0.45
Long Term Debt-Equity Ratio	0.69	0.45	0.35	0.35	0.4	0.42	0.42	0.48	0.45	0.45
Current Ratio	1.03	1.07	1.02	0.93	1.01	1.15	1.2	1.2	1.12	1.13
Turnover Ratios										
Fixed Assets	1.26	1.3	1.22	1.24	1.01	1.14	1.11	0.74	0.63	1.09
Inventory	12.55	11.19	11.03	12.01	9.37	10.28	9.96	6.78	6.16	10.14
Debtors	38.49	36.15	40.43	47.55	35.38	34.95	28.69	16.26	15.79	26.53
Interest Cover Ratio	14.06	14.4	14.65	11.48	6.4	8.1	7.83	3.94	3.98	6.13
PBIDTM (%)	29.4	28.16	26.99	25.51	18.77	19.35	18.59	13.64	15.13	17.13
PBITM (%)	24.38	23.43	22.8	20.31	13.26	14.14	13.9	9.11	10.83	12.32
PBDTM (%)	27.67	26.53	25.43	23.74	16.7	17.6	16.81	11.33	12.4	15.12
CPM (%)	21.24	20.48	19.37	18.71	14.5	14.17	14.17	9.96	10.28	13.08
APATM (%)	16.21	15.75	15.18	13.52	8.99	8.97	9.48	5.43	5.99	8.27
ROCE (%)	38.17	34.58	29.63	27.25	14.86	17.59	16.56	7.18	7.51	14.57
RONW (%)	44.68	35.82	28.18	25.56	14.52	16.1	16.16	6.35	6.04	14.37

Table 3 : Cement Industry Parameters

Conclusion

The use of Real Options in investment opportunities and capital budgeting is an exciting prospect. It requires certain pre-conditions – the existence of sufficient volatility in the earnings potential, availability of time before the volatility takes effect, and the affordability of the initial loss from the company angle. Grasim's decision to take over L&T has turned out to a great decision by Shri. Kumar Mangalam Birla. The valuation was pretty steep when the takeover took place but has been vindicated. What is more, the procedure for getting full control of the cement unit of L&T (which subsequently became Ultra Tech Cement) was not easy both from the procedural and financial angles. The key takeaway from the whole transaction is that through real option valuation, management can spot great potential value and veer its strategy around fulfilling this.

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