

**Roll Number: B11008**

**ALSTOM PROJECTS INDIA LIMITED**

**PEER: AREVA T&D INDIA LIMITED**

**Assignment No. 5: DOL, DFL, DTL, and Capital Market**

**Efficiency**

**Calculation of Degree of Operating Leverage, Degree of financial leverage and Degree of Total leverage**

The operating leverage has been calculated for both Alstom and Areva for the latest financial year. For the calculations refer table below:-

**(Rs in 000's)**

<b>Particulars</b>	<b>ALSTOM</b>	<b>AREVA</b>
<b>Net Sales</b>	<b>1,80,36,373</b>	<b>4,02,00,358</b>
<b>Less: Variable Cost</b>		
Raw Materials Consumption	96,24,776	2,75,31,274
Personnel Cost <sup>1</sup>	16,51,790	17,30,126
Royalty and trademark fee	2,46,597	6,01,429
Tools, stores and spares	1,00,952	1,46,760
Power, fuel and water	1,89,988	2,39,727
Freight and Octroi	-	807,258
Repairs and maintenance – Machinery	120,364	94,971
<b>Total Variable Cost</b>	<b>1,19,34,467</b>	<b>3,11,51,545</b>
<b>Contribution</b>	<b>61,01,906</b>	<b>90,48,813</b>
<b>Fixed Cost</b>		
Depreciation	4,82,825	9,36,010
Other Expenses <sup>2</sup>	19,65,430	30,80,863
Personnel Cost <sup>i</sup>	16,51,790	17,30,126
<b>Total Fixed Cost</b>	<b>41,00,045</b>	<b>57,46,999</b>
<b>EBIT</b>	<b>20,01,861</b>	<b>33,01,814</b>
Interest	-	6,55,011
Interest on Finance Lease	4,446	-
<b>EBT</b>	<b>19,97,415</b>	<b>26,46,803</b>
Other Income	5,43,405	1,69,421
Tax	8,51,800	9,48,811
<b>PAT</b>	<b>16,89,020</b>	<b>18,67,413</b>
DOL = Contribution/EBIT	3.05	2.74
DFL = EBIT/EBT	1.00	1.25
DTL = Contribution/EBT	3.12	3.45
Beta(1 year daily data) <sup>3</sup>	1.1343	0.7242

(The above data has been taken from the annual reports of the respective companies)

<sup>1</sup> 50% assumed to be “on project” cost and hence, variable

<sup>2</sup> Include expenses in the nature of Rent, Rates and Taxes, Repairs to buildings and others, Insurance, Travelling, Bad debts, Data management charges, Miscellaneous expenses

<sup>3</sup> <http://www.capitaline.com/user/framepage.asp?id=1>

### Comment on the above

The above Degree of Operating Leverage for both the companies is high at 3.05 and 2.74 due to the following:-

- a) **Capital Intensive Industry:-** The companies are in the power sector being the heavy industry wherein there is huge amount of capital investment in the fixed assets leading to high fixed cost of depreciation and high degree of operating leverage.  
ALSTOM has started to invest in the railway transportation sector and is investing heavily into the fixed assets for the same. This has led to high fixed costs of depreciation on such assets also. This has led to high DOL for ALSTOM as compared to AREVA.
- b) **High amount of period costs:-** ALSTOM has high period costs in the form of rentals and other services from third parties which have led to high period costs in both the companies.
- c) **High salary cost:-** The salary costs have been assumed to be 50% variable and 50% fixed due to the change in the nature of the remuneration contracts being entered into by the companies in the recent years where the remuneration is fixed and not based on the number of contracts entered. Moreover the nature of infrastructure industry is such that the employees are employed on a fixed contract basis to ensure minimum strength of workforce to accommodate any insufficiency in the labour availability.
- d) **High Maintenance costs:-** Both the companies has been spending heavily on the repairs and maintenance of the buildings and other areas which has led to increase in the fixed period costs and hence a high DOL. This can be primarily due to the high maintenance costs related to rentals of the offices housing the companies.

### **Comments on the Degree of Financial Leverage**

The companies have been quite conservative on the borrowing front as the long term debt to equity ratio of both the companies is low at Nil for ALSTOM and 0.06 for AREVA. This has led to the interest costs been primarily low for the two companies and hence, low DFL of 1 and 1.25 for ALSTOM and AREVA respectively. The debt in the books of AREVA is primarily short term repayable within a period of 12 months and hence, the interest cost is present but it is not very large leading to the DFL of only 1.25. This degree has been low due to the no debt working tendency of all the foreign companies in India as they consider the working on Indian Territory in itself to be very risky and do not want to increase it with the load of a debt. In the case of ALSTOM the complete funding is from ALSTOM France and no lending is there, while in the case of AREVA other than the share capital, the loan is also from the parent company at 375 basis points higher than the Euribor rates.

### **Linkage of the DOL, DFL to the Beta**

The companies as per the above data break up have the following comparison of DOL, DFL and Beta values

<b>Particulars</b>	<b>ALSTOM</b>	<b>AREVA</b>
DOL = Contribution/EBIT	3.05	2.74
DFL = EBIT/EBT	1.00	1.25
DTL = Contribution/EBT	3.05	3.42
Beta (1 year daily data)	1.1343	0.7242

The above comparison provides that the market perceives the high operating leverage to be a higher risk and not the DFL in the case of the above companies since the debt-equity ratio of both the companies is low and a slightly higher DFL in the case of AREVA becomes immaterial.

Moreover, the beta of ALSTOM in the last one year has increased considerably due to the venturing of the company into a new business of rail transport and neither the company nor the group has any experience of the business in India. This new venture has been perceived by the market as risky. This

new venture has increased the fixed assets depreciation burden on the company acting as one of the reasons for a high DOL for ALSTOM.

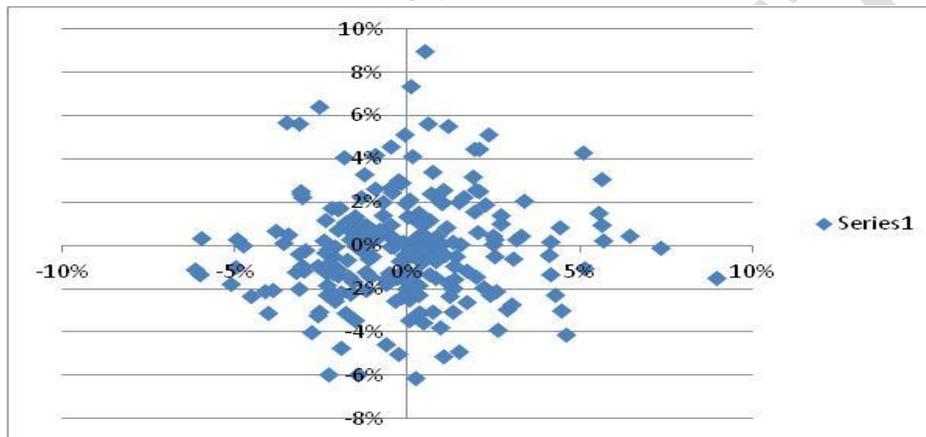
### Weak Form Efficiency of the stock

To probe the weak form efficiency of the stock the following tests have been performed:-

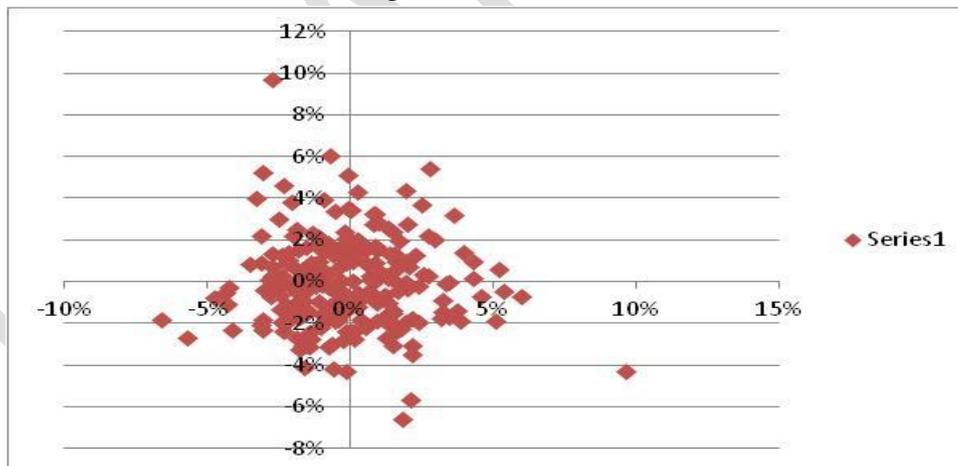
**a) Serial Correlation/ Random walk:-**

The serial correlation between the return on the ALSTOM stock with itself for the last day provides that there is no relation between the two and showing that the stock follows a “random walk” approach with no correlation with the previous days returns. The same is also evident from the correlation coefficient of only 0.0527, with the following scatter plot diagram.

**ALSTOM – Correlation of 0.0527**



**AREVA - Correlation of -0.038**

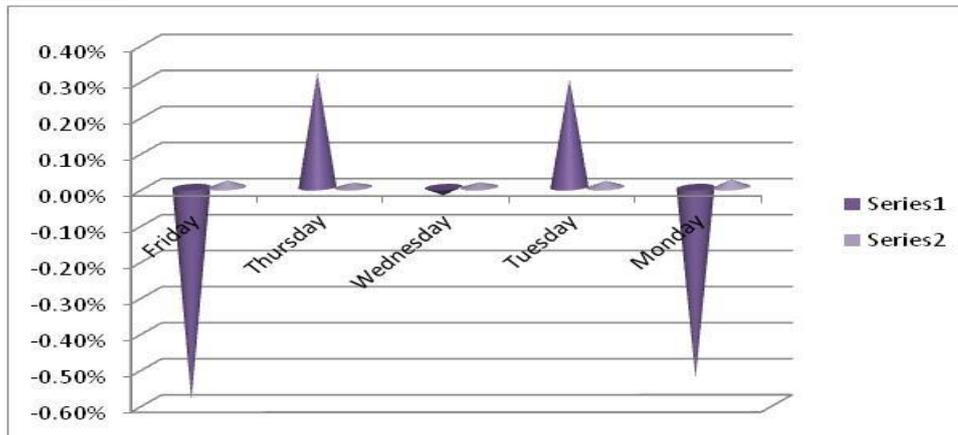


Since, the serial correlations of both the companies are very low we can say that there is weak form efficiency in the markets.

**b) Day of the week effect**

To analyse the day of the week effects the average daily returns of the scrip with the standard deviation was identified for both the companies for all the five days of the week and the following data was identified:-

## ALSTOM

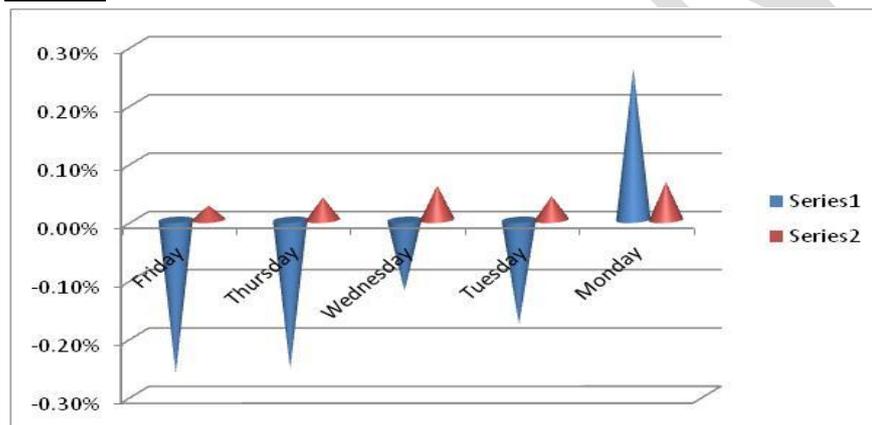


Series 1 – Average daily return

Series 2 – Standard deviation

By the above analysis we identify that the stock has a day of the week effect with Friday and Monday being the decreasing return days while Tuesday and Thursday being the increasing return days.

## AREVA



By the above analysis we identify that the stock has a day of the week effect with all days other than Monday being the decreasing return days. By the above analysis one can identify the day of the week for trading but the same will not provide consistent returns since there have been instances for high negative movements also during some of these days stating weak form efficiency.

## **Semi Strong Form Efficiency of the stock**

The following analysis has been done to identify the semi strong form efficiency in the markets:-

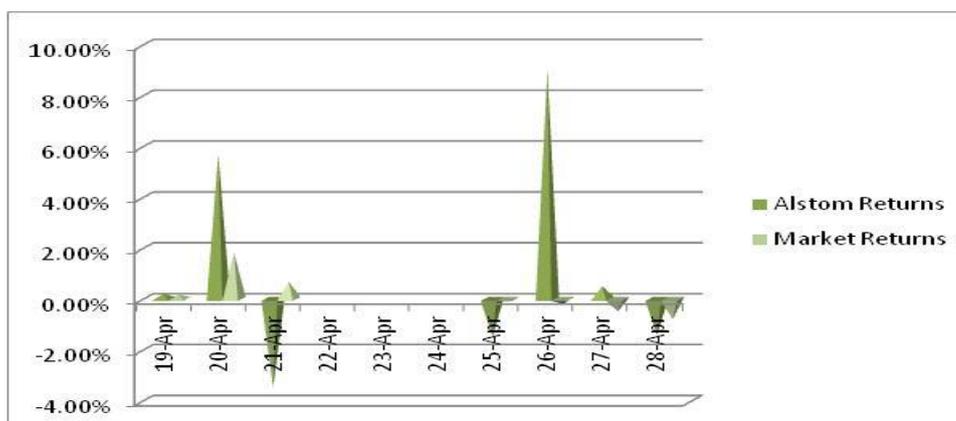
### **a) ALSTOM**

#### **a. Annual results and dividends being announced on April 25, 2011<sup>4</sup>**

The share prices have increased on the date next to the date of the release of the results, due to the results being announced in the evening of April 25, 2011 to the tune of 8.97% due to the good results being posted and a 100% dividend being issued by the company. An analysis of the price movement also shows an increase in the price of the scrip on April 20, 2011 which is due to the announcement of a proposed merger with the Shanghai Electric for the boiler

<sup>4</sup>[http://www.moneycontrol.com/stocks/company\\_info/stock\\_notices.php?sc\\_did=AP29&pno=3](http://www.moneycontrol.com/stocks/company_info/stock_notices.php?sc_did=AP29&pno=3)

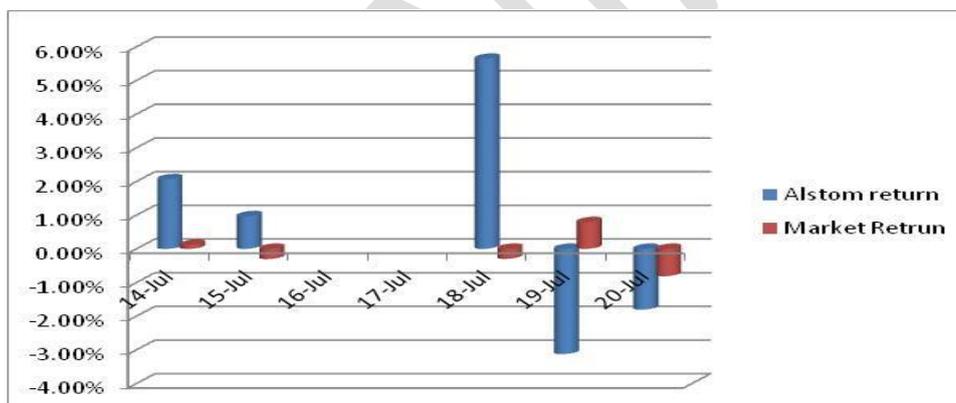
business. The announcement also mandated the demerger of the boiler business to the new company from ALSTOM. The same has been evident from the graph below:



The above movement in the prices shows that the market has adjusted the news at the moment of the information being made public by the company. The same was also supported with a high volume of Rs 1,992,859 thousand worth of trading in the stock on that day.

**b. Press release for contracts won for 270 crores from Shiga Energy Pvt Ltd. on July 18, 2011<sup>5</sup>**

The company has released information for winning a contract worth 270 crores from Shiga Energy Pvt Ltd which has led to the increase in the share price by 5.64% on the date of the release of the information. The share prices movement is illustrated below:-



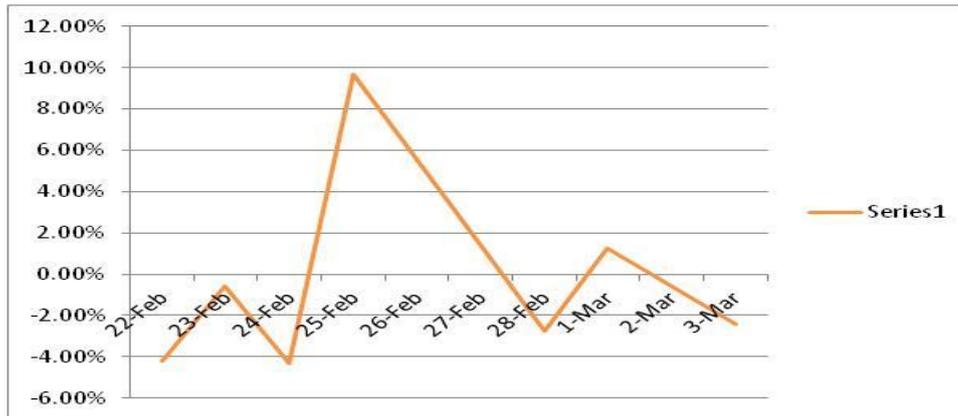
**b) AREVA**

**a. Annual results and dividends being announced on Feb 25, 2011<sup>6</sup>**

The share prices have increased on the date of the release of the results to the tune of 9.67% due to the good results being posted by the company. While the prices after the announcements have fallen to take effect of the increase in the prices. The same has been evident from the graph below:-

<sup>5</sup> [http://www.moneycontrol.com/stocks/company\\_info/stock\\_notices.php?sc\\_id=AP29&pno=2](http://www.moneycontrol.com/stocks/company_info/stock_notices.php?sc_id=AP29&pno=2)

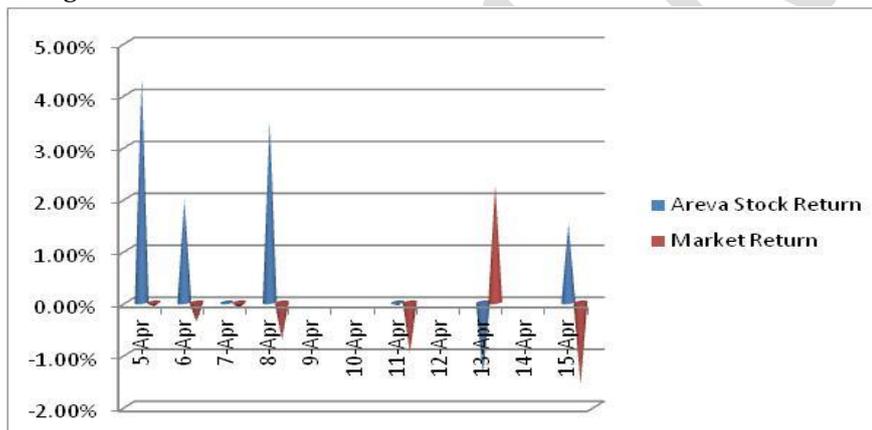
<sup>6</sup> [http://www.moneycontrol.com/stocks/company\\_info/stock\\_notices.php?sc\\_id=ATD&pno=7](http://www.moneycontrol.com/stocks/company_info/stock_notices.php?sc_id=ATD&pno=7)



The above movement in the prices shows that the market has adjusted the news at the moment of the information being made public by the company. The same was also supported with a high volume of Rs 99,271 thousand worth of trading in the stock on that day.

**b. Announcement of demerger of the distribution business April 8, 2011<sup>7</sup>**

The shares prices have increased on account of the news of the demerger of the distribution business vide the board meeting on April 8, 2011. The price of the scrip can be seen moving on the release of the information to the public which shows that the market is considering the information as and when it is available in the public domain establishing that the stock is semi strong.



By the above analysis we identify that both the stocks are semi strong form efficient since all the announcements have an impact on the price as and when the information is released in the market.

To consider the strong form efficiency we should also consider the following additional information:-

**a) Volume to Market Capitalisation Ratio**

**ALSTOM**

Volume (November 17, 2011)<sup>8</sup>:- BSE 76,110 shares and NSE 329,473 shares accumulating to a volume of Rs 202,835,285

Market Capitalisation (November 17, 2011)<sup>8</sup>:- Rs 3016.42 crores

Volume to Market Cap ratio:- 0.01 or 1%

**AREVA**

Volume (November 17, 2011)<sup>9</sup>:- BSE 101,526 shares and NSE 349,169 shares accumulating to a volume of Rs 80,406,830

<sup>7</sup> [http://www.moneycontrol.com/stocks/company\\_info/stock\\_notices.php?sc\\_did=ATD&pno=5](http://www.moneycontrol.com/stocks/company_info/stock_notices.php?sc_did=ATD&pno=5)

<sup>8</sup> <http://www.moneycontrol.com/india/stockpricequote/powertransmissionequipment/alstomprojects/AP29>

<sup>9</sup> <http://www.moneycontrol.com/india/stockpricequote/powertransmissionequipment/arevatd/ATD>

Market Capitalisation (November 17, 2011)<sup>9</sup>:- Rs 4,751 crores  
Volume to Market Cap ratio:- 0.002 or 0.2%

**b) Floating Stock<sup>10</sup>**

The floating stock of the above two companies are as given below:-

Particulars	ALSTOM		AREVA	
	Number	% holding	Number	% holding
Foreign (Promoter & Group)	3,99,90,733	59.67	17,54,92,524	73.40
Indian (Promoter & Group)	58,94,264	8.79	-	-
Non Promoter (Institution)	1,11,05,071	16.57	3,49,69,963	14.63
Non Promoter (Non-Institution)	1,00,34,106	14.97	2,86,41,548	11.98

Hence, the floating stock for the above companies can be considered as the one held by the Non Promoter Group (non Institutional). The same in the case of ALSTOM is higher as compared to AREVA.

By all the above analysis we can say that the stock of ALSTOM is much more liquid as compared to AREVA, while the percentage for both the stocks is low as compared to the other stocks in the market.

By the above analysis we can identify that even though the market has moved on the release of the information but both the stocks are not very liquid stocks and can't be called as semi strong efficient since the prices can be manipulated by the bulk deals in the stocks. Hence, they can be labelled as stocks in between weak and semi strong market efficiency.

**Interesting Trading Strategies**

A trader can easily identify that the share prices in the last three results that have been published have seen the same kind of movement wherein the stock has fallen before the results while the same has risen at the release of the results opening an avenue for profits to the trader in the case of ALSTOM. Same strategy can also work for the stock of AREVA but the two stocks are so illiquid that any trading strategy has to be looked from the point of view of being able to release the investment that one has made in the stock at the desired price point.

**References**

- a) All share prices have been taken from - <http://www.capitaline.com/user/framepage.asp?id=1>
- b) All information regarding company transactions have been taken from <http://www.moneycontrol.com/stocksmarketsindia/>

<sup>10</sup> <http://www.capitaline.com/user/framepage.asp?id=1>