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A Study of Stock Price Dynamics around Merger & Acquisition: A Case Study of Mahindra & Mahindra Acquisition of Ssangyong Motor Co. Ltd.

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ABSTRACT

M&A has always been a dominant management strategy for an Acquirer company to consolidate their global market share. The study of Acquirer firm stock price after M&A is a significant measure to study the impact of M&A on Acquirer's stock price. The research outcome in this regard is mixed. In 50 percent of cases Acquirer company gains in stock return while in remaining 50 percent cases, it loses in stock price. However, in majority of cases, Target Company gains in stock price. Through the M&A process, Acquirer company absorbs target company, thereby, consolidating its position in global market. The stock dynamics of Acquirer company also explains synergy process between Acquirer and target company. This research paper through the case study of Mahindra and Mahindra acquisition of Ssangyong Motor Company has attempted to study the impact of M&A on the stock price dynamics of M&M through Event study analysis for one year post merger period. The outcome of this research paper explains the stock price dynamics of M&M, wherein initially for fifteen days the stock price of M&M gains while for remaining period up till one year the stock price loses compared to benchmarked market return.

***Keywords**: Acquirer Company; Target company; Synergy; Event study Methodology.*

1.0 Introduction

The merger and acquisition activity, particularly in relation to stock price gain to acquirer firms or to target firms after the merger, have over the period been extensively studied by the researchers and the conclusion suggests that it is acquirer firm in most of

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the cases who overpays to the target firms and in the process are losers in stock value in the combined entity. These studies are based on the assumption that capital markets are efficient, which means any new information related to merger and acquisition activity is immediately incorporated into the share price of firms involved in the activity. If the market is assured about the timing, scope and success of the merger and acquisition and of synergy gain accrued to the merged entity, immediately the share price of both acquirer and target firm are increased. Whereas if the market is doubtful about the synergy gain to the merged entity, then it reacts as and when it receives any new information concerning the merger, the market creates merger value if the information affirms the success of merger and also market erodes the merger value if it incorporates any negative information related to the merger.

The merger announcements results in positive gains to target firms and zero or negative gains to acquirer firms, then the combined excess value to the merged entity becomes significant. The combined excess return to merged entity becomes an indicator to access the success of transaction gain. The cause for this excess combined return could be explained through the Managerialism Hypothesis which predicts negative combined excess return to merged entity as managers to assert their utility overpays the target firm at the expense of acquirer shareholders. The motive of empire building and risk reduction for managers to engage themselves for acquisition process, utilizing their discretion and incentive, have been the major cause acquisitions in US. According to the Synergy Theory, there is a positive combined excess return to merged entity as the value of merged entity is always greater than sum of the values of acquirer and target firms. The Target firm more often takes the lion's share of the gain compared to acquiring firm; the competition in the bidding process reduces the gain to the acquiring firm to zero.

The target firm stock price gains 10 days before and after the merger announcement, this according to Mandelkar can be explained due to 'unique resources' possessed by the target firms in a perfectly competitive acquisition market. He argues that in perfectly competitive market as acquirer firms pays for the 'unique resources' held by the target firm, the target firm gains in stock value, but acquirer firm's excess gain in combined merged entity is zero or negative as merger transaction is of zero net present value to the acquirer firm means merger investment is as good as any other investment.

2.0 Review of Literature

The performance of acquiring firms in terms of stock price gain in the merger and acquisition process has been studied extensively and empirically both in finance and strategy, but the empirical evidence of stock price gain to acquirer firm is not conclusive.

The extent of literature review on wealth effect of acquirer shareholders is mixed, the implication of merger and acquisition on the share price of acquirer firm and its dynamics is not comprehensive in Indian context.

A number of studies have also suggested that mergers and acquisitions may reduce the value of the firm. In his study, Jensen (1986) stated that availability of free cash flow led to value-reducing mergers. Shleifer and Vishney (1989), in their study, argued that "managers might make investments that increase managerial value to shareholders but do not improve shareholders' returns".

Healy, et al (1992) addressed this issue of whether mergers improved performance, and if they did so, what the sources of economic gain were. Cash flow measures were used to study the post-merger performance. According to them, cash flows are representative of the actual economic benefits generated by the assets. Pre-tax operating cash flow returns on assets were used to measure the improvements in operating performance. They also correlated their post-merger cash flow performance and merger-announcement related stock market performance and found a significant positive correlation between these two measures indicating that the stock market correctly values the merging firms at announcement in expectation of the improvements in operating performance in the future.

Shiller (1989), in his study, stated that a major problem with the event study approach was that changes in market valuations around the time of takeover could reflect not only the benefits of an efficiently operating market for corporate control, but also other factors such as undervaluation due to investors overlooking the stock or an overvaluation by those who acquire the firm. Further, the reliability of event studies are questioned on the premise that it's the longer term results that matter (Copeland et al, 2005).

3.0 Case Study: Mahindra and Mahindra Acquisition of Ssangyong Motor Company

3.1 Prologue

India's Mahindra & Mahindra Ltd. (M&M), announced the signing of a definitive agreement in Seoul to take up 70 percent stake in the Ssangyong Motor Company Limited (SYMC) on November 23, 2010. The securing of a partner who had both financial capabilities and was engaged in diverse markets would allow Ssangyong to emerge as a global SUV player through the strengthening of R&D, investments in product development, better business competitiveness and global sales expansion.

The definitive agreement contained information related to securing outside investment, the establishment of principal management, repayment of rehabilitation claims to protect the interests of creditors, such as creditors and shareholders, and establishing a foothold for SYMC normalization. The total cost of acquisition was US$ 463 million with US$ 378 million in new stock and US$ 85 million in corporate bonds. Mahindra would acquire a 70% stake. The definitive agreement also encapsulates terms and conditions related to the process of acquiring new stock and corporate bonds, down payment and deposit guidelines, repayment of rehabilitation claims, employment guarantees, and other covenants.

The acquisition of Ssangyong by M&M became possible as M&M after losing out its bid for Jaguar Land Rover (JLR) to Tata Motors in 2008 due to lack of deep pockets, finally had 70 percent acquisition in Ssangyong Motors for US$ 463 million beating South Korea's Daewoo Motors and Pawan Ruia promoted Raghav Industries, as aptly quoted by Anand Mahindta as "this takeover is next Land Rover for India". The same Ssangyong Motors much lower 51 percent stake was acquired by China based Shanghai Automotive Industry Corporation (SAIC) for US$ 500 million in 2004 but that went to heavy financial losses which leads finally for filing for bankruptcy by Ssangyong Motors in 2009, wiping out SAIC investments. But despite these financial losses, Ssangyong Motors product line comprising Rexton SUV, Actyon the crossover, Kryon mid sized compact SUV up and above M&M flagship Scorpio and Xylo, one of the finest R&D facility in South Korea with 600 people working in it and 1300 dealers network in 98 countries; formed the strategic fit paving the way for M&M acquisition of Ssanyong Motors.

The strategic fit between M&M and Ssangyong Motors has been able to build up due to respective background of both automobile firm complementing each other product line and capability for enhanced global market share.

3.2 Background: Mahindra & Mahindra

M&M was initially founded in 1945 as Mahindra and Mohammad by JC Mahindra (Anand Mahindra's paternal grandfather), KC Mahindra (Anand Mahindra's grand uncle) and Ghulam Mohammad. After the partition of India in 1947, the company came to be known as Mahindra and Mahindra as Ghulam Mohammad migrated to Pakistan. Initially the company imported and assembled Willys Jeep under license of Willys-Overland Motors (now part of Daimler-Chrysler Group). The company started manufacturing from the year 1954 and went public in 1956.

In 1965, M&M started production of light commercial vehicles (LCV) from its plant located at Andhra Pradesh in South India. By that time, M&M had three

manufacturing plants located in Maharashtra, an industrially developed state in western India. The company acquired International Tractor Company of India in 1977. The tractor brand "Mahindra" was established in 1982 after the agreement to use International Harvester brand expired.

The early 1990s was a period of turmoil at M&M as the company had to deal with a major recession and violent labour unrest. And by the mid-90s, as the country's auto sector was opened up to global manufacturers, most expected that the Indian companies would have to sell out or wind up. At this time, Anand Mahindra after taking over charge of M&M, consolidated its operation by increased productivity. In 1994 the company was producing 125 engines a day with only 760 workers which earlier took 1,230 workers to manufacture 70 engines a day.

In the early 1990s M&M became the undisputed leader in the Indian UV market with a number of brands which included Pick-up, MaXX, CL, MM, Commander, Hard Top, LCV, Voyager, Alternative Fuel, Army, Three Wheeler and Export. However, this position was threatened when it began to face increased competition from its competitors Telco10 and Toyota. In 1994, Telco launched a new UV model under the brand name 'Sumo'. In 2000, Toyota entered into the UV segment with the launch of Qualis. Qualis was considered to be even better looking than 'Sumo'. Within two years of its launch, 50,000 units of Qualis were sold. M&M was fast losing its market share in the face of stiff competition from Telco and Toyota. M&M launched Bolero in 2000 to counter competition but it did not make much of an impact in the urban UV segment.

The Indian automobile market is divided into various segments – A segment (entry level small cars), B segment (semi luxurious cars), C segment (luxury cars) and D and E segments (super premium cars). Of these, the B and C segments were the fastest growing in the late 1990s. Therefore, it was decided to position Scorpio in the C segment, which covered the Rs 5,00,000 -8,00,000 (USD 11,000 – USD 18,000)14 price range. The company also found that it was the segment in which customers were most likely to buy a UV instead of a car. Therefore, Scorpio competed with all the cars in the C segment, along with other UVs in the market. To meet the expectations of car buyers as well as SUV buyers, Scorpio was designed to fall between a passenger car and an SUV. This approach was called 'car plus', as it offered all the benefits of a car and the thrill of an SUV. Scorpio was launched on June 20, 2002.

In the following years 2003-04, M&M started exporting its vehicles to countries like Italy, Uruguay, Russia, South Africa, Sri Lanka, Nepal, Bangladesh and Middle East. In 2010, the company plans to launch a two-door and four door pickup truck in the US followed by a SUV next year.

M&M has sold more than 50,000 tractors in the past decade and is the currently the number four tractor seller in the US20. In 2010, M&M became the world's largest tractor manufacturer in terms of the number of tractors sold.

3.3 Background: Ssangyong Motor Company (SYMC)

Ssangyong Motor Company (SYMC) at the start consisted of 2 firms - Dong-hwan Motor Workshop and Dongbang Motor Co. In mid-1963, the 2 firms incorporated into Dong-hwan Motor Company. Dong-hwan Motor Company had a product portfolio of jeeps, trucks and buses. In 1986, it was taken over by Ssangyong business and the name was modified to Ssangyong Motor. In 1991, it partnered with Dailmer-Benz to develop light-weight industrial vehicles, diesel engines, luxury traveller cars and fuel engines. In 1993, SYMC launched "Musso" SUV followed by a new car - "Koranda". In 1997, SYMC launched "Chairman", a luxury car. In late 2004, the Chinese motorcar major - Shanghai Automotive trade Corporation (SAIC) bought fifty one percent stake in SYMC by paying USD five hundred million. However, on Jan 9, 2009, SYMC filed for bankruptcy thanks to declining sales. This was the appropriate time for Ssangyong Motors to beat its money woes with SAIC by negotiating a better bidding worth its seventy percent stake with potential emptor - Mahindra and Mahindra.

3.4 Strategic fit between Mahindra and Mahindra and Ssangyong motors

Ssangyong's has a strong product development expertise. This is evident from the fact that M&M developed three vehicle platforms: Commander, Scorpio and Xylo in the last two decades. In the same period, Ssangyong has developed seven SUV platforms which were tested and commercialised in developed markets. Ssangyong vehicles are priced at Rs 12 lakh upwards, a level where M&M flagship product Scorpio price band ends. M&M also has plans of joint product development with Ssangyong in the areas of SUVs and crossover vehicles.

4.0 Research Methodology

4.1 Objectives of the study

1. To determine the impact of M&A activity on stock price of Mahindra and Mahindra.
2. To determine the dynamics of stock price around M&A of Mahindra and Mahindra.

4.2 Hypothesis

For Mahindra and Mahindra M&A case under study, following hypothesis are postulated:

4.2.1 Null hypothesis: H#1

There is no significant impact of Merger and Acquisition on Mahindra and Mahindra stock price.

4.2.2 Alternate hypothesis: H#2

There is significant impact of Merger and Acquisition on Mahindra and Mahindra stock price.

4.3 Event study technique/method

In order to study the merger of Mahindra and Mahindra (M&M) with Ssangyong Motor Company (SYMC) on the post-merger share price of Mahindra and Mahindra, the Event study requires, merger confirmation date, Abnormal Return for Mahindra and Mahindra and Cumulative Abnormal Return; which are calculated as follows:

Merger confirmation date: (t=0) is the date on which the 70 percent acquisition of Ssangyong Motor by M&M in US$ 463million is confirmed by both M&M and SYMC, after much deliberations, which is taken as event day, 23 November.2010. t= -1,-2 and t= +1,+2 are the 1-day,2-day share price of M&M before 23.November.2010 and 1-day, 2-day share price of M&M after 23.November.2010, which constitute 2-day event window.

Likewise 5 day, 10 day, 15 day, 20 day, 30 day, 50 day, 70 day ,100 day, 150 day, 200 day and 250 day event windows are taken as event study, which are share prices of M&M up to 5 day, 10 day, 15 day, 20 day, 30 day, 50 day, 70 day, 100 day, 150 day, 200 day and 250 day before and after event day 23 November.2010. 250 trading days before 23 November.2010 is 19 November.2009 and 250 trading days after 23 November.2010 is 30 November.2011, so the share price data of Tata Steel is taken from 19 November.2009 to 30 November.2011 constituting 250 day window before and after event date, which is further divided into 200,150,100,70,50, 30,20,15,10,5 and 2 day event window before and after event date. For benchmarking the market return, the one year estimation period before event window is taken between 19 November.2009 and 6 November.2008. The share price of M&M is taken from BSE website for the mentioned period.

To choose the event window for merger event is crucial as, if the event window is too large or far removed from merger date, the risk characteristics of the sample firm may have changed in the interval or if the event window is too short, the total impact of the merger would have been missed. Therefore 250 day window (covering approximate 1 year before and after the event day) is considered for the event study.

Abnormal return (AR): It measures the stock market's initial reaction to a merger event and division of any gains from any new information which becomes available to the market. Daily share price changes are tracked to compute daily Abnormal Return (AR_{it}) for the security i as on a particular day (t) by employing Market Model.

$$AR_{it} = R_{it} - E(R_{it}) \quad (1)$$

where, t= Day measured relative to an event.
AR_{it} = Abnormal Return on security i for day t.
R_{it} = Return on Security i during t.
It is calculated by taking, (stock price on day (t) – stock price on (t-1) day/ stock price on (t-1) day).
$E(R_{it})$= Expected rate of return on security i that it would ordinarily earn for a given level of market performance for day t.

This is measured using the market model denoted by the equation (2)

$$E(R_{it}) = \alpha + \beta_i R_{mt} \quad (2)$$

The study deduced the market performance by taking the BSE Sensex as the market benchmark. Values of α and β were estimated by regressing R_{it} (dependent variable) on R_{mt} (independent variable) for the 100 day period ranging from the period 6.November.2008 to 19.November.2009 (-250 day of event window), this is estimation window, to ensure that the parameter estimates were not contaminated with the confirmation day of the merger process. Market model parameters were calculated based on these 100 data points.

The Expected Return is calculated on excel sheet using intercept function on R_{it} (M&M return, x-axis) and R_{mt} (BSE return, y-axis) as α adding with slope function using R_{it} and R_{mt} as β and multiplying by R_{mt} (BSE return).

Finally Abnormal Return (AR) is calculated on excel sheet using equation (1), by subtracting Expected Return from actual M&M return, R_{it}.

Cumulative abnormal return (CAR): In the days surrounding the merger (equation 3) were needed to examine whether shareholders of merging firm (Acquirer firm) gained from the merger.

$$CAR = \sum_{t=K}^{T} AR_{it} \quad (3)$$

Where CAR is the cumulated excess return from day –K through T.

Using SPSS software, for every 2,5,10,15 upto 250 day window, pre-merger and post-merger AR paired t-test and in the same order pre-merger and post merger CAR t-test is carried out and tabulated for share price dynamics analysis.

Event study: M&M merger and acquisition with Ssangyong: Event date 23 Nov 2010: Deal value US$ 463 mn.

Table 1: Event Study Analysis [2,5,10,15 Day Windows]

S.No.	Day Window	Abnormal Return (AR) / Cummulative Abnormal Return (CAR)	Pre-Merger Mean	Std. Error Mean (SE)	Post-Merger Mean	Std. Error Mean (SE)	Correlation (r)	t-value	Degree of Freedom (df)	Sig.(2-tailed) p-value	Significance Yes(Y) / No(N)
1	2 Day	(AR)	-0.0120	.0089	0.0208	.0202	-1.0000	-1.1230	1	0.4630	N
		(CAR)	-0.8556	.0015	-0.8143	.0003	-1.0000	-22.3510	1	0.0280	Y
2	5 Day	(AR)	-0.0024	.0072	0.0011	.0108	0.6890	-0.4430	4	0.6800	N
		(CAR)	-0.8393	.0069	-0.8311	.0072	0.8580	-2.1640	4	0.0960	N
3	10 Day	(AR)	-0.0005	.0062	0.0018	.0066	0.0130	-0.2510	9	0.8070	N
		(CAR)	-0.8423	.0057	-0.8349	.0042	-0.3680	-0.9030	9	0.3900	N
4	15 Day	(AR)	0.0011	.0047	-0.0028	.0050	0.2300	0.6530	14	0.5250	N
		(CAR)	-0.8468	.0042	-0.8455	.0056	-0.0780	-0.1830	14	0.8580	N

Source: *Author's computation and compilation using SPSS software.*

4.4 Event-study analysis

2-Day: Two days after M&M – Ssangyong merger confirmation date 23.Nov.2010, the Abnormal Return (AR) observation is as follows- on average post-merger AR increase is not significant (M=.0208, SE=.0202) than pre-merger AR (M= -.0120, SE=.0089), t(1)= -1.123, p(.46)>.05, r = -1.0; validating Null Hypothesis that there is no significant change in post merger AR. The negative t-value indicates slight increase in post merger AR.

On average, post-merger Cumulative Abnormal Return (CAR) increase is significant (M= - .8143,SE= .0003) than pre-merger CAR (M= - .8556, SE= .0015), t= -22.35, p(.02)<.05, r = -1.0; validating Alternate Hypothesis that post-merger CAR is statistically significant. The negative t-value indicates increase in post merger CAR.

5-Day: On average, post merger AR increase five days afterwards is non-significant (M= .0011,SE= .0108) than pre- merger AR (M= - .0024, SE= .0072), t(4)= -0.443, p(.68)> .05, r = .68; validating Null Hypothesis of no significant change in post merger AR.

On average, post merger CAR increase five days afterwards is non-significant (M= - .8311, SE= .0072) than pre-merger CAR (M= - .8393, SE= .0069), t(4)= -2.16, p(.09)> .05, r= .85; validating Null Hypothesis of no significance of post merger CAR value.

10-Day: On average, post-merger slight AR increase is statistically of no significance (M= .0018, SE= .0066) than pre merger AR (M= - .005, SE= .0062), t(9)= -.25, p(.80)> .05, r = .013; validating Null Hypothesis of non-significant post merger AR value.

On average, the post merger slight increase in CAR is of no significance (M= -.834, SE= .0042) than pre merger CAR (M= - .842, SE= .0057), t(9)= -.90, p(.39). .05, r = -.36, validating Null Hypothesis of no significance of post merger CAR increase.

15-Day: On average, post merger slight decrease in AR is statistically of no significance (M= - .0028, SE= .0050) than pre merger AR (M= .0011, SE= .0047), t(14)= .65, p(.52)> .05, r= .23; validating Null Hypothesis of no significance of post merger AR value. The positive t-value indicates slight decrease in post merger AR.

On average, the slight increase in post merger CAR is statistically of no significance (M= - .845, SE= .0056) than pre merger CAR (M= - .846, SE= .0042), t(9)= - .18, p(.85)> .05, r = - .078; validating Null Hypothesis of no significance of post merger CAR value.

Table 2: Event Study Analysis [20,30,50,70 Day Windows]

S.No.	Day Window	Abnormal Return (AR) / Cummulative Abnormal Return (CAR)	Pre-Merger Mean	Std. Error Mean (SE)	Post-Merger Mean	Std. Error Mean (SE)	Correlation (r)	t-value	Degree of Freedom (df)	Sig.(2-tailed) p-value	Significance Yes(Y) / No(N)
5	20	(AR)	0.0027	.0037	-0.0032	.0043	0.3350	1.2710	19	0.2190	N
	Day	(CAR)	-0.8552	.0048	-0.8646	.0088	-0.6230	0.7570	19	0.4580	N
6	30	(AR)	0.0609	.0027	-0.0028	.0029	-0.0320	0.9170	29	0.3670	N
	Day	(CAR)	-0.8668	.0046	-0.8862	.0082	-0.7830	1.6020	29	0.1200	N
7	50	(AR)	-0.0004	.0020	-0.0026	.0022	-0.1440	0.6800	49	0.4990	N
	Day	(CAR)	-0.8642	.0030	-0.9088	.0066	0.0270	6.2000	49	0.0000	Y
8	70	(AR)	-0.0010	.0016	-0.0031	.0028	-0.0280	0.7380	69	0.4630	N
	Day	(CAR)	-0.8569	.0022	-0.9540	.0101	0.1790	9.7100	69	0.0000	Y

Source: *Author's computation and compilation using SPSS software.*

20-Day: On average, post merger AR decrease is statistically of no significance (M= - .0032, SE= .0043) than pre merger AR (M= .0027, SE= .0037) as t(19)= 1.271, p(.22)> .05, r= .335. The positive t value indicates decrease in post merger AR value, thus validating Null Hypothesis of no significance of post merger AR decrease.

The average post merger CAR decrease is of no significance (M= - .8646, SE= .0029) than pre merger CAR (M= - .8552, SE= .0048), t(19)= .7570, p(.45)>.05, r= - .623, thus validating Null Hypothesis of no significance of post merger CAR decrease.

30-Day: On average, the post merger AR decrease is statistically of no significance (M= - .0028, SE= .0029) than pre merger AR (M= .0609, SE= .0027), t(29)= .917, p(.36)>.05, r = -.032; validating Null Hypothesis.

The average post merger CAR decrease is statistically of no significance (M= - .8862, SE= .0082) than pre merger CAR (M= - .8668, SE= .0046), t(29)= 1.602, p(.12)>.05, r = - .783, validating Null Hypothesis.

50-Day: On average, the post merger AR decrease is statistically of no significance (M= - .0026, SE= .0022) than pre merger AR (M= - .0004, SE= .0020), t(49)= .680, p(.49)>.05, r= - .144; validating Null Hypothesis of no significance of post merger AR decrease.

On average, the post merger CAR decrease is statistically significant (M= - .9088, SE= .0066) than pre merger CAR (M= - .8642, SE= .0030), t(49)= 6.20, p(0.00)< .05, r= .027 ; as positive t-value indicates post merger CAR decrease whereas p<.05 indicates decrease is statistically significant. This validates Alternate Hypothesis of statistically significant post merger CAR decrease.

70-Day: On average, post merger AR decrease is statistically of no significance (M= - .0031, SE= .0028) than pre merger AR (M= - .0010, SE= .0016), t(69)= .738, p(.46)> .05 as positive t value indicates decrease in post merger AR thus validating Null Hypothesis of no significant decrease on post merger AR.

On average the post merger CAR decrease is statistically significant (M= - .9540, SE= .0101) than pre merger CAR (M= - .8569, SE= .0022), t(69)= 9.710, p(0.00)< .05, r= .179 as positive t value indicates decrease in post merger CAR whereas p<.05 indicates this decrease is statistically significant. This validates Alternate hypothesis of statistically significant post merger CAR decrease.

100-Day: On average, post merger AR decrease is statistically of no significance (M= - .0025, SE= .0017) than pre merger AR (M= - .0014, SE= .0014), t(99)= .428, p(.67)> .05, r= .797 as t value is positive; validating Null Hypothesis of non significance of post merger AR decrease.

On average, post merger CAR decrease is statistically significant (M= - 1.0006, SE= .0101) than pre merger CAR (M= - .8246, SE= .0055), t(99)= 26.62, p(99)< .05, r =

.797 as high positive t value indicate decrease in post merger CAR whereas p<.05 indicates that this decrease is statistically significant. It validates Alternate hypothesis of statistically significant post merger CAR decrease.

Table 3: Event Study Analysis [100,150,200,250 Day Windows]

S.No.	Day Window	Abnormal Return (AR) / Cummulative Abnormal Return (CAR)	Pre-Merger Mean	Std. Error Mean (SE)	Post-Merger Mean	Std. Error Mean (SE)	Correlation (r)	t-value	Degree of Freedom (df)	Sig.(2-tailed) p-value	Significance Yes(Y) / No(N)
9	100	(AR)	-0.0014	.0014	-0.0025	.0017	-0.1630	0.4280	99	0.6700	N
	Day	(CAR)	-0.8246	.0055	-1.0006	.0101	0.7970	26.6290	99	0.0000	Y
10	150	(AR)	-0.0004	.0012	-0.0026	.0013	-0.0070	1.2140	149	0.2270	N
	Day	(CAR)	-0.7893	.0057	-1.0602	.0101	0.7610	39.8170	149	0.0000	Y
11	200	(AR)	-0.0038	.0026	-0.0013	.0012	-0.0830	-0.8070	199	0.4200	N
	Day	(CAR)	-0.6770	.0178	-1.0971	.0089	0.8050	35.3080	199	0.0000	Y
12	250	(AR)	-0.0034	.0022	-0.0018	.0010	-0.0500	-0.6650	249	0.5060	N
	Day	(CAR)	0.5466	.0218	-1.1141	.0076	0.8100	34.8170	249	0.0000	Y

Source: *Author's computation and compilation using SPSS software.*

150-Day: On average, post merger AR decrease is statistically of no significance (M= - .0026,SE= .0013) than pre merger AR (M= -.0004, SE= .0012), t(149)= 1.214, p(.22)> .05, r = -.007 as positive t value indicate decrease in post merger AR; validating Null Hypothesis of not significant post merger AR decrease.

On average, post merger CAR decrease is statistically significant (M= - 1.0602, SE= .0101) than pre merger CAR (M= - .7893, SE= .0057), t(149)= 39.81, p(0.00)<.05, r= .761 as high positive t value indicate decrease in post merger CAR whereas p<.05 indicates that this decrease is statistically significant. It validates Alternate hypothesis of statistically significant post merger CAR decrease.

200-Day: On average, post merger AR increase is statistically of no significance (M= - .0013, SE= .0012) than pre merger AR (M=- .0038, SE= .0026), t(199)= - .8070, p(.42)> .05, r= - .083 as negative t value indicates increase in post merger AR; validating Null Hypothesis of not significant post merger AR increase.

On average, post merger CAR decrease is statistically significant (M= - 1.0971, SE= .0089) than pre merger CAR (M= - .6770, SE= .0178), t(199)= 35.308, p(0.00)<.05, r= .805 ; as high positive t value indicate decrease in post merger CAR whereas p<.05 indicates that this decrease is statistically significant. It validates Alternate hypothesis of statistically significant post merger CAR decrease.

250-Day: On average, post merger AR increase is statistically of no significance (M= - .0018, SE= .0010) than pre merger AR (M= - .0034, SE= .0022), t(249)= - .6650, p(.50)> .05, r= - .05 as negative t value indicates increase in post merger AR; validating Null Hypothesis of not significant post merger AR increase.

On average, post merger CAR decrease is statistically significant (M= - 1.1141,SE= .0076) than pre merger CAR (M= .5466, SE= .0218), t(249)= 34.81, p(0.00)< .05, r= .810 as high positive t value indicate decrease in post merger CAR whereas p<.05 indicates that this decrease is statistically significant. It validates Alternate hypothesis of statistically significant post merger CAR decrease.

4.5 Findings of the study

Table 4: Event Study Analysis – Significance of Results

S.No.	Day Window	Post Merger Abnormal Return (AR)	Post Merger Cumulative Abnormal Return (CAR)
1.	2-Day	Increase (↑), Statistically of no-significance.	Increase (↑), statistically significant.
2.	5-Day	Increase (↑), Statistically of no-significance.	Increase (↑), statistically of no significance.
3.	10-Day	Increase (↑), Statistically of no-significance.	Increase (↑), statistically of no significance.
4.	15-Day	Decrease (↓) ,Statistically of no-significance.	Increase (↑), statistically of no significance.
5.	20-Day	Decrease (↓) ,Statistically of no-significance.	Decrease (↓) ,Statistically of no-significance.
6.	30-Day	Decrease (↓) ,Statistically of no-significance.	Decrease (↓) ,Statistically of no-significance.
7.	50-Day	Decrease (↓) ,Statistically of no-significance.	Decrease (↓), statistically significant.
8.	70-Day	Decrease (↓) ,Statistically of no-significance.	Decrease (↓), statistically significant.
9.	100-Day	Decrease (↓) ,Statistically of no-significance.	Decrease (↓), statistically significant.
10.	150-Day	Decrease (↓) ,Statistically of no-significance.	Decrease (↓), statistically significant.

11.	200-Day	Increase (↑), Statistically of no-significance.	Decrease (↓), statistically significant.
12.	250-Day	Increase (↑), Statistically of no-significance.	Decrease (↓), statistically significant.

As is observed with above Event Analysis, the Abnormal Return (AR) of M&M stock increases up till 10 days after the event date 23 November.2010 and this increase is statistically of no significance, it means the market responded positively to this M&M acquisition with Ssangyong Motors but the market is still sceptical about the success of this acquisition. This is also reflected in Cumulative Abnormal Return, which is summation of all these Abnormal Returns up till 10 days and had also increased along with AR but also of statistically insignificant barring 2 days after the event. This statistically insignificant increase in CAR is indicative of market ambiguity about this M&A acquisition of Ssangyong though this increase is indicative of success element of this acquisition.

The market ambiguity about this acquisition is further intensified with decrease in AR beyond 10 days to 15, 20, 30, 50, 70, 100, and 150 days and in all these period the decease is statistically of no significance but for 200 and 250 days AR is increased with statistically of no significance. This outcome clearly indicates the stock price dynamics around M&M acquisition is mixed, market is not certain about the benefit of this acquisition to M&M, but the AR increases for 2, 5, 10, 200 and 250 days also indicates silver linings of this acquisition. The 15 day decrease in AR is reflected as increase in 15 day increase in CAR due to previous increase in AR up to 10 days. After this 15 days CAR increase, the CAR decreases continuously for 20, 30, 50, 100, 150, 200 and 250, this decrease in CAR is statistically of no significance for 20, 30 days but became statistically significant for rest of the period up till 250 days.

The CAR is increased up till 15 days after the event date but afterwards CAR decreased, this indicates the market perceives this M&M acquisition of Ssangyong has overall decreased the stock value of M&M but with silver lining of increase in stock value initially up till 15 days, it means this acquisition has not increased the stock value of M&M one year after the acquisition but has also not drastically decreased the stock value of M&M either, it is more of decrease and less of increase in overall stock value of M&A one year after the acquisition.

5.0 Conclusion

The event analysis as observed through Cumulative Abnormal Return (CAR) which means adding up of all previous Abnormal Returns, of stock price for one year

trading days after M&M acquisition of Ssangyong indicates that up till 15 days M&M stock value increases though of no statistical significance but 20 days afterwards up till 250 days, the CAR decreases and that decrease is statistically significant. Therefore except initial 15 days for all of one year after the acquisition the stock value of M&M decreased it indicates that in stock price terms overall the M&M acquisition is not beneficial. The stock price increase for initial 15 days for M&M is a silver lining.

Therefore the Event analysis indicate overall decrease in stock value of M&M one year after the acquisition. Also, it can be concluded that CAR increase even for 15 days provides an inkling towards beneficial financial position of the acquisition of Ssangyong Motor Company by Mahindra and Mahindra and that the stock price dynamics for even one year around Merger and Acquisition i.e. increase and decrease in stock price of M&M is not a final judgement on the outcome of M&A.

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