Merger and Acquisition in the Steel Industry: An evaluation w.r.t. Tata Corus Deal.


Abstract

With the shift in a trend of foreign investment from the developing economies. There is growing concern in the corporate world that these new merging companies will be able to carry this merged entity for long or not.

Tata has been a merged as a major player in the global economy. Considering the humane aspect of Tata they are among the best practitioner of the same. As per the success of merged company due diligence is required from both the party specially the acquire since it is going to impose its cultural, ethics and values to the acquired entity, which is new to the letter and may some times tend to follow the negative path, if not taken due care. As merger and acquisition is same as inter-caste marriage, which requires due care from parents from both the sides, same is required in merger and acquisition deal.

Financial feasibility is one another important matter while we talk about M&A. By acquiring corus Tata created burden of 54,000 crores which is huge in terms of liability. This paper is an attempt to evaluate Tata Corus deal and its feasibility. India is developing economy and steel industry is one of the major contributory towards economic development.

M&A always look excellent on Excel spreadsheet. Synergies appear, costs are minimized, growth zooms and sensitivity analysis shows a glorious picture of the company future. But according to latest HBR article failure rate of merger and acquisition is 70-80%. It does not matter whether the companies are large or small. Expected synergy values may not be realized and therefore the merger is considered a failure.

Tata Corus is not different from above discussion and feasibility of this deal is a question mark in view of several financial experts.

This paper is an attempt to find out future prospect of Tata Steel after acquisition this study is also going to discuss about challenge ahead of Tata in the area of cross cultural management. Financial tools like ratio analysis, comparative statement analysis and statistical tools like time series analysis, coefficient of variance etc. have been used.

Introduction

The growth of International merger and acquisition over the past 20 years has been dramatic. According to a past survey made by Harvard business review the merger mania of the 1980’s pales beside the merger and acquisition activity of the 90’s. In 1998 alone 12,356 deals involving US target were announced for a total value of $ 1.63 trillion. The pace some how slowed down in the decade of 2000 but in 2004 the number of M&A announcement again jumped by 14.8%. In the era of Globalization even companies are trying their level best to survive and acquisition remains the quickest route to access new market and new capabilities. Many of motives for international M&A are similar to those for purely domestic transaction, while other are unique to the international arena. This motives include growth, to achieve long run strategic goals, to exploit technological knowledge advantage, to reduce depends on export, to acquire technology to obtain assured source of supply, to invest in safe predictable environment etc. India is growing economy and not untouched from the worldwide change, it is growing continuously and lot of development is taking place in Indian economy. Tata one of the oldest company of India establish in 1907 and has been contributing continuously in the development activity of India created history in M&A on 31st January 2007 by acquiring corus which is approximately four times in production capacity and became 5th largest steel company of the world.

This paper is an attempt to evaluate feasibility of Tata Corus deal and to analyze future prospect of Tata Steel limited in the Global Scenario.

Research Methodology

The main objective of the study is to analyze feasibility of Tata corus deal and implication of take over from the financial point of view as well. This study is also going to discuss about challenges ahead for Tata in the area of cross-cultural management. The present study mainly depends on the secondary data; the data’s were collected for last 9-10 years before acquisition and obtained from site of Tata and corus. This study has analysed profit margin, revenue, return on investment, solvency position, turn over and other financial data of both the companies. In order to evaluate the performance the financial tools like ratio analysis, comparative statement analysis and statistical tools like time series analysis, coefficient of variance analysis, percentage change analysis have been used.

History of Merger and Acquisition

The 1895-1904-merger movement consisted mainly of horizontal mergers, which resulted in high concentration in many industries, including heavy manufacturing industries. The period was of rapid economic expansion. The movement peaked in 1899 and almost ended in 1903, when
a severe economic recession took place combination completed in the period 1887 through 1904 where estimated to involve 15% of the total number of plants and employees comprising manufactures in 1900. The 1922-1929-merger movement also began with an upturn in business activity in 1922 and ended with the onset of a severe economic slowdown in 1929. A large portion of mergers in the 1920’s represented product extension merger as in the cases of IBM, General foods and allied, chemical, market extension merger in food retailing, departmental stores, motion pictures and vertical mergers in the mining and metal industries. The 1940 to 1947 merger movements were accompanied by rapid growth of the economy and an upsurge in merger activity. Lacking in significant changes in technological and business environment however the merger movement was much smaller than earlier ones. M&A activity has increased substantially since the mid 1960’s. A 1967 the total $ value of the corporate M&A was under $20 billion, by 1984 this grew to a total $ volume of $ hundred billion and by 1998 the $ volume excided one trillion. In the past few years there have been a large number of blockbuster M&A that made the past M&A look small by comparison. For example the merger between citigroup and travelers group estimated at $ 77 billion in value and Exxon’s acquisition of Mobil for $ 81429.8 millions. The size and number of M&A transaction continue to grow Worldwide.

Literature Survey:

Merger activity has fluctuated through out the periods. There does not exist and accepted theory which simultaneously explains motivations behind merger, characteristics of acquiring and acquired firms and the determinates of the level of aggregate merger activity. Nelson (1959, 1966) and Melicher, Ledolter and D’ Antonio (1983) who studied the timing question were not guided by any general merger hypothesis and only establish links between merger activity and stock prices, industrial activity and interest rates. Linkages between merger and the macro economy have also been studied by beckett (1986). He uses the FTC large merger series 1948-1979 and the merger the acquisition magazine data 1979-85. He related the combine the merger series to a stock price index, the yield on the three-month treasury bills, the stock of money, the state of domestic non-financial debt, the capacity utilization rate and GNP. The result shows the past values of the stock price index, capacity utilization rates and the stock of debt are positively, while past values of the T bills rate and GNP are negatively correlated. Golbe and White (1987) studied the determinates of merger activity and showed that merger follow strong auto regressive patterns. Dennis Mueller (1969) was one of the first authors to discuss merger as a form of investment only recently has the issue been made of investment only recently has the issue been made significant changes in technological and business environment however the merger activity has increased substantially since the mid 1960’s. A 1967 the total $ value of the corporate M&A was under $20 billion, by 1984 this grew to a total $ volume of $ hundred billion and by 1998 the $ volume excided one trillion. In the past few years there have been a large number of blockbuster M&A that made the past M&A look small by comparison. For example the merger between citigroup and travelers group estimated at $ 77 billion in value and Exxon’s acquisition of Mobil for $ 81429.8 millions. The size and number of M&A transaction continue to grow Worldwide.

Few terms defined: -

a) Amalgamation: - is an event or transaction in which two or more companies, or their net assets, are brought under common control in a single legal entity.

b) Merger: - In this case both the combining companies are dissolved and assets and liabilities of both companies are transferred to a newly created company.

c) Acquisition: - In this case only one of the combining companies survives and other loses its separate identity. The assets and liabilities of the acquired company are transferred to the acquiring company. The acquired company is dissolved.

d) Horizontal: - It is an amalgamation that takes place between two companies in the same time of business.

e) Vertical: - It is an amalgamation that takes place when a company amalgamates with a supplier or a customer:

f) Conglomerate: Conglomerate is a diversified group of companies. In a conglomerate amalgamation, the amalgamating companies are in totally unrelated lines of business. The main purpose of conglomeration is diversification of risk.

Steel Industry: -

Steel is an alloy of iron and carbon, containing less than 2% carbon, 1%, manganese and small amounts of Silicon, Phosphorus, Sulpher and oxygen. Steel Production is 20 times higher as compared to production of all non-ferrous metal put together and the most important engineering and construction material in the world. There are altogether about 2,000 grades of steel. The total output of world crude steel in 2003 stood at 945 million tones. India is the eight largest producer of steel. The demand for steel is depended on the overall health of the economy and infrastructure development activities. The steel prices in the Indian market primarily depend on the domestic demand and supply conditions and International prices. Prices of input materials for iron and steel such as power tariff, freight rates and coal prices also contribute to the rise in the input costs for steel making.
Top five steel companies of world are mentioned below: -

i) Arcelar-Mittal $ 70 Billion (Indian)
ii) Nippon Steel (Japan)
iii) JFE (Japan)
v) Posco (Korean)
v) Tata-Corus (Indian)

About Tata

Established in 1907, Tata steel is Asia’s first and India’s largest private sector steel company. Tata steel is among the lowest cost producers of steel in the world and one of the few selected steel companies in the world that is EVA + (Economic Value Added).

Its captive raw material resources and the state-of-the-art- 5 MTPA (million tonne per annum) plant at Jamshedpur, in Jharkhand State, India give it a competitive edge. Determined to be a major global steel player, Tata steel has recently included in its fold Nat steel, Asia (2 MTPA) and Millennium Steel (1.7 MTPA) creating a manufacturing network in eight markets in South East Asia and Pacific countries. Soon the Jamshedpur plant will expand its capacity from 5 MTPA to 7 MTPA by 2008. The Company plans to enhance its capacity, manifold through organic growth and investments. The Company’s wire manufacturing unit in Sri Lanka is known as Lanka Special Steel, while the joint venture in Thailand for limestone mining is known as Sila Eastern.

Tata Steel’s products are targeted at the quality conscious auto sector and the burgeoning construction Industry. With wire manufacturing facilities in India, Sri Lanka and Thailand, the company, plans to emerge as a major global player in the wire business.

Future Plans

Steel Plant Projects in India:

The Company has embarked upon setting up three field steel plants in eastern India:

i) 12 MTPA* plant in Jharkhand
ii) 6 MTPA plant in Orissa
iii) 5 MTPA plant in Chhattisgarh

Overseas:

i) At Iran
ii) At Bangladesh

About Corus

Corus in a leading international metal company, which combines world-renowned expertise with local service. The headquarters are in London, with four divisions and operations worldwide. The company has manufacturing operations in many countries with major plants in the UK, the Netherlands, Germany, France, Norway and the USA. In addition, a network of sales offices and service centers spans the globe. The shares are listed on the London, New York and Amsterdam stock exchanges.

In 2005 generated turnover of $10.1 billion and produced 19 million tones of steel and delivered over 0.6mt of aluminum. At the end of December 2005 Corus had 47,300 employees.

From October 2003 Corus has been structured into four main divisions: Strip Products, Long Products, Aluminum and Distribution and Building Systems.

Corus was formed on 6th October 1999, through the merger of British Steel and Koninklijke Hoogovens. Corus has a strategy focused around carbon steel, with the intention of: ensuring that upstream steel making facilities are optimized and that the leading position of its IJ muiden site is maintained; pursuing selective growth of downstream business; seeking opportunities to participate in the ongoing consolidation of the world’s steel industry.

Tata-Corus Deal: A Financial Perspective

Process for acquiring Corus started October 2005 when Tata shown interest in Corus. On Oct 2006- Tata Group confirms interest in acquisition, Oct 17-2006 $7.6 billion bid for 455 pence/share announced by Tata, Oct, 20 2006 – Corus board approved Tata bid, Nov. 17 – CSN made bid of 475 pence/share, November 27, 2006- Corus adjourns extra ordinary share holder meeting from Dec. 4 to Dec. 20 to allow CSN more time, Dec. 10 2006 – Tata steel raised bid to 500 pence / share $ 9.2 billion, Dec. 11 2006- CSN raised bid to 515 pence/share ($ 9.6 billion), Dec 19 UK Take over panel sets 30th January 2007 deadline to make revised offer, Jan 30 – corus auction started and Jan 31st 2007 Tata outbid CSN with 608 pence/share $ 12.1 billion (approximately 54,000 crore). Bid was 33.6% over original bid. Tata Steel will finance this deal through “Own funds and Debts”. $ 3.45 Billion by Tata Steel, $ 6.5 Billion from ABN AMRO, Credit suisse, and Deutsch Bank (Debt financing), $ 1 Billion by Tata sons and rest from additional Credit facility.

But major question is whether deal is feasible far Tata steel?

Tata Steel Committed to investor that they are not going to exceed outstanding Debt Rs. 20,000 Crore ($ 4.6 billion). Although FY 06 outstanding debt is Rs. 2500 crore ($ 0.58) billion but liability of 54,000 crore is very huge. As per last year performance Tata Corus (combined) turnover was $ 23 billion and PAT $ 1.6 billion and if we extrapolate, It will rise to $ 25.8 billion and $ 3.4 billion, which is a positive sign. Total sales of Tata Corus for FY 06 was $24374 million, EBITDA $ 3442 million and Net profit 1701 $ million. Tata Steel target is to cross 60 million tonne capacity up to 2020.

Debt – equity Ratio has decreased from 2.98 to 0.29 from 1996-97 to 2005-06 i.e. by 927%. Which is a very good sign and authenticate solvency position of a company. EBITIDA/TO ratio has increased from 21.39% to 40.19% in last 10 year. Current ratio is now 1.11 (i.e. in 2005-06) and it was 2.07 in 1996-97. Means NWC requirement has decreased which is again a very good sign because dependency for short loan is less and not creates any technical insolvency. Earning per share has shown
economics growth of 396% during 10 years. Return an average capital employed increase from 10.61% (1996-97) to 40.76% (2005-06), which indicates proper utilization of funds in the company. Although P/E ratio is showing downward trend but volatility in the stock market is one of the reason behind it. Interest coverage has increased from 2.98% to 45.74% during last ten years that clarify potential of Tata steel towards payment of current liability and financial expenses. PBT / TO ratio has also shown growth of 258%. During last ten years, which depicts potential of operating capacity and technological development.

According to time series analysis (Secular Trend Method), PAT of Tata Steel in 2010 might raise up to Rs. 5093.346 crores, Rs. 7211.606 crore in 2015 and Rs. 9329.866 in 2020, which will show CAGR (compound annual growth rate) of 6.74% from 2005 to 2020. Reserve and surplus in 2010 might rise up to Rs. 8998.6639 Crore, Rs. 11348.2889 crore in 2015 and Rs. 13747.9139 in 2020, which will show CAGR of 2.71%. If Reserve & Surplus increase the Net worth of the company will increase and it affect Book value of share in positive mode, again very good indication for company future. Total production capacity might rise up to 5400.07 (’000 tones) in 2010, 6304.9884 (’000 tones) in 2015 and 7329.9047 (’000 tones) in 2020, which will show CAGR of 3.22%. Tata is now having stake in 32 countries in Steel Industry and definitely production capacity will rise enormously in the future.

Coefficient of Variance of ROCE of Tata steel is 79.41 %, which is very high, and it is indicating great volatility in the return on investment, which is not a positive sign. There is a requirement of control on such volatility in Tata Steel. Debt equity ratio of Corus was 0.13 in 1997 and 0.51 in 2005, which has shown increment of 284.61%. Corus performance in steel is very encouraging in the past few years and but financial burden on Tata steel will increase. Profit of Corus was 333 million pound in 1997 and rose up to 451 in 2005, shown growth of 35%, which is a positive sign for acquirer. Current ratio has increased from 1.53 to 1.8 from last 10 years and it depict that Corus working capital management is not appropriate. Either it is holding high current assets or not able to create payment float. Current EPS of Corus is 13.69 pence and current market price is 604.4 pence/share, but this growth took place after acquisition deal. Current turnover of Corus is 10140 million pound and same capacity is shifted to Tata steel, which will definitely increase overall capacity of Tata in production as well as in profitability. Combined market capitalization is now $17.5 bn, revenue $23.4 bn, PAT $1.5 bn and EBITDA $3.1 bn. Corus total steel capacity is 18.2 mtpa, revenue $19.36 billion and net income $861 million which is now under possession of Tata steel. Before the Tata corus deal, Tata was with a capacity of 4.3 million and now 23.5mtpa, corus cover manufacturing plant in the UK and Ireland (4), the US (3), the Netherland (1) and the EU (19), which is now strength of Tata steel. Besides giving the Tata a leg up in tapping big European market, Corus brings with it superior technology and a more sophisticated product range like steel for packaging materials and cars. If Tata steel, which makes steel like billets and slabs to corus, it could according to estimates, save nearly $500 million over three years.

Looking at the financial aspect this deal is going to be one of the major turnaround in the history of Tata steel and create enormous growth for merged entity.

**Tata-Corus Deal: HR Perspective**

Mergers and Acquisitions (M&A) have brought new concern in the HR perspectives in the present scenario specifically when we talk of India. Here concern includes every thing right from the way the acquirer thinks, the way the acquired thinks, the cultural concern, the long-term strategy and the politico-demographical concern. As M&A is nothing but the marriage of two companies to continue their lives happily thereafter; a greater part of due diligence is required to make up the deal, in the same way as the parents of brides and grooms analyses each other’s position relatively. The marriage occurs between those two a family for which there is greater possibility of synergies or we can eliminate the word possibility and strictly say where there is synergy there will be marriage. And this analysis is done not keeping in consideration the short-term goal, but this is done in order to provide the stronger base to the families getting into the arrangements and at the end keeping in consideration the long-term goal. Whichever family fails in these respects, for them the only way out is to breakup the sort of contract, which they have formed, and divorce. Thus before entering such type of contract either parties have to undergo the tight ropewalk, as it not only involves the formation of relationship between the individuals, but also involves the reputation of the family and in turn reputation of the clan is at stake. Any mistake or any hurry to enter such type of contract can lead to fatal results as pointed above.

The important aspect, apart from the financial aspect, which comes into picture while considering the success of the M&A outside India, is the cross-cultural aspect. Cross-cultural factor has considerable amount of effect on the success of the mergers and acquisitions not only in India but also across the globe. Taking the same marriage example in India, if the marriage is between the same caste then the parents find themselves at least free from the cultural and value aspect but when it comes to marriage which is not within the caste but between two different castes then matter needs to be considered again and again as it is a function of two different castes with different sets of value and ethics. The same amount of diligence is required when it is the merger between two companies, which is countries apart, with obvious differences in the culture, values and ethics. There are certain factors which forms the major portion of the concern scale when we talk about cross cultural aspect of the Mergers and Acquisition, a brief over view of them are:

- **a)** Individualism and collectivism
- **b)** Masculinity-Femininity
- **c)** Uncertainty avoidance
- **d)** Power distance

The above factors consider the important aspect when it is about success rate of any mergers and acquisition as these factors are going to have substantial amount of effect on the managers. In that case Indian managers are considered to be
the HYBRID managers, as they don’t represent single trait when it comes to managing the individual in the organization. They have demonstrated their varied skills in times of taking crucial decision, be it masculinity or femininity, be it uncertainty avoidance, or be it power distance. They are ready to accept and are accepting any kind of thinking unless it is fulfilling their dreams and vision. And researches have found out that Indian managers lie somewhere in the middle of scale in every aspect i.e. they are neither too individualistic nor too collectivist, neither they are too inclined towards the uncertainty avoidance nor they want to have too much of power distance. These reasons can be responsible for the success rate of the Indian managers across the world. There is one more important reason that lays the foundation for the success of the Indian managers - the availability of the cross-cultural function or the society in India itself. We all know that India is a country of diversity. A manager from southern part of India cannot have the same values as the manager from the northern part of India. This provides the learning to organization operating in India to deal with the cross-cultural variables beforehand and that forms the positive aspects of many Indian companies. Or in other words when in the organization they have to face numerous diversities in the line of thinking or type of personality and attitude. This diversity provides them first hand experience for taking the decision in cross-cultural environment.

The above said points clearly hints the cause of success story of the Indian managers abroad in managing the business in the cross cultural environment, no doubt without these competent managers it won’t be possible for any of the Indian company to taste the success in foreign land.

Now with the given team of competent managers it becomes very difficult to divert this competent bank towards the productive direction. Difficult because it requires due diligence on the part of the company management to utilize it in a productive way and to have this kind of thinking in terms of utilization of the resources in the positive way company needs apt leader to direct it.

Incorporating all the above said points we will be analyzing the Tata-Corus deal in the HR perspective in the coming paras.

**Tata-Corus merger:**

21st century started with some of the biggest mergers in the history. This can be attributed to the fact that it was the thirst of the company to grow over the boundary that propelled the companies to march ahead in the global scenario, and the only way out left was through mergers and acquisition. The reason behind this act was identified as the synergy. It is an obvious reason that if a company wants to expand its horizon across the borders, it has to complete this act seeking another company’s help which has already got its presence in that new country. Again, it is culture barrier that stops the guest company to flourish in the host country. But on the other hand this act i.e. merger and acquisition is equally important as through this act only the company is going to have the synergy.

With the advent of 21st century Mr. Ratan Tata visualized this fact that if really the group wants to survive then the only way left out is start looking out for those companies through which it can have synergy on one hand and growth on the other. In order to realize this goal he came out with certain objectives, first amongst them was to globalize its operation, so that he can save his companies from the hostile takeovers by the companies like that of Lakshmi Narayan Mittal, who had the ambitious plan to enter India. Thus to achieve this objective the only way left out was to become aggressive. Aggressive in every respect and in every area; be it in approach, be it in achieving the target. Thus the group, which was viewed as risk-averse group, now came with all together new plans to compete the market. Now that approach was visible from every step like new product launch or the marketing strategy.

Thus here Mr. Ratan Tata delivered his leadership skills, which were not the same as it uses to be. Mr. Ratan Tata, introvert, media shy, was changed to new Mr. Ratan Tata who is now more aggressive and shyness and introvert ness became the word of alien’s dictionary.

Here in the above case Mr. Ratan Tata emerged as the true leader who can change the strategy according to the situations and condition prevailing. And this is the real sign of actual leader as it should be. Real leadership demands that strategy should be flexible enough to cope up the changes. As there is good old saying that if with the changing environment you are not changing yourself then you will become the Dinosaur, so it is better to be like frog, which is more flexible to changes in the environment. This is considered due to the fact that dinosaur became extinct just because of the reason that they were not prone to changes according to the changes in the environment. The frog has saved its existence because of the attribute of adaptation only. Thus it is the leader’s job to define new path according to the situation prevailing in the environment.

Concluding the discussion, we can infer that the kind of leadership quality that has to be there when someone is out for merger and acquisition viz. respect for other’s culture, utilizing the synergy, cross cultured, diversified quality; Tata possesses that quality and definitely this merger is going to be amongst the successful merger in the history.

**Conclusion:**

Looking at the financial as well as hr aspect of this deal it is very clear that it is boom for Tata Steel. Although liability of this deal is bit high and cross cultural management is a concern, but after evaluation it is very clear that Tata steel will be able to manage liability and a cultural diversification.

Major objective of the merger and acquisition deal is to expand, to curtail cost, to become globalize and to survive in the competitive environment. Merger and acquisition is like inter caste marriage, which requires bold and courageous step, Tata did the same.
References:
5. Hetal Machhi, "Merger and Acquisition", The Management Accountant, Oct 2005
13. Study Material of MCX India Ltd
14. www.corusgroup.com
15. www.tatasteel.com

Annexure

Table – I
Calculation Of PAT (Rs. In crores) by use of Time Series Analysis

<table>
<thead>
<tr>
<th>x (in years)</th>
<th>y (PAT in Rs. Crores)</th>
<th>X</th>
<th>Xy</th>
<th>X²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>322.08</td>
<td>-4</td>
<td>-1288.32</td>
<td>16</td>
</tr>
<tr>
<td>1998</td>
<td>282.23</td>
<td>-3</td>
<td>-846.69</td>
<td>9</td>
</tr>
<tr>
<td>1999</td>
<td>422.59</td>
<td>-2</td>
<td>-845.18</td>
<td>4</td>
</tr>
<tr>
<td>2000</td>
<td>553.44</td>
<td>-1</td>
<td>-553.44</td>
<td>1</td>
</tr>
<tr>
<td>2001</td>
<td>204.9</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2002</td>
<td>1012.31</td>
<td>1</td>
<td>1012.31</td>
<td>1</td>
</tr>
<tr>
<td>2003</td>
<td>1746.22</td>
<td>2</td>
<td>3492.44</td>
<td>4</td>
</tr>
<tr>
<td>2004</td>
<td>3474.16</td>
<td>3</td>
<td>10422.48</td>
<td>9</td>
</tr>
<tr>
<td>2005</td>
<td>3406.38</td>
<td>4</td>
<td>14025.52</td>
<td>16</td>
</tr>
</tbody>
</table>

\[ y = a + bx \]
\[ a = 1280.478 \]
\[ b = 423.652 \]

Estimated PAT in 2010 by using \( y = a + bx \), we can have
\[ \text{y} = 1280.478 + 423.652 \times 9 \]
\[ y = 5093.346 \]

Estimated PAT in 2015 by using \( y = a + bx \), we can have
\[ \text{y} = 1280.478 + 423.652 \times 14 \]
\[ y = 9225.564 \]

Estimated PAT in 2020 by using \( y = a + bx \), we can have
\[ \text{y} = 1280.478 + 423.652 \times 19 \]
\[ y = 11424.31 \]

\[ \text{y} = a + bx \]
\[ a = 3663.222 \]
\[ b = 192.9833 \]

Estimated Sales capacity (in ‘000 tonne) in 2010 by using \( y = a + bx \), we can have
\[ \text{y} = 3663.222 + 192.9833 \times 11 \]
\[ y = 5786.03 \]

Estimated Sales capacity (in ‘000 tonne) in 2015 by using \( y = a + bx \), we can have
\[ \text{y} = 3663.222 + 192.9833 \times 14 \]
\[ y = 7329.9047 \]

Note: for the sake of convenience 1997-1998 has been considered as 1997 and so on

Table – II
Calculation Of Total sales capacity (in ‘000 tonne) by use of Time Series Analysis

<table>
<thead>
<tr>
<th>x (in years)</th>
<th>y (in ‘000 tonne)</th>
<th>X</th>
<th>Xy</th>
<th>X²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>2971</td>
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</tr>
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<td>3051</td>
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<td>8152</td>
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<tr>
<td>2004</td>
<td>4074</td>
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<tr>
<td>2005</td>
<td>4551</td>
<td>4</td>
<td>18204</td>
<td>16</td>
</tr>
</tbody>
</table>

\[ y = a + bx \]
\[ a = 3663.222 \]
\[ b = 192.9833 \]

Estimated Sales capacity (in ‘000 tonne) in 2012 by using \( y = a + bx \), we can have
\[ \text{y} = 3663.222 + 192.9833 \times 11 \]
\[ y = 5786.03 \]

Estimated Sales capacity (in ‘000 tonne) in 2020 by using \( y = a + bx \), we can have
\[ \text{y} = 3663.222 + 192.9833 \times 19 \]
\[ y = 7329.9047 \]

Note: for the sake of convenience 1997-1998 has been considered as 1997 and so on…
Table – III
Calculation Of Reserve and Surplus (Rs. In crores) by use of Time Series Analysis

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
<th>X</th>
<th>Xy</th>
<th>X²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>3697.32</td>
<td>-4</td>
<td>-14789.3</td>
<td>16</td>
</tr>
<tr>
<td>1998</td>
<td>3796.45</td>
<td>-3</td>
<td>-11389.4</td>
<td>9</td>
</tr>
<tr>
<td>1999</td>
<td>4040.43</td>
<td>-2</td>
<td>-8080.86</td>
<td>4</td>
</tr>
<tr>
<td>2000</td>
<td>4380.46</td>
<td>-1</td>
<td>-4380.46</td>
<td>1</td>
</tr>
<tr>
<td>2001</td>
<td>3077.99</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2002</td>
<td>2816.84</td>
<td>1</td>
<td>2816.84</td>
<td>1</td>
</tr>
<tr>
<td>2003</td>
<td>4146.68</td>
<td>2</td>
<td>8293.36</td>
<td>4</td>
</tr>
<tr>
<td>2004</td>
<td>6506.25</td>
<td>3</td>
<td>19518.75</td>
<td>9</td>
</tr>
<tr>
<td>2005</td>
<td>9201.63</td>
<td>4</td>
<td>36806.52</td>
<td>16</td>
</tr>
</tbody>
</table>

\[ y = a + bx \]
Where
\[ a = 4629.3389 \]
\[ b = 479.925 \]

T
e the sake of convenience 1997-1998 has been considered as 1997 and so on

(mean) = 18.581
Standard Deviation = 14.769
Coff. Of Covariance = 79.48%

Table – V
Calculation of CAGR (Compound annual growth rate)

\[ \text{PAT} = \frac{(2020/2005)^{1/15} - 1}{(9329.866/3508.38)^{1/15} - 1} \]
6.74%

\[ \text{Reserve and Surplus} = \frac{(13747.9139/9201.63)^{1/15} - 1}{(7329.9047/4551)^{1/15} - 1} \]
2.71%

\[ \text{Total steel Production} = \frac{(7329.9047/4551)^{1/15} - 1}{(7329.9047/4551)^{1/15} - 1} \]
3.22%

Note: for the sake of convenience 1997-1998 has been considered as 1997 and so on…

Few Examples of World great Merger and Acquisition are given below:

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Year</th>
<th>Buyer</th>
<th>Seller</th>
<th>$ Billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1987</td>
<td>British Petroleum United</td>
<td>Standard Oil, Ohio</td>
<td>7.8</td>
</tr>
<tr>
<td>8</td>
<td>1988</td>
<td>Campeau Canada</td>
<td>Federated Department</td>
<td>6.5</td>
</tr>
<tr>
<td>11</td>
<td>1988</td>
<td>Grand Metropolitan United</td>
<td>Pillsbury</td>
<td>5.6</td>
</tr>
<tr>
<td>13</td>
<td>1984</td>
<td>Royal Dutch Shell Netherlands</td>
<td>Shell Oil</td>
<td>5.5</td>
</tr>
<tr>
<td>15</td>
<td>1988</td>
<td>B.A.T. Ind. United Kingdom</td>
<td>Farmers Group</td>
<td>5.2</td>
</tr>
<tr>
<td>22</td>
<td>1981</td>
<td>Elf Acquitaine France</td>
<td>Texasgulf</td>
<td>4.3</td>
</tr>
<tr>
<td>37</td>
<td>1987</td>
<td>Campeau Canada</td>
<td>Allied Stores</td>
<td>3.2</td>
</tr>
<tr>
<td>51</td>
<td>1981</td>
<td>Kuwait Petroleum Corporation</td>
<td>Santa Fe International</td>
<td>2.6</td>
</tr>
<tr>
<td>70</td>
<td>1987</td>
<td>Sony Plan</td>
<td>CBS (CBS Records)</td>
<td>2.0</td>
</tr>
<tr>
<td>89</td>
<td>1988</td>
<td>Private group United Kingdom</td>
<td>Koppers</td>
<td>1.7</td>
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</tbody>
</table>
Few Recent Example of Indian Mergers are given below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Indian Acquirer</th>
<th>Company</th>
<th>Sector</th>
<th>Stake (%)</th>
<th>Consideration ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>Aban Loyd Chiles Offshore Ltd (ALCO)</td>
<td>Sinvest ASA, Norway Oil &amp; Gas (drilling Company)</td>
<td>33.76</td>
<td>445.6</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Tata Tea</td>
<td>Energy Brands Tea USA</td>
<td>30</td>
<td>677</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>ONGC Videsh</td>
<td>Petrobras’BC- Offshore Brazil Oil &amp; Gas Energy</td>
<td>15</td>
<td>1800</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Suzlon Energy</td>
<td>Hansen Wind Transmission, Belgium Energy</td>
<td>100</td>
<td>588</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Dr. Reddy Laboratories</td>
<td>Betapharm Pharma Arzneimittel GmbH, Germany Paper &amp; Pulp</td>
<td>100</td>
<td>572</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Ballarpur Industries</td>
<td>Sabah Forest Industries Malaysia Paper &amp; Pulp</td>
<td>97.78</td>
<td>261</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Tata Coffee</td>
<td>Eight O’ Clock Retail USA Hotels</td>
<td>100</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Indian Hotels Company Ltd.</td>
<td>Boston Ritz Carlton, USA Hotels</td>
<td>100</td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Chemplast Sanmar</td>
<td>Trust Chemical Industries, Egypt Chemicals</td>
<td>100</td>
<td>200</td>
<td></td>
</tr>
</tbody>
</table>