Chapter Seven

PERFORMANCE EVALUATION OF THE SELECTED COMPANIES

This chapter presents the performance evaluation of selected companies. This was in fulfillment of one of the objectives of the project, which was to study the performance of selected companies listed on the Indian Capital Market in the period 1992 to 2006. The data for analysis was collected from the following selected companies: Wipro Corporation, Tata Steel Ltd., Tata Motors Ltd., Reliance Industries Ltd., Reliance Energy Ltd., Maruti-udhyog Ltd., Larsen and Toubro Ltd., Indian Tobacco Company Ltd. (ITC), Hindalco Industries Ltd., Hindustan Lever Ltd, Hero Honda Ltd., Housing Development Finance Corporation (HDFC Bank) Ltd., Grasim Industries Ltd., Dr Reddy's Labs Ltd., Chemical, Industrial & Pharmaceutical Laboratories (Cipla) Ltd., Bajaj Auto Ltd., Bharat Heavy Electricals Limited (BHEL), Ambuja Cement Ltd. These companies were selected on the basis of completeness of data required for this research.

The Securities and Exchange Board of India (SEBI) in its life time has kept the Capital Market under control through various measures. The control of the Capital Market, its stability and sustainability can be seen in the analysis of the data collected from eighteen companies listed on the market. The period of analysis is fifteen years – 1992 to 2006. The companies’ profit figures are converted into percentage returns and used for the analysis. The purpose of the analysis was to find out the degree of riskiness present in the Indian Capital Market, given the various control measures implemented by SEBI.

7.1 Comparison of Company Performance against Market Performance

The analysis starts with a time series comparison of the companies’ returns and market returns over the study period - fifteen years (1992 -2006). The information about the companies’ returns and market returns was collected and the analysis has been done and presented below. The comparison has been made on the companies, on a company by
company basis. Each company’s returns are carefully analysed and presented using graphs and bar charts.

Wipro Corporation started in the 1960s, dealing in vegetable products. In 1977 the operations of the business expanded and included the Information Technology (IT) services, filling the gap in India created by the departure of the International Business Machines (IBM). The Corporation has a workforce of 79,900 located some 50 office locations. By the end of 2007 it had a turnover of $3,470 million.

a) **Wipro Corporation Ltd.**

![Graph showing Wipro vs Market Returns](image)

**Fig. 7.1**

**Source: Field Analysis (2008)**

The analysis for Wipro Corporation’s returns and Market returns show that the Market outperformed Wipro Corporation during the period 1992 to 2000. This was the intense period of the scams and during this period there was lack of confidence by investors which helped depressed company performance (see fig. 7.1). The Securities and Exchange Board of India (SEBI) fought hard and restored calm in the Capital Market, by establishing reforms which favoured the investors. As shown on fig. 7.1, Wipro Corporation’s returns outperformed the market situation during the period 2000 to 2006.
b) Tata Steel Industries Ltd.

**Fig. 7.2**

**Source: Field Analysis (2008)**

Figure 7.2 provides the time series trend of Tata Steel returns and Market Returns. In the analysis the market outperformed Tata Steel during the period 1992 to 2002. The poor performance is attributed to the scams’ operations affecting company performance. Tata Steel recovered from the second quarter of 2002 to 2006, making good profits.
c) Tata Motors Ltd.

**Fig. 7.3**

**Source: Field Analysis (2008)**

Figure 7.3 provides the trend analysis of Tata Motors’ returns and Market returns. It indicates that between 1992 to 1994 the market outperformed the company. From 1994 to 1998 the company took over outperforming the market. From 1998 to the first quarter out 2002 the situation of Tata Motors was very bad. The company heavy losses. The Company recovered from its loss making situation from the first quarter of 2002, and up till 2006 it made profits although between 2005 and 2006 the profit dropped very considerably. Tata Motors over the period 1992 to 2006 showed a fluctuating performance.
d) Reliance Industries Ltd.

Figure 7.4 provides the trend analysis between Reliance Industries’ returns and Market Returns. It shows that Reliance Industries started in 1992 through to 1993 by not performing up to the mark. For the two years the market outperformed the company. From 1994 the company recovered, outperforming the market up till 2006. The good performance followed SEBI’s introduction of better Capital Market rules and regulations in the form of aggressive market reforms.

Figure 7.5 provides the trend analysis of Reliance Energy returns and Market Returns for the period under review. The company’s returns are fluctuating. Between 1992 and 1993, the market outperformed the company. The performance averaged out during 1993 to 1997. The Company’s situation improved during the period 1997 to 2002. The company again was overtaken by the market performance during the period 2003 to 2006.

Source: Field Analysis (2008)
Maruti Udyog corporation was established in February 1981. Its Head Office is in Delhi, India. This company brought the four-wheeler manufacturing to India. It holds 60% of the automobile manufacturing in the whole of South Asia. By 17th September, 2007 the corporation resolved to change its name to Maruti Suzuki India Limited. It is now a subsidiary of the Suzuki Motor Corporation of Japan.

Figure 7.6 indicates that Maruti-udyog Corporation had a bad period during 1992 to 1996. Losses were made during the period 1993 to 1996. The company recovered and outperformed the market from 1997 to 2000. From 2001 to 2003 the company was hit again with losses. There was again a recovery from 2004 to 2006. The situation as shown by figure 4.6 was badly hit by the scams’ operations.
f) Maruti-udyog Ltd. (Maruti Suzuki)

Figure 7.7 provides the time series trend analysis for Larsen & Toubro Corporation’s returns and the Market Returns. The company was running on the same footing as the market from 1992 to 2003. The two major scams took place during this period. The company outperformed the market between the periods 2004 to 2006. This was the period of Capital Market reforms, creating awareness and confidence to investors.

Source: Field Analysis (2008)
g) Larsen and Toubro Ltd.

![Larsen and Toubro Vs Market Returns](image)

**Fig. 7.7**

**Source:** Field Analysis (2008)

Figure 7.8 provides the time series trend analysis of the performance of ITC and Market. It showed that ITC corporations’ returns outperformed the market returns during the whole of the period under review. The scams’ operations, although affected the corporation, but not to allow the market to outperform it at any one time. The fluctuations downwards in the corporations’ returns indicate tough times brought about by the scams’ operations. The corporation is backed by a very good management team, very well-armed with strategic management and planning skills.
Figure 7.9 provides the time series trend of Hindalco Company’s returns and the Market Returns for the period under review. It shows for the years 1992 and 1993 the market outperformed the company. The company recovered and outperformed the market during period 1994 to 2002. The year 2003 suffered briefly, but the company outperformed the market for rest of the period, 2004 to 2006.
i) Hindal Company Ltd

![Hindalcos Vs Market Returns](image1)

**Fig. 7.9**

*Source: Field Analysis (2008)*

j) Hind. Lever Corporation (Hindustan Unilever) Ltd.

![Hind. Lever Vs Markets](image2)

**Fig. 7.10**

*Source: Field Analysis (2008)*
Figure 7.10 shows the time series trend of the Hind. Lever company’s returns and the Market Returns. It reveals the remarkable performance of Hind. Lever (Unilever) Company, outperforming the market at all times from 1992 to 2006.

k) Hero Honda Motors Ltd.

Fig. 7.11

Source: Field Analysis (2008)

The Hero Honda Motors Limited had a turnover of Rs 103,320 million. It employed a workforce of 4322 employees in India. It manufactures and markets Honda Motorcycles and spare parts in India.

Figure 7.11 shows the time series trend of the Hero Honda company’s returns and the Market Returns. It also reveals the remarkable performance of the Hero Honda company, outperforming the market situation at all times in the period 1992 to 2006.
1) HDFC Bank India Ltd.

**Fig. 7.12**

**Source: Field Analysis (2008)**

The Housing Development Finance Corporation (HDFC), has a network of over 531 branches. It is located in 228 cities in India. It has a large banking network.

Figure 7.12 shows the time series trend of the HDFC Corporation’s returns and the Market Returns. It also reveals the performance of the HDFC Corporation, not outperforming the market situation, but doing well to the satisfaction of the stakeholders.
m) Grasim Industries Ltd.

![Grasim Inds. Vs Market Returns](image)

**Fig. 7.13**

**Source: Field Analysis (2008)**

Figure 7.13 shows the time series trend of the Grasim Industries’ returns and Market Returns. It reveals that during the period 1992 and 1993 the market performed better than the Grasim. The returns of Grasim recovered during 1994 and 1995, but had a down turn again during 1996 to 2003. During the period 2004 to 2006 it outperformed the market. The scams years had a very negative effect on the Grasim Industries.
n) Dr. Ready’s Corporation Ltd.

![Dr. Ready's Vs Market Returns](image)

**Fig. 7.14**

**Source: Field Analysis (2008)**

Figure 7.14 shows the time series trend of Dr. Ready’s returns and the Market Returns. The company outperformed the market from 1992 to 2004. It is only during the period 2005 that the company’s performance dropped. It showed some improvement during 2006
Figure 7.15 shows the time series trend of the Cipla company’s returns and market returns. It indicates that during the period 1992 and 1993 the market had a better performance than the company. However, the company recovered and has since outperformed the market from 1994 to 2006.

**Source: Field Analysis (2008)**
p) Bajaj Auto Company Ltd.

![Bajaj Auto Vs Market Returns](image)

**Fig. 7.16**

**Source:** Field Analysis (2008)

Figure 7.16 shows the time series trend of the Bajaj Auto Company’s returns and Market Returns. It indicates that during the year 1992 the market performed better than the company. The company’s performance since improved. The company outperformed the market for the period 1993 to 2006. It was a remarkable performance by the company’s management team.
q) Bhel Company Ltd.

**Fig. 7.17**

**Source: Field Analysis (2008)**

Figure 7.17 shows the time series trend of the Bhel Company’s returns and the Market Returns. It indicates that the company has always outperformed the market despite difficult business situations and adverse conditions.
r) Ambuja Cement Company Ltd.

![Ambuja Cement Vs Market Returns](image)

**Fig. 7.18**

**Source: Field Analysis (2008)**

Figure 7.18 shows the time series trend of the Ambuja Cement Company’s returns and Market Returns. It indicates that the company’s returns and the market returns are on the same level, except for two outstanding periods 2000 to 2001 and 2004 to 2006 when the company outperformed the market.

The company returns have been carefully compared with the market returns in the period under study. The company returns individually on average, are performing far better than the market returns.

**7.2 Analysis of Company and Market Returns’ Statistics**

This section involves a careful analysis of the mean, standard deviation, coefficient of correlation, the coefficient of determination, the beta coefficient, the covariance and the variance of all the companies’ returns.
Table 7.1: Company and Market Returns’ Statistics

<table>
<thead>
<tr>
<th>Company Statistics</th>
<th>Mean Returns</th>
<th>Standard Deviation</th>
<th>Correlation coefficient</th>
<th>Coefficient Of determination</th>
<th>Beta coef</th>
<th>Co-variance</th>
<th>Variance Of Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipro</td>
<td>13.43</td>
<td>13.57</td>
<td>-0.01</td>
<td>0.00</td>
<td>-0.04</td>
<td>-0.28</td>
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<td>0.12</td>
<td>0.01</td>
<td>0.61</td>
<td>4.65</td>
<td>205.02</td>
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<td>44.53</td>
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<td>0.00</td>
<td>-0.05</td>
<td>-0.39</td>
<td>1983.02</td>
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<tr>
<td>Reliance Inds</td>
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<td>2.93</td>
<td>-0.29</td>
<td>0.08</td>
<td>-0.29</td>
<td>-2.23</td>
<td>8.61</td>
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<td>Reliance Energy</td>
<td>9.13</td>
<td>2.31</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>5.35</td>
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<tr>
<td>Maruti-udyog</td>
<td>15.67</td>
<td>45.44</td>
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<td>0.00</td>
<td>-0.69</td>
<td>-5.22</td>
<td>2064.55</td>
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<td>Larsen &amp;Toubro</td>
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<td>10.58</td>
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<td>6.50</td>
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<td>0.01</td>
<td>0.22</td>
<td>1.69</td>
<td>42.23</td>
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<td>2.48</td>
<td>0.55</td>
<td>0.30</td>
<td>0.48</td>
<td>3.62</td>
<td>6.17</td>
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<tr>
<td>Hind. Lever</td>
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<td>331.06</td>
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<td>0.03</td>
<td>-21.29</td>
<td>-161.15</td>
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<td>Hero Honda</td>
<td>103.61</td>
<td>70.77</td>
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<td>0.09</td>
<td>-7.45</td>
<td>-56.39</td>
<td>5007.94</td>
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<td>HDFC</td>
<td>2.70</td>
<td>0.42</td>
<td>-0.67</td>
<td>0.45</td>
<td>-0.10</td>
<td>-0.75</td>
<td>0.18</td>
</tr>
<tr>
<td>Grasim Inds</td>
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<td>3.74</td>
<td>0.05</td>
<td>0.00</td>
<td>0.06</td>
<td>0.47</td>
<td>13.95</td>
</tr>
<tr>
<td>Dr Reddy's Labs</td>
<td>22.07</td>
<td>15.46</td>
<td>0.37</td>
<td>0.14</td>
<td>2.03</td>
<td>15.39</td>
<td>238.90</td>
</tr>
<tr>
<td>Cipla</td>
<td>24.27</td>
<td>9.24</td>
<td>-0.28</td>
<td>0.08</td>
<td>-0.91</td>
<td>-6.89</td>
<td>85.42</td>
</tr>
<tr>
<td>Bajaj Auto</td>
<td>19.48</td>
<td>7.52</td>
<td>-0.41</td>
<td>0.17</td>
<td>-1.08</td>
<td>-7.67</td>
<td>49.43</td>
</tr>
<tr>
<td>Bhel</td>
<td>108.93</td>
<td>110.78</td>
<td>-0.16</td>
<td>0.03</td>
<td>-6.33</td>
<td>-47.89</td>
<td>12271.31</td>
</tr>
<tr>
<td>Ambuja Cem</td>
<td>11.79</td>
<td>8.70</td>
<td>0.60</td>
<td>0.36</td>
<td>1.82</td>
<td>13.79</td>
<td>75.72</td>
</tr>
</tbody>
</table>

| Market Statistics  | 9.87         | 2.85               | -                       | -                             | -         | -           | 8.11                |

Source: Field Analysis (2008)
Table 7.1 provides a careful analysis of the various companies’ performance in comparison to the market performance. Looking at the mean of returns, all the companies are beating the market performance, except Reliance Energy, HDFC and Grasim Industries which are lagging behind. The market has a mean return performance of 9.87%, but Reliance Energy has 9.13%, HDFC has 2.70% and Grasim Industries has 9.09%. The rest of the companies are outperforming the mean market returns. The information is also carefully presented in figure 7.19 company mean returns.

(a) Company Mean Returns

![Mean Returns](Fig. 7.19)

**Source: Field Analysis (2008)**

The standard deviation of returns measures the riskiness in the company. The companies with high standard deviation are running at a high risk situation. This goes to support the principle of high risk, high return. The companies with very low standard deviation of returns do not enjoy high profits (see figure 7.20). Figure 7.20 indicates that out of the eighteen companies, only one company (Hind.Lever) now Hindustan Unilever Ltd. was enjoying a very large profit margin, followed by Larsen and Troubro. Tata Motors, Maruti-udyog, Hero Honda and
Bhel have relatively high risk, hence relatively high profit margins. Hence, the higher the risks, the higher the return being an inducement for investors to invest more and gain more returns.

The coefficient of correlation of returns indicates the degree of the relationship between the companies’ returns and the market returns. Positive correlation coefficient indicates risky situations, while less risky situations are indicated by negative correlation coefficient. The degree of the relationship between the companies’ returns and the market returns is displayed in figure 7.21.

(b) Company Standard Deviation

![Standard Deviation Diagram](image)

**Fig.7.20**

*Source: Field Analysis (2008)*
Figure 7.22 indicates the co-variance between the companies’ returns and market returns over the study period. The co-variance of returns provides a measure of both the company and the market risk.

Source: Field Analysis (2008)
(d) Co-variance of Company and Market Returns

Figure 7.23 shows Beta Coefficient of Returns. It a risk indicator, showing that Larsen and Toubro has the highest beta Coefficient of Returns. It is closely followed by Dr. Ready’s Labs and Ambuja Cement company.

Source: Field Analysis (2008)
(e) Beta Coefficient of Returns

Fig. 7.23

Source: Field Analysis (2008)

(f) The Coefficient of Determination of Returns

Fig. 7.24

Source: Field Analysis (2008)
Figure 7.24 the Coefficient of Determination of Returns indicates the level of systematic risk present in the operations of the various companies (see Table 7.2).

**Table 7.2: Coefficient of Determination**

<table>
<thead>
<tr>
<th>Company</th>
<th>Coefdet. Systematic Risk</th>
<th>1 - Coefdet. Unsystematic Risk</th>
<th>Total Risk = Systematic + Unsystematic Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipro</td>
<td>0.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Tata Steel</td>
<td>0.01</td>
<td>0.99</td>
<td>1.00</td>
</tr>
<tr>
<td>Tata Motors</td>
<td>0.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Reliance Inds</td>
<td>0.08</td>
<td>0.92</td>
<td>1.00</td>
</tr>
<tr>
<td>Reliance Energy</td>
<td>0.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Maruti-udyog</td>
<td>0.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Larsen &amp;Toubro</td>
<td>0.04</td>
<td>0.96</td>
<td>1.00</td>
</tr>
<tr>
<td>ITC</td>
<td>0.01</td>
<td>0.99</td>
<td>1.00</td>
</tr>
<tr>
<td>Hindalcos Inds</td>
<td>0.30</td>
<td>0.70</td>
<td>1.00</td>
</tr>
<tr>
<td>Hind. Lever</td>
<td>0.03</td>
<td>0.97</td>
<td>1.00</td>
</tr>
<tr>
<td>Hero Honda</td>
<td>0.09</td>
<td>0.91</td>
<td>1.00</td>
</tr>
<tr>
<td>HDFC</td>
<td>0.45</td>
<td>0.55</td>
<td>1.00</td>
</tr>
<tr>
<td>Grasim Inds</td>
<td>0.00</td>
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<td>1.00</td>
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<tr>
<td>Dr Reddy's Labs</td>
<td>0.14</td>
<td>0.86</td>
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<tr>
<td>Cipla</td>
<td>0.08</td>
<td>0.92</td>
<td>1.00</td>
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<tr>
<td>Bajaj Auto</td>
<td>0.17</td>
<td>0.83</td>
<td>1.00</td>
</tr>
<tr>
<td>Bhel</td>
<td>0.03</td>
<td>0.97</td>
<td>1.00</td>
</tr>
<tr>
<td>Ambuja Cem</td>
<td>0.36</td>
<td>0.64</td>
<td>1.00</td>
</tr>
<tr>
<td>Market Statistics</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Field Analysis (2008)*
The coefficient of determination of returns measures the level of systematic risk in the company. It measured the external risk that was present in the operations of the company. It was risk that was inherent in the company’s operations and could not be diversified away by the manager. It was market related risk. The total risk of the company is equal to 1. When the systematic risk component is taken away from the total risk, the reminder is unsystematic risk. It is risk that can be managed by the manager. It is known as the manager’s risk. It can be carefully reduced through strategic management skills and careful planning (see Table 7.2).

A company whose unsystematic risk is 1 (one), has very little systematic risk. This implies that the risk of the company can considerably be reduced through diversification, strategic management and careful planning. Those companies with high doses of systematic risk will only bear the risk, because such risk cannot easily be handled by managerial skills.

7.3 Coefficient of Correlation of Returns

In measuring the risk exposure of a company or financial institution, the estimation of the correlation among asset return is an important or more important than the estimation of the distribution of the individual asset returns. This is so because the risk of a portfolio of assets depends not only on the stand-alone risks (standard deviations) of the individual assets but also on the correlation (covariance) among them. Unless the different assets are perfectly positively correlated, then the assets will act as partial natural hedges for each other, so that diversification of the portfolio among different asset types provides an inexpensive and readily available means to mitigate risk.

Indeed, the present model for the quantification of risk premiums, the capital asset pricing model (CAPM) distinguishes between two types of risks, namely:- independent and systematic risks.

(a) Independent risks - they are risks that are measured by standard deviation of returns.

(b) Systematic risks - they are risks that are measured by the extent of correlation in returns.

Independent risks can be diversified away through a broadly diversified away while system cannot. Indeed because independent risk can be so easily and cheaply hedge through
diversification, the CAPM implies that risk premiums depend only on systematic risks; it is the risk that cannot be diversified away.

Calculations of correlation among asset returns usually use historical data, with the implicit assumption that correlation is stable across periods. But several recent empirical studies contradict this assumption: correlation among asset returns is much higher during periods of extreme returns than during ‘normal’ periods. That is, the probability of a significantly adverse return on one security being accompanied by a significant adverse return on the other is substantially greater than one would expect, based upon the coefficient of correlation calculation using data from all periods. For example, in a study of common stock, a positive correlation may exist for negative returns. However, if 1 percent of the most negative returns is eliminated from both series (market returns and company returns), then the correlation coefficient for the remaining data pairs declines.

Like positive serial correlation and non-normality in returns, the tendency for assets returns to be more positively like positive serial correlation and non-normality in returns, the tendency for assets returns to be more positively correlated during financial crises tends to reduce estimates of the frequency of seriously adverse outcomes. In particular, diversification may be an effective way to mitigate portfolio risk in ‘normal’ periods, but may be ineffective in extreme periods. It is even impossible due the lack of capital, for example, the financial crises of 2008/2009, affecting the world’s financial systems.

7.4 Total risk

Total risk can be separated into two components, market related risk and company-specific risk.

(a) Market or systematic risk cannot be eliminated by diversification of the portfolio.

(b) Company-specific or diversifiable risk can be carefully reduced by proper diversification of investments.
Total Risk = Systematic risk + Unsystematic risk (see Table 7.3).

Total Risk = Diversifiable risk + Undiversifiable risk

Table 7.3 shows how the total risk of the selected companies has been separated into its systematic and unsystematic components. The total risk measured by standard deviation has been carefully separated by imploring the help of the coefficient of determination ($R^2$) of the company and market returns.
Table 7.3: Systematic and Unsystematic Risk Components

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Wipro</td>
<td>13.57</td>
<td>0</td>
<td>1</td>
<td>0.00</td>
<td>13.57</td>
<td>13.57</td>
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<tr>
<td>Tata Steel</td>
<td>14.32</td>
<td>0.01</td>
<td>0.99</td>
<td>0.14</td>
<td>14.18</td>
<td>14.32</td>
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<tr>
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<td>44.53</td>
<td>0</td>
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<td>0.00</td>
<td>44.53</td>
<td>44.53</td>
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<tr>
<td>Reliance Inds</td>
<td>2.93</td>
<td>0.08</td>
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<td>2.93</td>
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<td>Reliance Energy</td>
<td>2.31</td>
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<td>0.00</td>
<td>2.31</td>
<td>2.31</td>
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<tr>
<td>Maruti-udyog</td>
<td>45.44</td>
<td>0</td>
<td>1</td>
<td>0.00</td>
<td>45.44</td>
<td>45.44</td>
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<tr>
<td>Larsen &amp;Toubro</td>
<td>151.08</td>
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<td>0.96</td>
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<td>145.04</td>
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<td>ITC</td>
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<td>0.99</td>
<td>0.07</td>
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<td>6.50</td>
</tr>
<tr>
<td>Hindalcos Inds</td>
<td>2.48</td>
<td>0.3</td>
<td>0.7</td>
<td>0.74</td>
<td>1.74</td>
<td>2.48</td>
</tr>
<tr>
<td>Hind. Lever</td>
<td>331.06</td>
<td>0.03</td>
<td>0.97</td>
<td>9.93</td>
<td>321.13</td>
<td>331.06</td>
</tr>
<tr>
<td>Hero Honda</td>
<td>70.77</td>
<td>0.09</td>
<td>0.91</td>
<td>6.37</td>
<td>64.40</td>
<td>70.77</td>
</tr>
<tr>
<td>HDFC</td>
<td>0.42</td>
<td>0.45</td>
<td>0.55</td>
<td>0.19</td>
<td>0.23</td>
<td>0.42</td>
</tr>
<tr>
<td>Grasim Inds</td>
<td>3.74</td>
<td>0</td>
<td>1</td>
<td>0.00</td>
<td>3.74</td>
<td>3.74</td>
</tr>
<tr>
<td>Dr Reddy's Labs</td>
<td>15.46</td>
<td>0.14</td>
<td>0.86</td>
<td>2.16</td>
<td>13.30</td>
<td>15.46</td>
</tr>
<tr>
<td>Cipla</td>
<td>9.24</td>
<td>0.08</td>
<td>0.92</td>
<td>0.74</td>
<td>8.50</td>
<td>9.24</td>
</tr>
<tr>
<td>Bajaj Auto</td>
<td>7.52</td>
<td>0.17</td>
<td>0.83</td>
<td>1.28</td>
<td>6.24</td>
<td>7.52</td>
</tr>
<tr>
<td>Bhel</td>
<td>110.78</td>
<td>0.03</td>
<td>0.97</td>
<td>3.32</td>
<td>107.46</td>
<td>110.78</td>
</tr>
<tr>
<td>Ambuja Cem</td>
<td>8.7</td>
<td>0.36</td>
<td>0.64</td>
<td>3.13</td>
<td>5.57</td>
<td>8.70</td>
</tr>
</tbody>
</table>

Source: Field Analysis (2008)
Company specific risk can be considerably reduced through proper diversification. It is therefore the relevant risk to be considered, since it is the risk associated with the general conditions of the company (see Table 7.3).

7.5 The Hypothesis - Test of Significance

The hypothesis was stated in the chapter of research methodology as follows: **the Securities Market of India is not a secured investment environment for investors**. The hypothesis has been tested below with the help of the beta coefficient. The betas presented in Figures 7.25–7.44 show that there was a statistical significance in the companies’ Betas when comparing them to the market betas. The companies’ betas were far higher on average than the market betas in the same period. The betas have been calculated using the average betas on a moving averages basis of three monthly periods. This shows that there is sufficient statistical evidence to indicate that market returns are related to the companies’ returns. The t-test of the betas is presented on Table 7.4. As per Table 7.4, all the companies except Reliance Energy, Hind. Lever and Dr Reddy's Labs exhibited higher betas which are significantly greater than zero. High beta companies produce the most profit and hence, attract investors.
Table 7.4: Beta t-test Results

<table>
<thead>
<tr>
<th>Company</th>
<th>Mean</th>
<th>Stdev</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipro</td>
<td>2.74</td>
<td>4.43</td>
<td>4.33</td>
</tr>
<tr>
<td>Tata Steel</td>
<td>2.88</td>
<td>5.64</td>
<td>4.52</td>
</tr>
<tr>
<td>Tata Motors</td>
<td>6.65</td>
<td>26.70</td>
<td>9.99</td>
</tr>
<tr>
<td>Reliance Inds</td>
<td>0.77</td>
<td>1.58</td>
<td>1.47</td>
</tr>
<tr>
<td>Reliance Energy</td>
<td>-0.29</td>
<td>1.45</td>
<td>-0.05</td>
</tr>
<tr>
<td>Maruti-udyog</td>
<td>1.53</td>
<td>35.66</td>
<td>2.58</td>
</tr>
<tr>
<td>Larsen &amp;Toubro</td>
<td>26.81</td>
<td>53.40</td>
<td>39.17</td>
</tr>
<tr>
<td>ITC</td>
<td>0.33</td>
<td>3.26</td>
<td>0.84</td>
</tr>
<tr>
<td>Hindalcos Inds.</td>
<td>0.19</td>
<td>1.91</td>
<td>0.64</td>
</tr>
<tr>
<td>Hind. Lever</td>
<td>-16.38</td>
<td>233.87</td>
<td>-23.36</td>
</tr>
<tr>
<td>Hero Honda</td>
<td>5.48</td>
<td>43.38</td>
<td>8.30</td>
</tr>
<tr>
<td>HDFC</td>
<td>0.06</td>
<td>0.22</td>
<td>0.45</td>
</tr>
<tr>
<td>Grasim Inds</td>
<td>0.61</td>
<td>1.99</td>
<td>1.25</td>
</tr>
<tr>
<td>Dr Reddy's Labs</td>
<td>-3.39</td>
<td>7.67</td>
<td>-4.54</td>
</tr>
<tr>
<td>Cipla</td>
<td>1.67</td>
<td>3.65</td>
<td>2.78</td>
</tr>
<tr>
<td>Bajaj Auto</td>
<td>0.76</td>
<td>4.46</td>
<td>1.46</td>
</tr>
<tr>
<td>Bhel</td>
<td>9.03</td>
<td>89.45</td>
<td>13.43</td>
</tr>
<tr>
<td>Ambuja Cem</td>
<td>1.12</td>
<td>5.13</td>
<td>1.98</td>
</tr>
</tbody>
</table>

Source: Field Analysis (2008)

Statistical Significance must determine if there is sufficient statistical evidence to indicate that \( Y \) is truly related to \( X \) (i.e., \( b \neq 0 \)). Slope parameter (\( b \)) gives the change in \( Y \) associated with a one-unit change in \( X \), thus \( b = \Delta Y / \Delta X \).
Test for statistical significance using $t$-tests. First we determine the level of significance. Probability of finding a parameter estimate to be statistically different from zero when, in fact, it is zero Probability of a Type I Error

Note: level of significance = level of confidence

Fig.7.26:

If the absolute value of $t$-ratio is greater than the critical $t$, the parameter estimate is statistically significant. At the 95% confidence level the Z value is equal to 0.1915 (see calculated values in Table 7.3: Beta t-test Results).
The betas indicate that the companies have high risk and hence high returns (see Table 7.1). The risks are mainly manageable risks which are in other words known as unsystematic risks. The managers can skillfully help the investors in reducing the risk by making very careful strategic decisions.

(a) Wipro and Market Betas

![Graph showing Wipro and Market Betas from 1994 to 2006]

**Fig.7.27**

**Source: Field Analysis (2008)**

Figure 7.27 indicates that during the period 2000 and 2003 Wipro Corporation exhibited very betas and also during the period 2004 to 2006. Wipro was at these periods performing well
above the market returns. High beta companies are good investment ground for experienced investors.

In the case of Tata Steel Ltd, the betas were high during the periods 1994 to 1996 and 2002 to 2006 (see fig. 7.28). These periods indicate that the company performance was greater than the market performance. These are good periods for investors.

(b) Tata Steel and Market Betas

Fig. 7.28

Source: Field Analysis (2008)
(c) Tata Motors and Market Betas

Source: Field Analysis (2008)

The betas of Tata Motors Limited indicate that during the periods 1994 to 1996 and 2002 to 2005, the company performed better than the market (see fig. 7.29).

(d) Reliance Industries and Market Betas

Fig. 7.29

Fig. 7.30
The betas of Reliance Industries Limited have between the periods 1992 to 2006 outperformed the market three times. Firstly, the period from 1992 to 1996, second, from 2000 to 2002 and thirdly from 2004 to 2006 (see fig. 7.30).

Reliance Energy Limited has hard a battle. It has outperformed the market only once and that was from 1998 to 2002 (see fig. 7.31).

(e) Reliance Energy and Market Betas

![Graph showing Reliance Energy and Market Betas](image)

Fig. 7.31

Source: Field Analysis (2008)

(f) Maruti-Udyog and Market Betas
The betas of Maruti-Udyog, (now known as Maruti-Suzuki Limited) outperformed the market betas during the period 1996 to 1998 and the period 2002 to 2005 (see fig. 7.32).

(g) Larsen & Toubro and Market Returns

Source: Field Analysis (2008)
Larsen and Toubro Limited was running at par with the market performance from 1992 to 2003. It put on a better performance from 2004 to 2006 (see fig. 7.33). It performed well exhibiting very high betas. In the case of ITC Limited, it outperformed the market in the periods 1997 to 1999 and 2000 to 2004 (see fig. 7.34). Hindalcos Industries Limited outperformed the market in two periods. The period from 1994 to 1996 and the period from 2004 to 2005 (see fig. 7.35). High beta companies indicate that the economy is strong and moving on in a high gear. Hind. Lever not known as Unilever Limited has outperformed the market in two periods, from 1995 to 2000 and from 2004 to 2006 (see fig. 7.36).

(h) ITC and Market Betas

![Graph showing ITC and Market Betas](image)

Fig. 7.34

Source: Field Analysis (2008)
(i) Hindalcos Industries and Market Betas

![Graph showing Hindalcos Industries and Market Betas](image)

**Fig. 7.35**

Source: Field Analysis (2008)

(j) Hind. Lever and Market Betas

![Graph showing Hind. Lever and Market Betas](image)

**Fig. 7.36**

Source: Field Analysis (2008)
(k) Hero Honda and Market Betas

Source: Field Analysis (2008)

The betas of Hero Honda Limited have outperformed the market betas in three periods within the period of this study. The first period is 1994 to 1996, then 1998 to 2000 and 2002 to 2004 (see fig. 7.37). HDFC Bank Limited has been very steady. It has not got high betas, but its performance is consistent (see fig. 7.38). Grasim Industries Limited, has outperformed the market in three periods, firstly in the period 1992 to 1994 and the period 2000 to 2005 (see fig. 7.39)
(I) HDFC Bank and Market Betas

![Graph showing HDFC Bank and Market Betas]

**Fig. 7.38**

**Source: Field Analysis (2008)**

Dr. Reddy’s Laboratory Limited has had high betas in two periods. The first period was from 1992 to 1994 the second was from 2000 to 2004 (see fig. 7.40). In the case of Cipla Limited, high betas have been obtained in three periods. The first period was 1994 to 1996, the second was 1997 to 1999 and the third, being 2000 to 2004 (see fig. 7.41). The betas of Bajaj Auto Limited outperform the market betas in two periods – 1994 to 1995 and 2002 to 2004 (see fig. 7.42).
(m) Grasim Industries and Market Betas

![Chart: Grasim Industries and Market Betas]

Fig. 7.39

Source: Field Analysis (2008)

(n) Dr Reddy’s Laboratory and Market Betas

![Chart: Dr Reddy’s Laboratory and Market Betas]

Fig. 7.40

Source: Field Analysis (2008)
(o) Cipla and Market Betas

Fig. 7.41

Source: Field Analysis (2008)

(p) Bajaj Auto and Market Betas

Fig. 7.42

Source: Field Analysis (2008)
The betas of Bhel Limited have been high and had outperformed the market betas in two periods – the period 1996 to 2000 and the period 2003 to 2006 (see fig. 7.43). In the case of Ambuja Cement Limited the company’s betas have outperformed the market betas in three periods – the first period was 1994 to 1996, the second was 2000 to 2002 and the third was 2004 to 2006 (see fig. 7.44).

(q) Bhel and Market Betas

![Bhel and Market Betas Graph](image)

**Fig. 7.43**

*Source: Field Analysis (2008)*
The betas provide risk information to the investors and a guide to potential investors on where to invest in the future. Present investors can use it to decide whether to increase their investment, decrease it or sell it off. The evidence from the analyses indicated that on average, the companies’ performance was greater than the market performance in 15 out of the 18 cases.

Source: Field Analysis (2008)