Vidyasagar University Journal of Commerce
Vol. 21, 2016/ISSN 0973-5917

BUSINESS AND FINANCIAL RISKS IN INDIAN AUTOMOBILE INDUSTRY: AN EMPIRICAL INVESTIGATION

Aloke Gupta*
Debasish Sur**

Abstract

With the spectacular changes in the Indian business environment, the earning patterns and the financing policies taken up by the Indian corporate players have also changed significantly, leading to notable changes in the pattern of business as well as financial risks associated with them. In this backdrop, the present paper attempts to analyze the business and financial risks in Indian Automobile industry during the period 2001-02 to 2010-11. The sample size of the study consists of eleven companies which have been selected by following purposive sampling procedure from the list of top 1,000 companies in India (based on net sales for the year ended 31st March, 2011). Ginni's coefficient of concentration has been used in this study for measuring risks. Other relevant statistical measures have also been applied at appropriate places while tackling the issues addressed in the study.

Keywords: *Business Risk (BR), Financial Risk (FR), Gini's Coefficient of Concentration (G).*

JEL Classification Code: *G3*

1. Introduction

With the significant changes in the business environment, the earning trends and the financing polices in the Indian corporate sector have also changed remarkably. In the last two decades, the economic transition in India as well as the global economy has resulted in a notable change in the pattern of BR and FR associated with almost all the sectors of the Indian industry. BR is inherent in the operations of the companies. It arises out of dispersion of the operating profitability of the company. On the flip side, FR emanates from the financing decision of the company. The origin of FR is attributable to the existence of fixed charge bearing capital in the capital structure of the company as it arises out of the possibility of failing to meet the fixed commitments or contractual obligation and possibility of fluctuation in income available to owners' equity. BR has three basic components, such as economy- specific risk, industry-

*Assistant Professor, Department of Commerce, Chandernagore College, West Bengal
E-mail : aguptafinance@gmail.com
**Professor, Department of Commerce, The University of Burdwan, West Bengal
E-mail : debasishsur@yahoo.co.in

specific risk and company-specific risk. Economy-specific risk stems from economy-specific factors which include macro-economic variables, such as fluctuations in foreign exchanges, inflation, imports, exports, political scenario etc. Industry-specific risk arises out of those factors which influence the particular industry to which the company belongs. Generally, availability of raw materials, any special status enjoyed by the concerned industry, growth prospects in the market of the output produced or service rendered by the industry, technological changes, industrial relations, actions of competitors etc. are included in this category. Company-specific risk emanated from those factors which are specifically linked with the company concerned such as liquidity, cost structure, managerial efficiency, work culture, ethics, values, employer-employee relationship of the company etc. The genesis of company risk, in fact, lies in instability in company's one or more fronts, important of which are instability in cost behaviour pattern, inconsistency in revenue generating capability using long term funds and instability in short term debt paying capability (Ghosh, 1997). These weaknesses lead to cost structure risk (CSR), capital productivity risk (CPR) and liquidity risk (LR) (Mallik and Sur, 2009).

BR of a company remains largely uncontrollable while FR is well within its control (Chakraborty, 1981). As a general rule, a firm facing high BR should keep its FR at a low level and vice-versa. Therefore, theoretically there should be a negative association between BR and FR. But, some of the studies so far made in India have revealed an absolutely reverse outcome. (Sur, 2007; Gupta and Sur, 2013). It is also expected that high risk should be compensated by high risk premium i.e. high return. No company can carry high risk - low return profile in the long run (Ghosh, 1997). But a great deal of conflicting arguments has always been persisting over this issue. One school of thought argues that risk and return are influenced by various industry conditions and business strategies but not by each other (Oviatt and Bauerschmidt, 1991). The other group of researchers opines that there exists a negative relationship between risk and return (Bettis and Mahajan 1985; Singh, 1986; Sur and Gupta, 2014). Another school of thought suggests a positive association between risk and return (Cootner and Holland, 1970).

In this backdrop, the present paper attempts to analyse the BR and FR in Indian Automobile sector during the period 2001-02 to 2010-11.

The remainder of this paper is organised as follows: Section II deals with the relevant literature review and identifies the research gaps. In Section III, the objectives of the study are stated. Section IV narrates the methodology adopted in the study. The major limitations of this study are mentioned in Section V. Section VI is concerned with the discussion on the empirical results. Finally, in Section VII, concluding remarks are provided.

2. Literature Review

Before stepping into the empirical study, a brief review of the pertinent studies on BR and FR seems desirable.

Bowman (1980) found a negative relationship between risk and return in many firms. But, contradicting with Bowman, Oviatt and Bauerschmidt (1991) concluded that many of the studies in the line of the research concerned with Bowman's (1980) paradox might have used an improperly specified model, and that when a more realistic simultaneous model was used, return and risk were shown to be influenced by various industry conditions and business strategies, but not by each other. The model was tested with one hundred and thirty-two nondiversified firms belonging to eight different industries. OLS estimates of the parameters of the model showed the risk-return relationship was significantly negative. However, 3SLS estimates of the parameters of the simultaneous model revealed no significant relationship between risk and return.

Walls and Dyer (1996) explored the differences in observed risk propensity among petroleum firms and their impact on firm performance. They developed a new risk propensity measure, the Risk Tolerance Ratio (RTR). They made strong inferences about causal relationships between ex-ante risk-taking and performance and found that corporate risk propensity seems to matter, and that decisions about corporate risk policy have a significant impact on the petroleum firm's economic performance.

Ghosh (1997) carried out a study to explain the various risk factors that usually affect a company and to show the relative industry risk and profitability profile of twenty major industries in India during the period 1991-92 to 1996-97. The study revealed that a major portion of the selected Indian industries were placed in the low risk-low return category. High volatility in profitability of Aluminum industry was well compensated by average high return whereas low volatility in profitability of Tea industry and highly volatile profitability of Chemical industry got medium returns only.

Palmer and Wiseman (1999) developed a holistic model of risk in organizations. Using structural equations model, the study disaggregated risk into two distinct components, managerial risk taking and income stream uncertainty or organisational risk. The results obtained from the study suggested that both organisational and environmental factors promote risk taking. Further, the study found strong support for behavioral theory of the firm and agency theory on risk but not upper echelons theory. The study also suggested that environmental characteristics have a negligible direct effect on organisational risk.

Ghosh and Maji (2006) conducted a study to examine empirically the impact of operating leverage on profitability in four Indian manufacturing sectors namely, Tea, Chemical, Paper

and Pharmaceutical, employing various definitions of both the variables. The sample size of the study consisted of seventy-two Indian companies belonging to the selected four industries for a period of twelve years starting from 1990-91 to 2001-02. The study revealed that irrespective of the definitions of profitability or measures of operating leverage, both the variables were positively associated for all the industries.

Lord and Beranek (1999) in their study found that operating margin was negatively correlated with operating risk which confirms the arguments given by Subrahmanyan and Thomadakis (1980) and Narayanaswamy (1988). The study also observed that the complement of the average income tax rate was positively related to operating risk while firm size was negatively correlated with operating risk.

Drzik and Wyman (2005) analysed that while the 2000 recession was admittedly a less severe test for banks than was the 1991 recession, the substantial improvement in bank performance was at least partly attributable to better risk management practices. An improved ability to measure risk, improved decision-making processes about which risks to take, improved diversification of bank credit portfolios, improved pricing, and an improved ability to pass risk through to the capital markets all added up to real progress, fewer losses and better risk-adjusted returns.

Sur (2007) examined in his study the BR and FR associated with NTPC Ltd. in the pre- and post- liberalisation periods. The study observed that the company, being a public enterprise, faced no serious competition in the post-liberisation era and hence the BR of the company originating from economy and industry-specific factors did not increase; rather, the BR arising out of the company-specific factors reduced notably during the post-liberalisation era.

Mallik and Sur (2009) in their study analysed the BR and FR in the Indian corporate sector during the period 1995-96 to 2006-07 using relevant statistical tools and techniques. Although a 'high-low' combination of BR and FR is theoretically desirable, the study reflected no strong evidence of positive or negative relationship between the two. The empirical results of the study on the relationship between BR and operating profitability and that between financial risk and owners' profitability provided evidence of the significant negative association between them implying that high risk was not at all compensated by high risk premium.

Sur and Mitra (2011) made a modest attempt to analyse the BR associated with the selected Indian IT companies using Ginni's coefficient of mean difference and to ascertain the relative risk-return status of the companies during the period 1999-2000 to 2008-09. Lack of uniformity in respect of risk-return trade off among the selected IT companies was noticed in the study. Although a high degree of positive relationship between BR or its company - specific components and overall profitability is theoretically desirable, the analysis of interrelation

between them made in this study failed to show strong evidence of positive or negative association between them.

Sur et.al. (2014) in their study analysed the BR associated with 20 selected companies in the Indian FMCG sector during the period 1995-96 to 2011-12. The study revealed that the highest BR was faced by Colgate while Godfrey enjoyed the least BR and it was found that LR, CSR and CPR established themselves as significant contributors of the BR during the study period. The study also observed that strong evidence of positive relationship between BR and return was absent in the Indian FMCG sector.

Based on the above discussion it can be inferred that some empirical studies have so far been carried out in India on the issue relating to the BR and FR associated with the players of the Indian corporate sector. But, no significant study on the BR and FR in Indian Automobile industry has been made in spite of the fact that this industry is one of the key drivers of India's economy, accounting for around 4 per cent of India's GDP and over 200,000 jobs (Source: Report of KPMG on The Indian Automotive Industry, 2010). The industry has also witnessed interesting dynamics in recent times with the effect of the global downturn, followed by recovery in domestic as well as international demand. Moreover, the past studies have provided divergent results on the relationship between risk and return. Considering the stiff competition that exists in the present day corporate world, the understanding, analysing and measuring BR and FR are immensely important to the corporate managers and executives so that they can take necessary action to mitigate the loss wherever possible or at least prepare themselves beforehand to face the challenges. Hence, this is high time to make an attempt to bridge the gaps.

3. Objectives of the Study

The study has the following objectives:

(i) To ascertain the BR associated with each of the companies under study and to compare the same with that of the industry average.

(ii) To measure the components of BR associated with each of the selected companies and to examine whether there was any uniformity among such components.

(iii) To analyse the relationship between BR and its components of the selected companies.

(iv) To determine the FR of the selected companies and evaluate them with that of the industry average.

(v) To examine the relationship between BR and FR associated with the companies under study.

(vi) To assess the relative risk–return status of the selected companies.

(vii) To ascertain the closeness of association between risk and return of the selected companies.

4. Methodology of the Study

The study is based on eleven selected companies belonging to the automobile industry in India. The selection of the companies was done on the basis of purposive sampling procedure from the list of top 1,000 companies in India (based on net sales for the year ended 2011) published in the Special Issue of Business Standard, March 2012. The data for the period 2001–02 to 2010–11 used in this study were taken from Capitaline Corporate Database of Capital Market Publishers (I) Ltd., Mumbai. For measuring the BR, company-specific components of BR and the FR associated with the selected companies, Ginni's coefficient of concentration (G) was used. While making the analysis of the computed values of risks, statistical techniques, such as analysis of Kendall's coefficient of concordance, Pearson's simple correlation analysis, Spearman's rank correlation analysis, Kendall's correlation analysis and statistical tests like t-test and ÷2 were applied at appropriate places.

5. Limitations of the Study

The present study suffers from the following major limitations:

(i) This study was based on the data contained in published financial statements of the selected companies. Hence, the study was automatically subject to the inherent limitations of the secondary data.

(ii) The study was confined only to the analysis of the company-specific components of BR. The factors relating to the economy-risk and industry- risk were not taken into consideration in this study.

(iii) The issue in connection with minimization of cost structure risk through forex management was not considered in this study.

6. Empirical Results and Discussion

1. In Table 1, an attempt was made to measure the degree of BR associated with each of the selected companies in Indian Automobile industry during the study period by using G of operating profit ratio (OPR) (Gupta, 2015). This table shows that the BR was the highest in Escorts, followed by Force Motors, TVS Motor Co., Eicher Motors, Tata Motors, Maruti Suzuki, Hind.Motors, M & M, SML Isuzu, Hero Motocorp and Ashok Leyland respectively in that order. The degrees of BR associated with Force Motors, Eicher Motors, Escorts, Tata Motors and TVS Motor Co. were above the average BR of Indian Automobile industry while the remaining six companies under study found place in 'below the industry average' category.

Table 1:BR in the Indian Automobile Industry

Sl. No.	Company	Business Risk	Status	Rank
1	Ashok Leyland	0.0775	B	11
2	Hero Motocorp	0.0931	B	10
3	M & M	0.286	B	8
4	Force Motors	0.7044	A	2
5	Eicher Motors	0.5285	A	4
6	Escorts	1.0203	A	1
7	Hind.Motors	0.393	B	7
8	Tata Motors	0.5011	A	5
9	Maruti Suzuki	0.4245	B	6
10	TVS Motor Co.	0.5753	A	3
11	SML Isuzu	0.1262	B	9
Industry Average		**0.4300**		

Note: 'A' denotes business risk above the Indian Automobile industry average and 'B' denotes business risk below the Indian Automobile industry average.
Source: Compiled and computed from 'Capitaline Corporate Database' of Capitaline Market Publishers (I) Ltd., Mumbai.

2. In Table 2, three major company-specific components of BR, namely CPR, CSR and LR of each of the selected companies were measured by G of capital turnover ratio, that of operating cost to net sales ratio and that of current ratio respectively. In order to examine whether there was any uniformity among CPR, CSR and LR of the selected companies, Kendall's coefficient concordance (W) was used. For testing the significance of W, Chi-square (÷2) test was applied. Table 2 discloses that SML Isuzu had to face the highest level of risk of not getting stable turnover by utilizing average long term funds, followed by Hind.Motors, Eicher Motors, Escorts, Ashok Leyland and so on while the degree of CPR was the least in Maruti Suzuki. Ashok Leyland, Eicher Motors, Escorts, Hind.Motors and SML Isuzu were placed in the 'CPR above the Indian Automobile industry average' category whereas the remaining six companies found place in the category of 'CPR below the industry average'. In respect of CSR, Force Motors was at the topmost position and the next positions were occupied by Escorts, Hind.Motors, Maruti Suzuki, Eicher Motors, Tata Motors and so on whereas the degree of CSR was the minimum in SML Isuzu. The CSR of only two companies out of the eleven selected ones namely, Force Motors and Escorts, was higher as compared to the industry average while the remaining nine companies were placed in the 'CSR below the industry average' category. The risk in respect of short term debt paying capability was the maximum in Eicher Motors while the next positions were occupied by Tata Motors, Force

Motors, Hero Motocorp, Hind.Motors, Ashok Leyland and so on. On the flip side, the degree of LR was the lowest in SML Isuzu. Ashok Leyland, Hero Motocorp, Force Motors, Eicher Motors, Hind.Motors and Tata Motors were placed in the category of 'LR above the Indian Automobile industry average' whereas the remaining five companies found place in the 'LR below the industry average' category. At a glance, uniformity among LR, CSR and CPR of the selected companies was not noticed during the period under study. The computed value of W based on the three sets of ranking as shown in Table 2 was 0.3626 which was not found to be statistically significant even at 0.05 level. It indicates that there was no uniformity among the selected company-specific components of BR associated with the chosen companies during the study period.

Table 2: Company-specific Components of BR in the Indian Automobile Industry

Sl. No.	Company	Capital Productivity Risk (CPR)			Cost Structure Risk (CSR)			Liquidity Risk (LR)		
		Value (Times)	Status	Rank	Value (Times)	Status	Rank	Value (Times)	Status	Rank
1	Ashok Leyland	0.1978	A	5	0.0173	B	8	0.1044	A	6
2	Hero Motocorp	0.1039	B	10	0.0144	B	10	0.1092	A	4
3	M & M	0.1200	B	9	0.0180	B	7	0.0663	B	9
4	Force Motors	0.1535	B	8	0.1202	A	1	0.1109	A	3
5	Eicher Motors	0.2994	A	3	0.0204	B	5	0.2101	A	1
6	Escorts	0.2086	A	4	0.0691	A	2	0.0492	B	10
7	Hind.Motors	0.3216	A	2	0.0296	B	3	0.1062	A	5
8	Tata Motors	0.1871	B	6	0.0190	B	6	0.1461	A	2
9	Maruti Suzuki	0.0537	B	11	0.0274	B	4	0.0791	B	8
10	TVS Motor Co.	0.1649	B	7	0.0161	B	9	0.0817	B	7
11	SML Isuzu	0.3628	A	1	0.0106	B	11	0.0410	B	11
Industry Average		**0.1976**			**0.0329**			**0.1004**		

Note: 'A' denotes business risk above the Indian Automobile industry average and 'B' denotes business risk below the Indian Automobile industry average.

Source: Compiled and computed from 'Capitaline Corporate Database' of Capital Market Publishers (I) Ltd., Mumbai.

3. The correlation coefficients between BR and each of its company-specific components as computed in Table 3 reveals that only CSR was a significant contributor to the BR associated with the selected companies during the period under study.

Table 3: Correlation Coefficients between BR and its Selected Company-specific Components in the Indian Automobile Industry

Correlation Coefficient Between / Measure	BR and CPR	BR and CSR	BR and LR
Pearson	-.045	.653*	.018
Spearman	.027	.664*	.136
Kendall	-.018	.455	.127

Note: *Correlation coefficient is significant at 0.05 level (2-tailed)

Source: Compiled and computed from 'Capitaline Corporate Database' of Capital Market Publishers (I) Ltd., Mumbai.

4. BR is expected to increase with an increase in the selected components of BR and vice-versa. In Tables 4, it was attempted to ascertain the joint effect of the selected company-specific components on BR by applying multiple correlation analysis and multiple regression analysis. The multiple correlation coefficients and the partial regression coefficients were tested by F test and t test respectively. The regression equation fitted for this purpose is: $BR = b_0 + b_1. CPR + b_2. CSR + b_3. LR$, where b0 is intercept, b_1, b_2 and b_3 are the partial regression coefficients. Table 4 exhibits that for one unit increase in CPR, CSR, and LR, BR stepped up by 0.121, 5.71 and 0.312 units respectively but none was found to be statistically significant. So, considering the regression analysis, no strong evidence of positive influence of CPR or CSR or LR on BR was noticed during the study period. So, the analysis failed to corroborate the established theory. The multiple correlation coefficient of BR on CPR, CSR and LR was 0.657 which was also not found to be statistically significant. It reflects that no significant joint impact of the selected components on BR was observed during the period under study. The analysis of coefficient of multiple determination as shown in this table reveals that only 43.1 per cent of the variation in the BR of the selected companies was contributed by CPR, CSR and LR during the study period.

Table 4: Analysis of Multiple Regression and Multiple Correlation of BR on its Selected Company-specific Components in the Indian Automobile Industry

Multiple Regression of BR on CPR, CSR and LR: $BR=b_0+b_1.CPR+b_2.CSR+b_3.LR$	
Variable	Partial Regression Coefficient
CPR	0.121
CSR	5.71
LR	0.312
Constant	0.187
Multiple Correlation Coefficient of BR on CPR,CSR and LR : $R_{B.PSL}=0.657$ Coefficient of Multiple Determination : $R^2_{B.PSL}= 0.431$	

Source: Compiled and computed from 'Capitaline Corporate Database' of Capital Market Publishers (I) Ltd., Mumbai.

5. FR of companies, by definition, is the volatility in Earnings before Tax (EPS) due to variability in Earnings before Interest & Tax (EBIT). Hence, G of EPS to EBIT ratios (EER) (Gupta and Sur, 2014) was calculated in Table 5 to assess the FR of the companies and then the selected Automobile companies were ranked on that basis. The highest FR was observed in Maruti Suzuki, and it was followed by Escorts, Force Motors, Eicher Motors, Hind.Motors, TVS Motor Co., Tata Motors, Ashok Leyland, M & M, SML Isuzu and Hero Motocorp in that order. Only three of the selected companies, namely, Force Motors, Escorts and Maruti Suzuki had the FR above the Automobile industry average whereas the remaining selected companies had their FR below the industry average.

Table 5: Company-wise FR in the Indian Automobile Industry

Sl. No.	Company	Financial Risk	Status	Rank
1	Ashok Leyland	0.5608	B	8
2	Hero Motocorp	0.0315	B	11
3	M & M	0.3109	B	9
4	Force Motors	2.3567	A	3
5	Eicher Motors	0.944	B	4
6	Escorts	2.673	A	2
7	Hind.Motors	0.8558	B	5
8	Tata Motors	0.604	B	7
9	Maruti Suzuki	2.9175	A	1
10	TVS Motor Co.	0.6079	B	6
11	SML Isuzu	0.1311	B	10
Industry Average		**1.0903**		

Note: 'A' denotes business risk above the Indian Automobile industry average and 'B' denotes business risk below the Indian Automobile industry average.

Source: Compiled and computed from 'Capitaline Corporate Database' of Capital Market Publishers (I) Ltd., Mumbai.

6. Table 6 discloses the nature and degree of relationship between BR and FR of the selected companies. All the three correlation coefficients as computed using three different measures were found to be positive as well as statistically significant. Hence, a strong positive relation between BR and FR was noticed in the Indian Automobile industry during the period of study.

Table 6: Correlation Coefficients between BR and FR in the Indian Automobile Industry

Measure	Value
Pearson	.708*
Spearman	.745**
Kendall	.600*

Note: *Correlation is significant at 0.05 level (2-tailed). ** Correlation is significant at 0.01 level (2-tailed).

Source: Compiled and computed from 'Capitaline Corporate Database' of Capital Market Publishers (I) Ltd., Mumbai.

7. In Table 7, risk-return status of the selected companies was ascertained with reference to BR and operating profitability. The operating profit to capital employed ratio (OPCE) was taken as the operating profitability indicator in this analysis. The ranges of values for classifying high and low BR as well as returns in these tables were based on the arithmetic means of the concerned measures considering all the selected companies. Table 7 discloses that 'high risk-high return' cell was occupied by Eicher Motors and TVS Motor Co. only while Force Motors, Escorts and Tata Motors could manage to get only low returns even after bearing high risks. The most coveted position of 'low risk-high return' was captured by Ashok Leyland, Hero Motocorp, M & M, Maruti Suzuki and SML Isuzu whereas a combination of 'low risk-low return' was noticed in Hind.Motors.

Table 7 : **Risk-Return Status of the Selected Indian Automobile Companies based on the Combination of BR and Operating Profitability**

Average OPCE / G of OPR	High (? 0.1055)	Low (<0.1055)
High (?0.43)	Eicher Motors, TVS Motor Co.	Force Motors, Escorts, Tata Motors
Low (<0.43)	Ashok Leyland, Hero Motocorp, M & M, Maruti Suzuki, SML Isuzu	Hind.Motors

Source: Compiled and computed from 'Capitaline Corporate Database' of Capital Market Publishers (I) Ltd., Mumbai.

8. In Table 8, risk-return status of the selected industries was gauged with reference to FR and return to equity shareholders i.e., owners' profitability. The return on equity ratio (ROE) was taken as the owners' profitability indicator in this analysis. The ranges of values for classifying high and low FR as well as returns in these tables were based on the arithmetic means of the concerned measures considering all the selected companies. The table shows that only Maruti Suzuki was the company among the selected ones which maintained a 'high risk-high return' combination. Ashok Leyland, Hero Motocorp, M & M, Eicher Motors, TVS Motor Co. and SML Isuzu were the companies which were placed in the most desirable class i.e. 'low risk-high return' category, whereas Force Motors and Escorts were placed in the most undesirable category i.e. 'high risk-low return' class. The cell indicating the combination of 'low risk- low return' was occupied by Hind.Motors and Tata Motors.

Table 8 : **Risk-Return Status of the Selected Indian Automobile Companies based on the combination of FR and Owners' Profitability**

Average ROE / G of EER	High (? 0.1516)	Low (<0.1516)
High (?1.0903)	Maruti Suzuki	Force Motors, Escorts
Low (<1.0903)	Ashok Leyland, Hero Motocorp, M & M, Eicher Motors, TVS Motor Co., SML Isuzu	Hind.Motors, Tata Motors

Source: Compiled and computed from 'Capitaline Corporate Database' of Capital Market Publishers (I) Ltd., Mumbai.

9. In Table 9 an attempt was made to assess the nature and degree of relationship between BR and operating profitability, and FR and owners' profitability using the same measures of risk and returns as used in Table 7 and Table 8 respectively. This table exhibits that all the three correlation coefficients between BR and OPCE were negative, out of which two were found to be statistically significant. Similar results were found in the analysis of the relationship between FR and owners' profitability, i.e., two out of three correlation coefficients were negative as well as found to be statistically significant.

Table 9: Correlation Coefficients between Risk and Return in the Indian Automobile Industry

Correlation Coefficient Between / Measure	BR and Operating Profitability	FR and Owners' Profitability
Pearson	-.578	-.428
Spearman	-.691*	-.700*
Kendall	-.527*	-.564*

Note: * Correlation is significant at 0.05 level (2-tailed).
Source: Compiled and computed from 'Capitaline Corporate Database' of Capital Market Publishers (I) Ltd., Mumbai.

7. Concluding remarks

1. The maximum volatility in operating profitability was observed in Escorts whereas Ashok Leyland faced the minimum BR during the study period. In respect of BR, 54.55 per cent of the selected companies were placed 'below the Indian Automobile industry average' category while the remaining 45.45 per cent of the selected ones had their BR above the industry mean during the same period.

2. Only 27 per cent of the chosen companies had all the three selected company-specific components below the industry averages while the remaining selected companies had any one or two of the components under study, above the concerned industry mean. So, apparently there was a disparity among the three sets of ranking in case of the selected companies. It was confirmed by the results as obtained from the analysis of Kendall's coefficient of concordance.

3. Only CSR was found to be a significant contributor to the BR associated with the selected companies as evidenced from correlation analysis between BR and each of its company-specific components for the study period.

4. The net outcome derived from the analysis of multiple correlation and multiple regression failed to corroborate the established theory that BR and its company-specific components are expected to change in the same direction. It also failed to reveal any noticeable joint impact of the selected components on BR.

5. The highest FR was observed in Maruti Suzuki whereas Hero Motocorp was the company which managed to keep its FR at the lowest level in the Indian Automobile industry. 27.27 per cent of the selected companies had the FR above the industry average while the remaining 72.73 per cent of the companies under study were able to keep their FR below the industry mean.

6. Contradicting with the theoretical argument that BR and FR should be inversely related, a strong degree of positive association was noticed between these two in the Indian Automobile companies during the study period. Therefore, it can be inferred that the most of the selected companies opted for a high FR even after facing a high BR, or they relied less on fixed-charge bearing capital even after having low fluctuations in operating profitability.

7. Uniformity among the companies relating to their BR and operating profitability, and FR and owners' profitability profiles was not at all present during the study period. The study of correlations between BR and operating profitability, and also between FR and owners' profitability provided strong evidence in support of the above findings and established that high risks were not at all compensated by high risk premium in the selected Automobile companies during the study period.

References

Bettis, R. A., & Mahajan, V. (1985). Risk/Return Performance of Diversified Firms. *Management Science*, 31(7), 785–799.

Bowman, E. H. (1980), A Risk/Return Paradox for Strategic Management, *Sloan Management Review*, 21(3), 17-31.

Cootner, P.H. and Holland, D.M. (1970), Rate of Return and Business Risk, *Bell Journal of Economics and Management Science,* 1(2), 211–226.

Chakraborty, S. K. (1981), *Financial Management and Control:* Text and Cases, Macmillan India Ltd., New Delhi.

Drzik, J. and Wyman, M.O. (2005), New Directions in Risk Management, *Journal of Financial Econometrics*, 3(1), 26–36. Retrieved on May 22, 2012 from http://jfec.oxfordjournals.org/

Ghosh, T.P. (1997), Managing Corporate Risk: An Accounting Approach, *Research Bulletin*, 14, 9–14.

Ghosh, S. K., & Maji, S. G. (2006). Impact of Operating Leverage on Profitability: An Empirical Study on Selected Indian Industries. *The Management Accountant*, August, 660–67.

Gupta, A., & Sur, D. (2013). Business and Financial Risks in Hindustan Unilever Ltd.: An Empirical Analysis. *Asia-Pacific Finance and Accounting Review*, 1(4), 77-93.

Gupta, A., & Sur, D. (2014). DOL & DFL Can Be Less than One, Zero, Indeterminate or Even Negative. *Working Paper series at SSRN*: http://ssrn.com/abstract=2499500 or http://dx.doi.org/10.2139/ssrn.2499500

Gupta, A. (2015). Business Risk in Indian Corporate Sector: An Empirical Analysis. *Unpublished Doctoral Thesis*, The University of Burdwan, West Bengal.

KPMG (2010). The Indian Automotive Industry: Evolving Dynamic. Report retrieved on September 19, 2015 from https://www.kpmg.de/docs/Auto_survey.pdf

Lord, R. A., & Beranek, W. (1999). Operating Characteristics and Operating Risk: Additional Empirical Evidence. *Quarterly Journal of Business and Economics*, 38(3), 41-50. Accessed on May 22, 2012 from http://www.jstor.org/ stable/ 40473270

Mallik, A.K., & Sur, D. (2009). Business and Financial Risks in Indian Corporate Sector: An Empirical Analysis in the Post-Liberalisation Era. *The Icfai Journal of Applied Finance*, 15(4), 53–68.

Miller, K. D. and Reuer, J. J. (1996), Measuring Organizational Downside Risk, *Strategic Management Journal*, 17(9), 671-691. Retrieved on May 22, 2012 from http://www.jstor.org/stable/2486721

Narayanaswamy, C.R. (1988), A Mean Variance Synthesis of Corporate Financial Theory: A Note, *Journal of Finance*, 43, 529-530.

Oviatt, B.M., & Bauerschmidt, A.D. (1991). Business Risk and Return: A Test of Simultaneous Relationships. *Management Science*, 37(11), 1405–1423. Accessed on May 22, 2012 from http://www.jstor.org/stable/2632443

Palmer T. B., & Wiseman R. M. (1999). Decoupling Risk Taking From Income Stream Uncertainty: A Holistic Model of Risk. *Strategic Management Journal*, 20, 1037-1062.

Singh, J.V. (1986). Performance, Slack and Risk Taking in Organisational Decision Making. *The Academy of Management Journal*, 29(3), 562-585.

Subrahmanyan, M.G. and S.B. Thomadakis (1980), Systematic Risk and the Theory of the Finn, *Quarterly Journal of Economics*, 94, 437-451.

Sur, D. (2007). Business and Financial Risks of NTPC Ltd. in the Pre-and Post-Liberalization Periods: A Comparative Study. *The Icfai Journal of Applied Finance*, 13(10), 66–78.

Sur, D., & Mitra, S. (2011). Business Risk Analysis Through Ginni's Coefficient: A Study of Select IT Companies in India. *International Journal of Research in Computer Application and Management*, 1(1), 49-55.

Sur, D. & Gupta, A. (2014). Business Risk in Indian FMCG Industry: A Study. *Banijya*, 7(1), 15-25.

Sur, D., Mitra, S., & Maji, S.K. (2014). Business Risk in FMCG Companies in India during the Post-liberalization Era: An Empirical Analysis. *Anweshan*, 2(1), 27-50.

Walls, M. R. & Dyer, J. S. (1996). Risk Propensity and Firm Performance: A Study of the Petroleum Exploration Industry. *Management Science*, 42(7), 1004-1021. Retrieved on May 22, 2012 from http://www.jstor.org/stable/2634364.