

FACTORS INFLUENCING THE FINANCIAL PERFORMANCE OF SELECTED INDIAN PRIVATE SECTOR PAPER INDUSTRY

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ABSTRACT

Paper is more than an industrial product. It is the cultural barometer of the nation. We need paper every day for widening the frontier of our knowledge. The new millennium is going to be the millennium of the knowledge. Paper is one of the significant discoveries that turned the history of the world around. Pulp and paper constitute one of the most important segments of India's industrial economy and is treated as a basic sector. Paper pervades all sectors of our activity from book to bullets and from morning newspaper to nuclear technology. From the time immemorial, paper has played a key role in the evolution of our civilization. The global paper and paperboard industry is dominated by North America, Europe and Asia. Global paper and paperboard production stood at around 380 million tons in 2008, the US leading with over 100 million tons and accounting for nearly a third of the world's production. It is expected to increase to 392 million tonnes by 2010 and 490.0 million tonnes by 2020.

KEYWORDS: Millennium, Industrial Economy, Newspaper, Nuclear Technology

INTRODUCTION

Paper is more than an industrial product. It is the cultural barometer of the nation. We need paper every day for widening the frontier of our knowledge. The new millennium is going to be the millennium of the knowledge. Paper is one of the significant discoveries that turned the history of the world around. Pulp and paper constitute one of the most important segments of India's industrial economy and is treated as a basic sector. Paper pervades all sectors of our activity from book to bullets and from morning newspaper to nuclear technology. From the time immemorial, paper has played a key role in the evolution of our civilization. The global paper and paperboard industry is dominated by North America, Europe and Asia. Global paper and paperboard production stood at around 380 million tons in 2008, the US leading with over 100 million tons and accounting for nearly a third of the world's production. It is expected to increase to 392 million tonnes by 2010 and 490.0 million tonnes by 2020.

STATEMENT OF THE PROBLEM

The importance of paper and paper product in the modern life is so obvious that no other manufactured product processes such diversity of use. It is a basic medium of communication and dissemination of information. It helps all the human beings for the growth of education, reading, writing, storing, knowledge, quality of life, culture, and other sectors of the economy. Kids to kings, all human being, are using paper either directly or indirectly. It is very difficult to imagine modern life without paper.

Against this background, it is very important to analyze the factors influencing return on total assets of selected

Indian large scale private sector paper industry and to show how the return on total assets affects the performance of the sector. In this study, the following questions were raised in the minds of the researchers.

- What are the factors that influence the return on total assets?
- How to manage funds of private sector paper industries in India?
- What is the financial strength of private sector paper industries in India?

OBJECTIVES OF THE STUDY

- To measure the extent of influence of the factors responsible for the profitability in either direction and to analyze the direct and indirect effects of the factors of the selected private sector paper industries in India.
- To offer suggestions on the basis of findings for the improvement of private sector paper industries in India.

REVIEW OF LITERATURE

- Geethanjali Chaturvedi et al (2006) carried out a study on the growth and prospects of Indian paper industry and highlighted the existing status of the Indian paper industry with respect to the key market indicator. They have discussed the basic issues and challenges confronting the industry with possible strategy to address the same. The authors have revealed that issues and concern of the industry include scale of operation and environmental issue.
- Sarbapriya Ray (2011) in her study “Financial Performance of Paper and Paper Product Companies in India in Post-Liberalization Period: An Exploratory Study” analyzed the financial performance of Indian paper and paper product companies using data from CMIE over the period, 2000-01 to 2008-09. The analysis had been conducted from seven key financial dimensions, namely, financial profitability, capital structure, operational efficiency, fixed asset age, current asset efficiency and liquidity position. The financial performance analysis identifies financial strength and weakness of the firms within the paper industry. The study suggests that liquidity position and profitability of the industry as a whole are sound and strong ensuring good liquidity management and better profitability to both investors as well as entrepreneurs. The study reveals that high and gradually increasing current asset turnover has been a contributing factor responsible for ensuring current asset efficiency which means that resources like current assets of the firms of the industry are getting utilized more efficiently. But, dividend payment being lower, the companies need to improve the quantum of dividend payment in order to satisfy the investors without affecting the future expansion and modernization programme of the sector. Moreover, companies should make concerted effort in maximizing assets and minimizing liabilities so that the overall financial position could be improved.

RESEARCH METHODOLOGY

The process used to collect information and data for the purpose of making business decisions. The methodology may include publication research, interviews, surveys and other research techniques, and could include both present and historical information.

Research Design

The research design is a detailed outline of how an investigation will take place. A research design will typically

include how data is to be collected, what instruments will be employed, how the instruments will be used and the intended means for analyzing data collected.

Period of the Study

The Research is carried out for a period of ten years from 2005-06 to 2014-15.

Tool Used

The statistical tool used for the study is Factor Analysis.

DATA ANALYSIS AND INTERPRETATION

Factor Analysis

One of the major problems associated with regression analysis is that of multi co-linearity. The consequences of multi co-linearity are imprecise and unstable estimates. Usually, the problem of multi co-linearity is solved by selecting one or more of the highly co-linear variables. Hence, the technique of factor analysis is often applied to isolate the different factors. The procedure of factor analysis attempts to estimate the value for the coefficients of regression when the variables are regressed upon the factors. These coefficients are referred to as 'factor loading'. The matrix of factor loadings provides the basis for grouping the variables into common factors. Each variable is assigned to the factor, where it has the highest loading. The Varimax Rotation method is used in factor analysis.

For example, there is k ($I=1\dots k$) variables, n ($j=1\dots n$) industries and m factors. The factor analysis model, in the matrix notation then, may be written as follows:

$$\mathbf{X}_{(K \times N)} = \mathbf{A}_{(K \times M)} \mathbf{x} \mathbf{Z}_{(M \times N)}$$

Where:

X = the matrix of variables of order (K x N)

A = the matrix of factor loadings of order (K x M)

Z = the matrix of factors of order (M x N)

Table 1: Factor Loading of Ballarpur Industries Ltd Measurement Scale Items on Extracted Factors

Variables	Factor I	Factor II	Factor III	C ²
X ₁₈	.967	.117	.104	0.960
X ₉	.934	.300	.068	0.967
X ₈	.915	.345	.112	0.969
X ₁₆	.896	.229	-.260	0.923
X ₁₀	-.895	-.371	-.088	0.946
X ₁₉	.891	.102	-.297	0.892
X ₁₁	.888	.361	.140	0.938
X ₁₇	.883	-.412	.017	0.950
X ₁₃	.855	-.375	.281	0.951
Y	.820	.164	-.057	0.703
X ₂₀	.799	.486	.303	0.966
X ₇	.755	.623	-.128	0.975
X ₄	.196	.973	.015	0.985
X ₅	.321	.938	-.046	0.985
X ₃	-.065	-.931	-.242	0.930
X ₂	.128	.928	.315	0.977
X ₁	.260	.894	.350	0.989
X ₆	.394	.854	-.210	0.929
X ₁₅	.105	-.853	.370	0.876
X ₁₄	-.107	.027	.916	0.851
X ₁₂	.614	.255	.739	0.988
Eigan values	13.11397	5.281729	2.187022	
Variance (in %)	59.60896	24.00786	9.941011	
Cumulative Eigan values (in %)	59.60896	83.61682	93.55783	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

The table 1 shows the factors loadings of **Ballarpur Industries Ltd.** for the period from 2005-06 to 2014-15. It could be observed from the above Table 3, that twelve distinct factors have emerged and these given factors explained 93.55 percent of variations in the selected variables. The first factor explained 59.60 percent of variations in the variable set and its dominant variables were X_{18} (Debt – Equity Ratio), X_9 (Return on Capital Employed), X_8 (Return on Equity), X_{16} (Total Debt to Total Assets Ratio), X_{10} (Operating Ratio), X_{19} (Total Assets to Equity Ratio), X_{11} (Net Income to Total Debts Ratio), X_{17} (Net Fixed Assets to Equity Ratio), X_{13} (Debtors Turnover Ratio), $Y - (ROA)$, X_{20} (Long Term Debt-Equity Ratio) and X_7 (Return on Sales). The twelve factors together explained as much as 83.61 percent of variations in the selected variables. Similarly, X_4 (Quick Assets to Total Assets Ratio) had relatively high factor loading with Factor II and all the seven together could explain nearly 93 percent of the variations in X_4 . The variables X_5 (Current Assets to Total Assets Ratio), X_3 (Inventory to Total Asset Ratio), X_2 (Quick Ratio), X_1 (Current Ratio), X_6 (Working Capital to Total Asset Ratio) and X_{15} (Working Capital Turnover Ratio) were dominant variables in Factor III as its factor loading was as high as in X_{14} (Fixed Assets Turn Ratio) and X_{12} (Inventory to Total Assets Ratio), while all the two factors together accounted 93.55 percent of the variations. The importance of a given variable could exactly be expressed in terms of the variations in the variable that could be accounted for by the factor. The c^2 represents the communalities column and this was the amount of variance a variable shares with all the other variables being considered with all the variables to the extent of more than 98.90 percent. The importance of a given variable could exactly be expressed in terms of the variations in the variable than can be accounted for by the factor.

Table 2: Factor Loading of SPP Ltd Measurement Scale Items on Extracted Factors

Variables	Factor I	Factor II	Factor III	C ²
X_{16}	.963	.065	-.160	0.979
X_{19}	.949	-.015	-.243	0.996
X_{18}	.922	-.109	.194	0.953
X_{20}	.898	-.061	.204	0.985
X_{13}	.808	-.228	.200	0.914
X_2	.713	.104	.345	0.955
X_1	.563	.032	.466	0.695
X_4	.023	.941	.215	0.967
X_5	-.192	.888	.193	0.986
X_3	-.127	.885	.331	0.979
X_{10}	-.121	.865	-.361	0.944
X_{14}	.296	.809	-.046	0.985
X_{15}	.113	.733	-.079	0.912
X_9	.172	.103	.960	0.976
Y	.172	.103	.960	0.976
X_{11}	-.376	.086	.912	0.986
X_7	.342	-.608	.624	0.970
X_6	-.188	-.116	.222	0.970
X_{12}	-.297	-.075	-.118	0.965
X_{17}	.402	.144	-.274	0.988
X_8	.488	-.082	.531	0.958
Eigen values	13.11397	5.281729	2.187022	
Variance (in %)	59.60896	24.00786	9.941011	
Cumulative Eigen values (in %)	59.60896	83.61682	93.55783	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

The results of the Factor Analysis presented in the above Table 2, regarding factors influencing the financial performance reveal that there are twenty factors that had Eigen value exceeding “one”. Among the five factors, the first factor accounted for 59.60 percent of the variance, the second 24.00 percent, the third factor 9.94 percent. The first five

factors are the final factor's solution and they all together represent 93.55 percent of the total variance in the scale items measuring the factors related to the financial performance of SPP Ltd. Hence, from the above results, it is certain that all the factors are related to the financial performance.

The above table represents the Rotated Component Matrix, which is an important output of principal component analysis. The coefficients are the factor loadings, which represent the correlation between the factors and the twenty variables (X_1 to X_{20}). From the factor matrix, it is found that the coefficients for factor-I have high absolute correlations with the variables X_{16} (Total Debt to Total Assets Ratio), X_{19} (Total Assets to Equity Ratio), X_{18} (Debt – Equity Ratio), X_{20} (Long Term Debt-Equity Ratio), X_{13} (Debtors Turnover Ratio), X_2 (Quick Ratio) and X_1 (Current Ratio) that is, 0.963, 0.949, 0.922, 0.898, 0.808, 0.713 and 0.563, respectively. Similarly, factor-II has high absolute correlation with the variables, X_4 (Quick Assets to Total Assets Ratio), X_3 (Inventory to Total Assets Ratio), X_5 (Current Assets to Total Assets Ratio), X_{10} (Operating Ratio), X_{14} (Fixed Assets Turnover Ratio) and X_{15} (Working Capital Turnover Ratio) that is, 0.941, 0.888, 0.885, 0.865, 0.809 and 0.733 respectively. Next, factor III has high absolute correlation with the variables X_9 (Return on Capital Employed), Y (ROA), X_{11} (Net Income to Total Debts Ratio) and X_7 (Return on Sales) that is, 0.960, 0.960, 0.912 and 0.624 respectively. Factor-IV has high absolute correlation with the variables X_6 (Working capital to Total Assets Ratio) and X_{12} (Inventory Turnover Ratio), that is, 0.931, and 0.894, respectively. Factor-5 has high absolute correlation with the variables X_{17} (Net Fixed Assets to Equity Ratio) and X_8 (Return on Equity), that is - 0.848, 0.628. The c^2 represents the communalities column. This was the amount of variance a variable shared with all the other variables being considered with all the variables to the extent of more than 99.60 percent. The importance of a given variable could exactly be expressed in terms of the variations in the variable that could be accounted. So it is proceeded to compute Rotated factor matrix.

Table 3: Factor Loading of JK Papers Ltd Measurement Scale Items on Extracted Factors

Variables	Factor I	Factor II	Factor III	C ²
X_{11}	.934	-.068	.240	0.935
X_9	.931	.075	.264	0.942
Y	.931	.075	.264	0.942
X_8	.917	.219	-.002	0.889
X_{12}	.890	.172	-.191	0.858
X_7	.876	.396	.125	0.940
X_{19}	-.872	.149	.204	0.824
X_{10}	-.860	-.401	-.151	0.923
X_{16}	-.823	.294	.209	0.807
X_{18}	-.799	.319	.475	0.966
X_{20}	-.789	.359	.393	0.906
X_6	.694	.458	.337	0.805
X_{13}	-.121	-.955	-.008	0.927
X_2	-.032	.814	-.012	0.664
X_1	-.223	.808	.005	0.703
X_{15}	.035	-.754	-.141	0.590
X_5	.545	.608	.431	0.852
X_4	.523	.587	.475	0.844
X_{17}	-.415	.235	.851	0.952
X_3	.332	-.280	.842	0.898
X_{14}	-.008	-.623	-.749	0.949
Eigen values	10.39315	6.368537	2.328149	
Variance (in %)	47.2416	28.9479	10.5825	
Cumulative Eigen values (in %)	47.2416	76.1895	86.772	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

In **JK PAPERS**, it could be observed from the above table 3, that twelve distinct factors have emerged and these given factors explained 86.77 percent of variations in the selected variables. The first factor explained 47.24 percent of variations in the variable set and its dominant variables were **X₁₁(Net Income to Total Debts Ratio)**, **X₉(Return on Capital Employed)**, **Y (ROA)**, **X₈ Return on Equity)**, **X₁₂ (Inventory Turnover Ratio)**, **X₇ (Return on Sales)**, **X₁₉ (Total Assets to Equity Ratio)**, **X₁₀(Operating Ratio)**, **X₁₆ (Total Debt to Total Assets Ratio)**, **X₁₈ (Debt – Equity Ratio)**, **X₂₀ (Long Term Debt-Equity Ratio)** and **X₆ (Working capital to Total Assets Ratio)**, that is 0.934, 0.931, 0.931, 0.917, 0.890, 0.876, -.872, -.860, -.823, -.799, -.789, 0.694. The first twelve factors together explained as much as 47.24 percent of variations in the selected variables. Similarly, **X₁₃(Debtors Turnover Ratio)**, **X₂(Quick Ratio)**, **X₁(Current Ratio)**, **X₁₅(Working Capital Turnover Ratio)**, **X₅(Current Assets to Total Assets Ratio)** and **X₄(Quick Assets to Total Assets Ratio)**, that is -.955, 0.814, 0.808, -.754, 0.608, 0.587, had relatively high factor loading with Factor II and all the six together could explain nearly 76.18 percent of the variations in the selected variables. The variable **X₁₇(Net Fixed Assets to Equity Ratio)** was a dominant variable in Factor III as its factor loading was as high as 86.7 percent, while all the two factors together accounted 72.42 percent of the variations in **X₁₇(Net Fixed Assets to Equity Ratio)**, **X₃(Inventory to Total Assets Ratio)** and **X₁₄(Fixed Assets Turnover Ratio)**, that is 0.851, 0.842, -.749. The c^2 represents the communalities column. This was the amount of variance a variable shared with all the other variables being considered with all the variables to the extent of more than 96.60 percent. The importance of a given variable could exactly be expressed in terms of the variations in the variable that could be accounted for by the factor.

FINDINGS

In **Ballarpur Industries Ltd.** for the period from 2005-06 to 2014-15, it could be observed that twelve distinct factors have emerged and these given factors explained 93.55 percent of variations in the selected variables. The first factor explained 59.60 percent of variations in the variable set and its dominant variables were **X₁₈ (Debt – Equity Ratio)**, **X₉ (Return on Capital Employed)**, **X₈ (Return on Equity)**, **X₁₆ (Total Debt to Total Assets Ratio)**, **X₁₀ (Operating Ratio)**, **X₁₉ (Total Assets to Equity Ratio)**, **X₁₁ (Net Income to Total Debts Ratio)**, **X₁₇ (Net Fixed Assets to Equity Ratio)**, **X₁₃ (Debtors Turnover Ratio)**, **Y – (ROA)**, **X₂₀ (Long Term Debt-Equity Ratio)** and **X₇ (Return on Sales)**. The twelve factors together explained as much as 83.61 percent of variations in the selected variables. Similarly, **X₄ (Quick Assets to Total Assets Ratio)** had relatively high factor loading with Factor II and all the seven together could explain nearly 93 percent of the variations in **X₄**. The variables **X₅ (Current Assets to Total Assets Ratio)**, **x₃ (Inventory to Total Asset Ratio)**, **X₂ (Quick Ratio)**, **X₁ (Current Ratio)**, **X₆ (Working Capital to Total Asset Ratio)** and **X₁₅(Working Capital Turnover Ratio)** were dominant variables in Factor III as its factor loading was as high as in **X₁₄(Fixed Assets Turn Ratio)** and **X₁₂ (Inventory to Total Assets Ratio)**, while all the two factors together accounted 93.55 percent of the variations. The importance of a given variable could exactly be expressed in terms of the variations in the variable that could be accounted for by the factor.. The c^2 represents the communalities column and this was the amount of variance a variable shares with all the other variables being considered with all the variables to the extent of more than 98.90 percent. The importance of a given variable could exactly be expressed in terms of the variations in the variable than can be accounted for by the factor.

In **SPP LTD**, it could be observed from the results that there are twenty factors that had Eigen value exceeding “one”. Among the five factors, the first factor accounted for 59.60 percent of the variance, the second 24.00 percent, the third factor 9.94 percent. The first five factors are the final factor’s solution and they all together represent 93.55 percent of the

total variance in the scale items measuring the factors related to the financial performance of SPP Ltd. Hence, from the above results, it is certain that all the factors are related to the financial performance.

The table represents the Rotated Component Matrix, which is an important output of principal component analysis. The coefficients are the factor loadings, which represent the correlation between the factors and the twenty variables (X_1 to X_{20}). From the factor matrix, it is found that coefficients for factor-I have high absolute correlations with the variables X_{16} (Total Debt to Total Assets Ratio), X_{19} (Total Assets to Equity Ratio), X_{18} (Debt – Equity Ratio), X_{20} (Long Term Debt-Equity Ratio), X_{13} (Debtors Turnover Ratio), X_2 (Quick Ratio) and X_1 (Current Ratio) that is, 0.963, 0.949, 0.922, 0.898, 0.808, 0.713 and 0.563, respectively. Similarly, factor-II has high absolute correlation with the variables, X_4 (Quick Assets to Total Assets Ratio), X_3 (Inventory to Total Assets Ratio), X_5 (Current Assets to Total Assets Ratio), X_{10} (Operating Ratio), X_{14} (Fixed Assets Turnover Ratio), and X_{15} (Working Capital Turnover Ratio) that is, 0.941, 0.888, 0.885, 0.865, 0.809 and 0.733 respectively. Next, factor III has high absolute correlation with the variables X_9 (Return on Capital Employed), Y (ROA), X_{11} (Net Income to Total Debts Ratio) and X_7 (Return on Sales), that is, 0.960, 0.960, 0.912 and 0.624 respectively. Factor-IV has high absolute correlation with the variables X_6 (Working capital to Total Assets Ratio) and X_{12} (Inventory Turnover Ratio) that is, 0.931, and 0.894, respectively. Factor-5 has high absolute correlation with the variables X_{17} (Net Fixed Assets to Equity Ratio) and X_8 (Return on Equity), that is -0.848, 0.628. The c^2 represents the communalities column. This was the amount of variance a variable shared with all the other variables being considered with all the variables to the extent of more than 99.60 percent. The importance of a given variable could exactly be expressed in terms of the variations in the variable that could be accounted. So it is proceeded to compute Rotated factor matrix.

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SUGGESTIONS

The researchers have suggested the following recommendations to the paper industries in India to strengthen their financial position as well as market share globally:

- It is suggested that the selected companies can also increase the profitability by improving the operating efficiency through producing quality papers. In the era of tech-savvy and global competition quality products can alone survive in the market. In order to provide world class quality, it is suggested that the existing technology should be changed to modern technology to meet the huge demand in the world market.
- It is suggested that the selected companies should take effort to reduce the operating cost through restructuring of the debts and the interest payments, improved asset utilization and other strategic measures to improve the profitability. Further, the selected companies should lay emphasis on cost cutting measures through enhanced production.

CONCLUSIONS

Now that the Industry is beginning to get back into the black, the basic needs of the Industry should be accorded top priority. The Government and the concerned financial institutions appear to have learnt nothing from the past. The emphasis appears to be more on granting license to new units and capacity expansion, rather than on improving raw-material availability, improving technological practices, boosting capacity utilization and paper consumption and evolving a remunerative administered price mechanism. Unless these steps are taken now, the Paper Industry would continue to be plagued by such problems as obsolete machinery, low productivity, high cost, consumer resistance, recession, sickness, poor export presence, etc.

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