



Capital Structure and Financial Performance : A Study of Indian Cement Companies

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Abstract

The capital structure decision is the most crucial decision for firms/companies because it affects the profitability and risk of firms and shareholders. The present study examines the relationship of capital structure with the financial performance of BSE listed cement companies in India. For achieving the objective of the study, five BSE listed companies of Indian cement industry were taken into sample by using judgemental sampling. Under this study, secondary data relating to capital structure and financial performance were gathered from the annual reports of sampled companies for a period of ten years from 2009-10 to 2018-19. The descriptive statistical tools-average, standard deviation, coefficient of variance, skewness, kurtosis and correlation analysis were applied for analysing the data. The obtained results of this study explicated that capital structure variable-debt-equity ratio has negative relationship with financial performance variables-net profit, operating profit, return on assets, return on capital employed, return on equity and earnings per share in BSE listed companies of Indian cement industry.

Key Words: Capital Structure, Debt-Equity Ratio, Financial Performance,

Introduction

In the current scenario, business entities are not working with aim of profit maximisation only but working with the aim of wealth maximisation. Hampton (1992) advocates that the main objective of a business entity is to maximise it's value. It means, management takes decisions which increase the value of the entity. The value of entity/company depends upon so many factors, however, mains are capital structure and financial performance of the company. The capital structure is a combination of long term financial sources such as debt and equity. That is why, the decision-makers have to make a choice regarding proportion of debt and equity in overall capital structure to construct an optimum structure (Emeni, 2012). Through deciding a good structure, the higher financial performance could be achieved by the management. Further, a requirement for raising external funds creates a new capital structure determination (Bodhanwala, 2012). Ultimately, optimum capital structure leads to reduce the overall cost of capital and helps to increase the profitability of the entity. There are merits and demerits associated with the particular source of finance. The equity is very costly source as comparative to debt but less risky, whereas, debt is very cheaper but highly risky source of finance. The high leveraged firms work with higher profit efficiency (Berger et.al. 2006) On the other hand, the business concerns which outperform financially, could survive for long in the industry. Financially strong companies can handle environmental challenges easily and reap benefits of the opportunities available. Financial performance of the companies depends upon the profitability, returns and reserves position with the entities; cost etc (Ganapathi, Kulandaivelu, Keerthana and Namakkal, 2018). To gain the better understanding of the financial performance, its factors are discussed and these are as:

Debt-Equity Ratio: The Debt-Equity Ratio is the basic and the most important measure of studying the indebtedness of the firm. This ratio indicates that how much companies use debts to operate its financial activates. This ratio is calculated by comparing the long term debts with the total shareholders' funds.



Net Profit: The NP ratio measures the relationship between the net profit and the net sales of the firm.

Operating Profit Ratio: the operating profit ratio means to the profit generated by the operation activities of the firm. It is also called EBIT (Earnings before Interest and Tax). The operating profit ratio measures the operational efficiency of the firms. This ratio may be calculated as follows:

Operating Profit Ratio = OP/Net Sales

Return on Assets (ROA): the ROA measures the profitability of the firm in terms of assets employed in the firm. This ratio indicates the relationship between firm profit and its assets. It explicates as to how much is the profit earned by the firm per rupee of assets used. The ROA can be measure as follows:

ROA = (Net Profit after tax/Total Assets) ×100

Return on Capital Employed (ROCE): the ROCE measures the profitability from the point of view of the total funds invested in the firms. The term funds invested or capital employed refers to the total long term sources of funds. It means that capital employed involves of shareholders funds plus long term debts. The ROCE can be calculated as follows:

ROCE = (EBIT/ Average Capital Employed) × 100

Return on Equity (ROE): the ROE examines profitability from the point of the equity investors by relating profits available for the equity shareholders with the book value of the equity investment. The ROE shows as to how well the funds of the owner have been used by the firm. it also examines whether the firm has been able to earn satisfactory return for the owners or not. The ROE can be calculated as follows:

ROE = (Net Profit after Tax/ Total Shareholders Funds) ×100

Earnings Per Share (EPS): the profitability of the firm can also be measure in terms of number of equity shares. This is known as EPS which is derived by dividing the profit after tax by the number of equity shares.

EPS = PAT-Preference dividend/Number of Equity Shares

The main approaches of capital structure:-

There are many approaches in the literature which explain the relationship between value of the firm and mixture of debt and equity. The main approaches are:

Net Income Approach: this approach describes that change in capital structure will lead to the corresponding change in the value of firm.

Net Operating Income Approach: it explicates that there is no relationship between financial leverage and value of the firm. In other words, the proportion of equity and debt does not affect the value of the firm.

Traditional Approach: this approach states that through proper use of leverage, a firm can decrease the overall cost of capital and can increase the value of the firm.

M-M Approach: Modigliani-Miller approach advocates the Net Operating Income approach and explains when taxes are ignored, this approach rules out any relationship between capital structure and value of the firm.

Cement Industry in India

The Indian cement industry is known as second largest industry in the world. The industry is account for approximately 545 million tonnes (MT) production capacity. It has a great importance in the development of Indian economy. Besides this, the government of India is focussing in the development of infrastructure facilities in the country and this action will be helpful for the companies in cement industry to increase their ordered book. It means, there are more possibilities to increase employment opportunities in the country. On another side, to maximise the value of companies and to increase their profitability, a balanced capital structure should be determined. At present, 23 major cement companies listed in BSE in India. Out of these



companies, only five leading cement companies considered as sample to meet the objectives of the present study. The five sampled companies are:

S.No.	Name of Company	Establishment Year
1.	Ultratech Cement Ltd	1983
2.	ACC Ltd	1936
3.	Ambuja Cement Ltd	1983
4.	Shree Cement Ltd	1979
5.	Prism Cement Ltd	1992

Review of literature

Garg (2007) studied the relationship between board independence, board size and firm performance. The study found mixed evidence that independent directors add value and improve the performance of the firm.

Ebaid (2009) studied the relationship between debt level and financial performance of companies listed at Egyptian stock exchange during the period of 1997 to 2005 by using the three accounting based measure of performance (ROA) return on assets (ROE) return on equity and gross profit margin. The researcher found that there was negative significant effect of short term debt and the total debt the financial performance measured by the return on asset (ROA) but no significant relationship found between long term debts. The author also obtained that there was not significant influence of the debt (TD, STD and LTD) on financial performance measured by both of gross profit margin and Return on equity. The results revealed that control variable firm size has no significant effect on the firm's performance.

Saeedi and Mahmoodi (2011) studied the capital structure and financial performance of 320 Iranian Companies. For the purpose of analysis, four performance measures such as return on assets, return on equity, earning per share and Tobin's Q as dependent variable and three capital structure measures including long term debt , short term debt and total debt ratios as independent variables were taken and the results of this study proved that financial performance of selected firms was significantly and positively associated with capital structure, while ROA had the negative relationship with capital structure.

Vitar, (2013) mainly focused the relationship between the capital structure and the performance of the listed banks in Ghana. The study concluded that there was a negative relationship among the performance and capital structure. The study analyzed that this was happening mainly because the short-term debt was over dependent and it causes low rate of marketing activities and high disposal rates.

Batral and Munjal (2015) examined the nature of relationship between the capital structure of a company and its performance. For this purpose of the study, the data were gathered from forty companies excluding financial services firms listed on Nifty indices on NSE for a period of 13 years (2001-2014). The collected data of sampled companies were analyzed using descriptive statistics, correlation and multiple regression techniques. For research purpose, the ratios such as debt-equity ratio, debt-asset ratio and long term debt are taken as independent variables whereas Net Profit, Net Profit Margin, ROCE, ROE and ROA are the ratios taken as dependent variables. The study found that the relationship of capital structure with ROA, ROCE, and ROE was negative and insignificant. But, relationship of NP and NPM was positively associated with capital structure.

Quadras (2016) analyzed the effectiveness of capital structure on performance. The study was conducted among various Indian banks and the period he took for the study was 6 years. The main components he took for the study to analyze the profitability was NIM, NP and ROCE and Debt/Total equity and Debt/Total



Fund ratios are used as components of capital structure. From the study we could clearly notice that the debt/equity had decreasing throughout this showed that the risk was reducing among various banks. The researcher concluded that there was a positive impact on among performance of the various banks taken for the study.

Prasad (2019) tried to find out the influence of capital structure on the financial performance of small finance banks in India. The study covered a period of two years from 2017 to 2018 and 8 banks were selected for the study. The objectives of the study are to examine the impact of capital structure on the financial performance of banks and to analyzed the interrelation between financial leverage on the financial performance of banks. To measure the capital structure, debt to total assets ratio and debt to equity ratios were used and to measure the financial performance, return on capital employed (ROCE), net profit ratio (NP) and net interest margin (NIM) were used to achieve the objectives of the study. Regression analysis has been carried out to test the impact of capital structure on profitability considering capital structure as an independent variable and profitability as the dependent variable. The results of the study indicated that the capital structure had a significant impact on the financial performance of the banks in India.

Objectives of the Study

After studying various previous studies related to capital structure and financial performance of large companies of manufacturing, banking, trading and textile industry, the following objectives are determining:

1. To study the capital structure and financial performance of BSE listed Cement Companies.
2. To examine the relationship between capital structure and financial performance of BSE listed Cement companies.

Research methodology

The present study aims to examine the relationship of capital structure on profitability of selected BSE listed cement companies in India. Out of 23 major BSE listed cement companies, the five leading cement companies selected as sample through random-cum-convenience sampling method to meet the objectives of the study. For these firms, the secondary data are gathered from the annual reports of each company for the period of ten years from 2009-10 to 2018-19. The statistical tools applied to analyze the available data are average, standard deviation, coefficient of variance, skewness, kurtosis and correlation analysis using SPSS. The variables of capital structure and financial performance of sampled companies are given below:

Variables Description

Variables	Measures	
Capital Structure (independent Variable)	Debt-Equity Ratio	Debt/Equity
Financial Performance (Dependent Variable)	Net Profit Ratio	NP/ Net Sales
	Operating Profit Ratio	OP/Net Sales
	ROA	(Net Profit after tax/Total Assets) ×100
	ROCE	(EBIT/Average Capital Employed) × 100
	ROE	(Net Profit after Tax/Total Shareholders Funds) ×100



	EPS	(PAT-Preference dividend)/Number of Equity Shares
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Data Analysis and Interpretation

The present study is mainly concerned with the issue of capital structure and financial performance of five sampled BSE listed cement companies. The secondary data considered for the study which consists of selected variables collected for the ten year period from 2009-10 to 2018-19. The variable debt-equity ratio is the proxy of capital structure and six profitability ratios such as NP Ratio, OP Ratio, ROA, ROCE, ROE and EPS are the proxy of the financial performance variables. All the data relating to capital structure variable and financial performance variables are analyzed by applying descriptive statistics such as averages, standard deviation, and coefficient of variance, skewness and kurtosis. The relationship between capital structure and financial performance measures by using correlation coefficient. The analysis of data and interpretation of results are followings:

Table-1

Showing Analysis of Debt-Equity Ratio of Sampled BSE listed Cement Companies

Companies	Average	SD	CV	Skewness	Kurtosis
UCL	0.35	0.15	43.62	0.87	0.74
ACC	0.02	0.03	169.32	0.83	1.38
AML	0.00	0.00	210.82	1.47	1.41
SCL	0.38	0.33	84.96	1.75	1.62
PCL	1.20	0.38	31.72	0.96	-1.32

Source: Annual Reports of Sampled BSE listed companies, using Excel and SPSS.

Table-1 indicated the results of descriptive analysis of Debt-Equity Ratio (capital structure) of BSE listed sampled companies during the study period 2009-10 to 2018-19. The highest average debt-equity ratio was found in case of Prism Cement Ltd (1.20) followed by Shree Cement Ltd (.38), Ultratech Cement Ltd (.35) and ACC Ltd (0.02). It was found that Ambuja Cement Ltd used equity source of finance in your capital structure. It means that Prism Cement Ltd has less equity share capital as compare to debt capital, whereas, remaining selected companies have high equity capital then debt capital in the capital structure. The highest variability in debt-equity ratio was obtained in Prism Cement Ltd (SD= 0.38) and lowest was in Ambuja Cement Ltd (SD = .00). The results of skewness and kurtosis of debt-equity ratio of all sampled companies are also shown by the above table. When the capital structure of Prism Cement Ltd was analyzed with the help of financial statements (given in the Annual Reports) of the company, increasing pattern of long term borrowings was observed during financial years from 2009-10 to 2014-15 and it was the main cause to increase average debt-equity ratio of Prism Cement Ltd as compared to debt-equity ratios of other selected companies under the study.

Table-2

Showing Analysis of Net Profit of Sampled BSE listed Cement Companies

(In Percent)



Companies	Average	SD	CV	Skewness	Kurtosis
UCL	10.73	2.70	25.16	0.31	-0.41
ACC	9.36	6.30	67.34	0.32	-0.39
AML	13.07	4.76	36.39	-0.41	0.54
SCL	13.16	5.19	39.48	-0.06	-1.39
PCL	1.27	3.05	240.45	1.96	4.59

Source: Annual Reports of Sampled BSE listed companies, using Excel and SPSS.

Table-2 shows that the analysis of Net Profit of all sampled BSE listed cement companies over the period of study. After analysing the data, it was obtained that maximum average 13.16 percent net profit earned by the Shree Cement Ltd followed by Ambuja Cement Ltd (13.07 percent), Ultratech Cement Ltd (10.73 percent), ACC Ltd (9.36 percent) and Prism Cement Ltd (1.27). This result reveals that high debt using companies earn low rate of net profit (Prism Cement Ltd) and which company uses appropriate mixture of debt and equity capital, they earn high rate of net profit. The Highest standard deviation in net profit was found in case of ACC Ltd (6.30 percent) and lowest was in Ultratech Cement Ltd (2.70 percent). The relative measure of variability (CV) in NP was noticed highest in Prism Cement Ltd (CV= 240.45) and lowest was in Ultratech Cement Ltd (CV= 25.16). The companies Prism Cement Ltd, ACC Ltd and Ultratech Cement Ltd were positively skewed, whereas, Ambuja Cement Ltd and Shree Cement Ltd were negatively skewed. In case of Shree Cement Ltd and Ambuja Cement Ltd, the main causes behind their net profit ratios were increasing revenue pattern due to advertisement campaign and decreasing expense. Whereas, lower profit were observe in Prism Cement Ltd due to increasing expenses (given in the Annual Reports of selected companies).

Table-3
Showing Analysis of Operating Profit of Sampled BSE listed Cement Companies

(In Percent)

Companies	Average	SD	CV	Skewness	Kurtosis
UCL	17.37	3.15	18.12	1.20	1.03
ACC	12.55	3.67	29.24	0.56	-1.23
AML	18.00	3.48	19.35	0.52	-0.88
SCL	17.87	6.37	35.62	0.08	-0.52
PCL	5.26	3.84	73.10	2.07	4.95

Source: Annual Reports of Sampled BSE listed companies, using Excel and SPSS.

Table-3 presents the analysis of operating profit of all sampled BSE listed companies during the study period from 2009-10 to 2018-19. The results given in the above table explicate that the highest average operating profit was found in case of Ambuja Cement Ltd (18 percent) followed by Shree Cement Ltd (17.87 percent), Ultratech Cement Ltd (17.37 percent), ACC Ltd (12.55 percent) and Prism Cement Ltd (5.26 percent). The standard deviation in operating profit was found maximum in Shree Cement Ltd (6.37 percent) and minimum in Ultratech Cement (3.15 percent), whereas, the coefficient of variance was maximum in Prism Cement Ltd (73.10) and minimum in Ultratech Cement Ltd (18.12). All the sampled



companies were found positively skewed. The higher operating profit ratio in Ambuja Cement Ltd, Shree Cement Ltd and Ultratech Cement Ltd were due to less cost of consumed material as compared to rest of the selected companies (taken from the Annual Reports of the selected companies).

Table-4
Showing Analysis of ROA of Sampled BSE listed Cement Companies

(In Percent)

Companies	Average	SD	CV	Skewness	Kurtosis
UCL	7.45	2.87	38.48	0.83	0.09
ACC	8.07	2.26	27.94	-0.69	-0.77
AML	8.03	3.01	37.49	-2.16	-2.04
SCL	10.01	3.82	38.22	-0.08	-0.71
PCL	1.41	3.34	236.48	1.77	3.81

Source: Annual Reports of Sampled BSE listed companies, using Excel and SPSS.

Table-4 elaborates the results of analysis of Return on Assets (ROA) of sampled cement companies during the study period. The highest average ROA was obtained in Shree Cement Ltd (10.01 percent) and lowest was in Prism Cement Ltd (1.41 percent). The standard deviation in ROA was found in Shree Cement Ltd (3.82 percent) and lowest in ACC Ltd (2.26 percent), but, coefficient of variance was highest in Prism Cement and lowest in ACC Ltd. the three companies were negatively skewed and remaining two companies were positively skewed.

Table-5
Showing Analysis of Return on Capital Employed of Sampled BSE listed Cement Companies

(In Percent)

Companies	Average	SD	CV	Skewness	Kurtosis
UCL	11.17	2.58	23.13	0.35	-1.00
ACC	12.61	3.51	27.84	-1.07	0.38
AML	10.78	3.71	34.42	0.38	-1.38
SCL	13.17	4.81	36.55	-0.13	-0.15
PCL	9.97	5.51	55.25	0.96	0.31

Source: Annual Reports of Sampled BSE listed companies, using Excel and SPSS.

Table-5 presents that the analysis of return on capital employed (ROCE) of sampled BSE listed cement companies from 2009-10 to 2018-19. It is clear from the above table that the average ROCE was found maximum in Shree Cement Ltd (13.17 percent) followed by ACC Ltd (12.61 percent), Ultratech Cement Ltd (11.17 percent), Ambuja Cement Ltd (10.78 percent) and Prism Cement Ltd (9.97 percent). The maximum standard deviation in ROCE was noticed in Prism Cement Ltd (5.51 percent) and minimum in Ultratech Cement Ltd (2.58 percent). The coefficient of variance was found maximum in Prism Cement Ltd and minimum in Ultratech Cement Ltd. the three companies was found positively skewed and remaining two companies was negatively skewed. High average return on capital employed for Shree Cement Ltd was due to it's increasing profitability, whereas, the lowest ROCE for Prism Cement Ltd was due to increasing expenses which reduced the EBIT of Prism Cement for the period taken under the study.



Table-6
Showing Analysis of ROE of Sampled BSE listed Cement companies

(In Percent)

Companies	Average	SD	CV	Skewness	Kurtosis
UCL	13.59	4.93	36.28	1.12	0.47
ACC	12.81	3.92	30.58	-0.34	-0.80
AML	10.68	4.50	42.16	-0.98	-1.96
SCL	18.05	8.65	47.92	1.14	1.43
PCL	3.72	8.89	239.22	0.77	0.49

Source: Annual Reports of Sampled BSE listed companies, using Excel and SPSS.

Table-6 reveals that the results of analysis of return on equity (ROE) of sampled cement companies during the study period. It is observed from the above table that the highest average rate of return on equity was obtained in Shree Cement Ltd (18.05 percent) and lowest in Prism Cement Ltd (3.72 percent). The above table also indicates that the highest standard deviation in the rate of ROE was found in Prism Cement Ltd (8.89 percent) with highest coefficient of variance (239.22) and lowest was in ACC Ltd (3.92 percent) with lowest coefficient of variance (30.58). The result of skewness indicates negatively skewed in ACC Ltd and Ambuja Cement Ltd, whereas, positively skewed in remaining three companies. Shree Cement Ltd and Ultratech Cement Ltd were taking the benefits of trading on equity. That is why, ROEs for the companies were higher as compared to other entities. In case of Prism Cement Ltd, ROE was lesser than other entities due to increasing interest costs.

Table-7
Showing EPS of Sampled BSE listed Cement Companies

(In Rs.)

Companies	Average	SD	CV	Skewness	Kurtosis
UCL	84.12	10.47	12.44	1.07	0.57
ACC	57.23	16.11	28.15	-0.89	-0.42
AML	7.42	1.56	20.98	1.28	-0.28
SCL	244.90	109.99	44.91	0.68	-0.78
PCL	0.95	2.24	235.43	1.71	1.77

Source: Annual Reports of Sampled BSE listed companies, using Excel and SPSS.

Table-7 shows that the results of analysis of EPS of all sampled cement companies over the period of study. From the above table it is observed that the maximum EPS was found in Shree Cement Ltd (Rs. 244.90) followed by Ultratech Cement Ltd (Rs. 84.12), ACC Ltd (Rs. 57.23) Ambuja Cement Ltd (Rs. 7.42) and Prism Cement Ltd (Rs. 0.95). the highest standard deviation in EPS was found in Shree Cement Ltd (109.99) and lowest in Ambuja Cement Ltd (1.56), whereas, the highest coefficient of variance was in Prism Cement Ltd and lowest in Ultratech Cement Ltd. out of five sampled companies, four companies indicate positively skewed and one companies indicates negatively skewed. The EPS for Prism Cement Ltd was 0.95 because distributable profits of company were low due to increasing financing and operating expenses. A major part of its profits went to meet the interest expenses during the study period. In case of Shree Cement Ltd, EPS was highest due to adoption of balanced capital structure.

Table-8



Showing the Correlation Analysis between Capital Structure and Variables of Financial Performance of BSE listed Cement Companies (Independent Variable= Debt-Equity Ratio)

Variables	R	R ²	Sig.
NP	-0.668**	0.446	.000
OP	-0.556**	0.309	.000
ROA	-0.618**	0.382	.000
ROCE	-0.232	0.054	.105
ROE	-0.384**	0.147	.006
EPS	-0.177	0.031	.219

Source: Annual Reports of Sampled BSE listed companies, using Excel and SPSS-18.

The results of correlation analysis between capital structure and variables of financial performance of all sampled BSE listed cement companies over the study period from 2009-10 to 2018-19. The results of correlation analysis given in the above table indicate that the debt-equity ratio (capital structure) was found negatively correlated with the all financial performance variables NP (-0.668), OP (-0.556), ROA (-0.618), ROCE (-0.232), ROE (-0.384) and EPS (-0.177). But, it was found significant with NP, OP, ROA and ROE at 1 percent level of significance. This result reveals that the capital structure has negative relationship with financial performance of BSE listed sampled companies during the study period. It means that cement companies increase the debt funds in capital structure as compare to equity then decrease in net profit, operating profit, return on assets, return on capital employed, return on equity and earnings per share and vice-versa. The results of the present study partially supported by Indhumathi and Palanivelu (2013).

Findings of the Study

1. The maximum average and standard deviation of Debt-Equity Ratio was found in Prism Cement Ltd and minimum was in Ambuja Cement Ltd.
2. The highest average rate of Net Profit was found in Shree Cement Ltd and lowest in Prism Cement Ltd. But, standard deviation in the rate of net profit was found highest in ACC Ltd and lowest in Ultratech Cement Ltd.
3. The highest average rate of Operating Profit was obtained in Ambuja Cement Ltd and lowest was in Prism Cement Ltd, whereas, standard deviation of operating profit was found maximum in Shree Cement Ltd.
4. The average rate of Return on Assets was found maximum in case of Shree Cement Ltd and minimum was in Prism Cement Ltd. The maximum standard deviation in return on assets was found in Shree Cement Ltd and minimum in ACC Ltd.
5. Highest rate of Return on Capital Employed was obtained in case of Shree Cement Ltd and lowest was in Prism Cement Ltd. the highest standard deviation was obtained in Prism Cement Ltd and lowest was in Ultratech Cement Ltd.
6. The average rate of Return on Equity was found maximum in Shree Cement Ltd and minimum was in Prism Cement Ltd. the standard deviation in return on equity was found maximum in Prism Cement Ltd and minimum in ACC Ltd.
7. The highest average Earnings Per Share was found in case of Shree Cement Ltd and Lowest in Prism Cement Ltd.



8. The Debt-Equity Ratio (Capital Structure) has the negative relationship with the financial performance variables Net Profit, Operating Profit, Return on Assets, Return on Capital Employed, Return on Equity and Earnings Per Share.

Conclusion

This research study investigated the relationship between capital structure and financial performance of BSE listed companies of Indian cement industry. The findings depicts that there is a negative significant relationship between capital structure and net profit, operating profit, return on assets and return on equity, whereas, insignificant negative relationship of capital structure with return on capital employed and earnings per share. The study concludes that which cement company used a appropriate mixture of debt and equity funds in your capital structure that earn a high rate of net profit, operating profit, return on assets, return on equity and more earnings per share (such as Shree Cement Ltd). But, which company used more debt as compare equity in capital structure that company achieve low rate of net profit, operating profit, return on assets, return on equity and earnings per share. The researcher considered only companies of cement industry and so future researcher conduct study in other industry.

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