"A COMPARATIVE STUDY OF FINANCIAL PERFORMANCE OF ELECTRICITY COMPANIES OF GUJARAT"

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Abstract:

Throughout this Corona pandemic, the power sector is one of the most worst affected sector in India. As all the industries and factories were closed down and Indian power sector follows cross subsidy policy which states that costs are reduced to a particular type of customers or regions by increasing the costs to other customers or regions. Electricity plays a vital role in our day-to-day life. Our buildings, organizations, industries, hospitals, agricultures and in fact our whole economy get power from it. Power sector play very important role for enhancing economic growth and promoting equitable regional development. In Gujarat state, there is a considerable development of power sector after reformation of Gujarat Electric Board. Objective of the paper is to determine that which hypothesis is accepted as per analysis of data using test. If the there is no significant difference in the mean effect, then it is called null hypothesis is accepted and if there is some significant difference then it is called as alternate hypothesis is accepted. A financial statement furnish information pertaining to strength of particular Companies so here I, as a researcher, has made sincere efforts to measure the profitability of power distribution companies by applying different methods of analysis like comparative statement, common size statement, trend percentage, ratio analysis etc.

KEY WORDS: Profitability Ratio, Electricity, Power Distribution Company, One Sample T Test, ANOVA

Introduction:

Business used to be relatively small and frequently owned by a single entrepreneur or small group of partners from the time of the earliest documented description of accounting to colonial days. Hence, as a managerial tool, financial records and reports were of minimal significance. But in today's world, managers, trade creditors, investors, and other parties use the data in the financial statements to make decisions regarding the company's financial health and operational success. The financial statements' figures are illiterate. When evaluated, they might never the less provide a vivid account of a company's financial exploits. By carefully analyzing the information provided in these statements, readers of the financial statements can gain a better understanding of the firm's financial strengths and weaknesses. Prior to adopting any complex forecasting and budgeting procedures, financial analysis should be the

first step in any planning process. is essential in order to reveal the truth and dispel the mystery surrounding the financial statements' data for the benefit of all. In order to examine financial performance, this study discusses how data can be extracted from financial statements. It is divided into six sections: financial proportion, DuPont analysis, and standard financial explanation, application of financial analysis, using financial articulations, and looking beyond the numbers. Financial proportion analysis will be used in this study to help break down the financial performance.

Literature review:

- **Halimahtonn Borhan (2013)** published research paper "The impact of financial ratios on the financial performance of chemical company'' researcher examine the impact of financial ratios on the financial performance of chemical company Lyondell Basel industries (LYB)some selected Ratio like current Ratio, quick Ratio represent the Liquidity Ratio, debt ratio and debt equity ratio represent the leverage ratio. Researchers used 2004 to 2011 last 7 year data used in this study researcher used LyondellBasell Industries Malaysia, this time period is financial crises researchers find profitability. main focus of the study is conducted with the purpose of analysing the financial performance of the company. This study focused on the pre and post mergers financial performance of the company especially during the economic downturn which may have had a big impact on the company's performance researcher used data is collected from Bloomberg terminal and the annual Report of the company for seven – year period from 2004 to2011.

- **Gowsaly**.**rs (2017)**has published research paper on **the financial performance analysis ofcompanies in research journal** , this study is financial performance analysis of IT companies have revealed the great deal of their various financial aspects for five years and comparative Analysis unlocks the overall performance methodology this study are more avenues and scope for the companies to improve and thrive successful in the nature. this paper is fully based on secondary data like news article, magazine and published online e paper , this study main aim to attempt to analyze the financial performance of the companies for evaluating the performance of future , will help to analyze financial statement and help to apply the resource of the company. this study a develop a trend analysis model for sales and working capital and profit and loss account.

- **Pkandasamy&Dr. AB Angappapillai (2017) "An Analysis of financial performance of power secto**r **in Tamilnadu.**" The researchers have made an attempt to analyze the financial performance of the power industry of Tamilnadu by using financial variables. There are a number of factor s influencing the financial performance of the power sector. In this study the researchers is tried to analyze the financial efficiency level of the sector in two periods. The

purpose of this analyze is to verify the hypothesis relating to subsidization. The researchers has used comparative analysis method with help of appropriate statistical tools, this study is based on secondary data source like companies annual reports, website, magazine, etc.. and researcher Used last 10year data 1999 to 2010, in this study Researcher adopted research methodology is T test. in this study the major findings of the study is Tamilnadu electricity board   fuel cost is to high in 1999 this fuel cost it was decreased in year 2010 in case of power purchase, operational and maintenance cost, establishment and administrative charges and fixed cost, are decrease in 2002 to 2010 and profitable growth increased in step by years and years and TNEB seen that average net profit increase by years to year.

- **Comparison of electricity prices in major North American Cities, Hydroquebec.com (2019)**, this study attempts to compare the monthly electricity bills of Quebec customers in the residential, commercial, institutional and industrial sectors of the customers of those utilities which are serving in 21 major North American cities. The main objective of the study is to draw conclusions of the comparative analysis of prices which are in effect on April 1, 2019. There are mainly three sections which the study focuses on; the first, it states the method to be used to estimate the electricity bills, secondly it evaluates the highlights of the seven consumption levels analysed, with the help of charts and figures. And thirdly it shows the results of the 21 consumption levels for which data has been collected and presented in the form of summary and detailed tables.

- **CRISIL S&P global company Niti Aayog (2019)**, this study aims to save the domestic power distribution sector as the Indian government has made multiple attempts in the past two decades. Despite this, it continued to be the weakest link of the country's electricity value chain. The main objective of the study is to evaluate the Inadequate tariffs, Aggregate Technical and Commercial (AT&C) losses, lack of sufficient investment in infrastructure, outdated networks and inadequate maintenance are some of the issues that still impacts the sector, more than a decade after the Electricity Act, 2003, was notified.

Research Methodology:

- **Problem Statement:**

Financial statement and especially financial performance has attracted widespread attention for its development impact for the company and country development, but it has multitude of issues and complications. In spite of such issues, electricity companies proved to be the one succeeds to serve the nation by providing their services. It has served great level of financial and social outreach to the economy and society at large. Thus, performance measurement of electricity companies which are working to serve the nation becomes very essential. The present study tried to solve the problem

of financial performance of electricity companies having their businesses in Gujarat and India as well.

- **Objectives of the study**

  1. To examine the financial performance of the selected electricity companies in Gujarat.
  2. To study significant above average industry performer in terms of financial position among selected electricity companies in Gujarat.
  3. To compare the financial performance of selected electricity companies in Gujarat.

- **Research Hypothesis:**

  H0: There is no significant difference between population mean (Test Value) and Sample Mean for All Ratios of Profitability Position.

  H1: There is some significant difference between population mean (Test Value) and Sample Mean for All Ratios of Profitability Position.

- **Time horizon of study**

  In order to have the most recent analysis of the study, most recent time period has been chosen. Research has been conducted for the eleven years period from financial year 2011-12 to 2020-2021.

- **Source of Data:**

  The research is analytical and empirical in nature and makes use of secondary data. The data has been sourced from official websites of the respective companies where annual Reports of companies are available.

- **Population and Sample Size**

  The target population for this research is all electricity companies working in Gujarat where Gujarat State Electricity Corporation Limited owned four different subsidiaries which are regulated by GSECL in Gujarat. The present examines financial performance of all four subsidies and list of all four companies are given below:

  - Uttar Gujarat Vij Company Limited (UGVCL)
  - Paschim Gujarat Vij Company Limited (PGVCL)
  - Madhya Gujarat Vij Company Limited (MGVCL)
  - Dakshin Gujarat Vij Company Limited (DGVCL)

- **Analysis of Study**

  The research is limited to the study of the financial performance of electricity companies Gujarat. Performance will be assessed using the broad performance areas; these include profitability position.

- **Research Tools and Techniques**

To analyze the data, the researcher used few selected ratios for measuring the performance of electricity companies as a benchmark (ratio analysis) for comparison as well as a t- test and ANOVA.

- **Limitation:**

Researcher didn't get Published annual report of 2022-23 as Electricity Company has not worked on it.

Statistical Analysis:

To achieve the aforesaid objectives in the methodology chapter, researcher has used various statistical techniques and also done hypothesis testing to generalize the population.

Profitability Ratio:

1. **Cash Profit Margin:**

Cash Profit Margin Ratio of Selected Electricity Companies

Year	UG	PG	MG	DG	Industry Average
2010	2.63	3.63	3.86	2.79	3.23
2011	2.52	3.63	3.91	3.37	3.36
2012	2.29	3.30	3.87	3.16	3.16
2013	2.23	3.28	3.22	2.20	2.73
2014	2.56	3.82	3.75	2.80	3.23
2015	2.98	4.43	4.26	2.49	3.54
2016	3.61	4.92	5.18	2.80	4.13
2017	3.88	5.90	6.61	3.34	4.93
2018	3.68	5.70	6.03	3.12	4.63
2019	2.77	4.71	5.03	2.50	3.75
2020	3.62	5.77	4.98	3.24	4.40
2021	3.87	6.51	6.02	3.93	5.08
Company Average	3.05	4.63	4.73	2.98	3.85

The above table indicates the cash profit margin ratio of all selected electricity companies and overall industry performance. However, all the companies' average cash profit margin ratio has increased from 2010 to 2021. The study has reported whether this differences in industry average and company average

is statistically significant in next section by performing one sample t test statistics output and interpretations.

After satisfying the assumption of Parametric test, Researcher has applied One Sample T Test.

One Sample t test:

H0: There is no significant difference between population mean (Test Value) and Sample Mean for Cash Profit Margin Ratio

H1: There is some significant difference between population mean (Test Value) and Sample Mean for Cash Profit Margin Ratio

One-Sample Test Result for Cash Profit Margin Ratio

	Test Value = 3.85					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
UGVCL	-4.350	11	.001	-.79667	-1.1998	-.3936
PGVCL	2.408	11	.035	.78333	.0673	1.4994
MGVCL	2.807	11	.017	.87667	.1893	1.5640
DGVCL	-6.355	11	.000	-.87167	-1.1736	-.5698

However differences seen for all the companies and highest negative difference is for DGVCL and UGVCL while highest positive differences are for MGVCL and PGVCL. This indicates that they are performing below industry average and that is statistically significant.

2. **Gross Profit Margin:**

Gross Profit Margin Ratio of Selected Electricity Companies

Year	UGVCL	PGVCL	MGVCL	DGVCL	Industry Average
2010	3.33	4.28	4.32	4.38	4.08
2011	2.92	3.83	3.01	3.45	3.30
2012	6.63	1.06	3.31	2.70	3.43
2013	3.71	1.51	2.34	1.35	2.23
2014	2.64	3.01	2.26	1.19	2.27

2015	5.15	4.72	5.25	2.05	4.29
2016	5.10	4.18	3.93	2.03	3.81
2017	4.74	5.16	7.67	3.75	5.33
2018	4.21	6.25	6.22	6.99	5.92
2019	3.16	5.19	5.09	2.53	3.99
2020	4.03	6.74	7.18	3.65	5.40
2021	4.10	6.93	6.18	4.28	5.37
Company Average	**4.14**	**4.40**	**4.73**	**3.20**	**4.12**

Looking to the companies' averages, DGVCL reported below industry average performance in terms of gross profit margin ratio while rests of all have beaten the industry average. DGVCL is lowest at 3.20 which is very low and indicating bad performance while MGVCL is showing highest average value indicating good profitability performance.

One Sample t test:

One-Sample Test Result for Gross Profit Margin Ratio

	Test Value = 4.12					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
UGVCL	.071	11	.944	.02333	-.6950	.7417
PGVCL	.528	11	.608	.28500	-.9026	1.4726
MGVCL	1.153	11	.273	.61000	-.5547	1.7747
DGVCL	-1.994	11	.071	-.92417	-1.9441	.0957

All are performing equally up to industry average and differences shown are not statistically significant.

3. **Operating Profit Margin:**

Operating Profit Margin Ratio of Selected Electricity Companies

Year	**UGVCL**	**PGVCL**	**MGVCL**	**DGVCL**	**Industry Average**
2010	6.15	6.86	7.19	4.99	6.30
2011	4.97	6.14	6.58	5.13	5.71
2012	3.74	5.42	6.07	4.47	4.93

Year				
2013	4.28	5.75	5.20	3.64	4.72
2014	4.74	7.06	6.05	4.12	5.50
2015	5.56	8.11	6.15	3.53	5.84
2016	5.88	7.36	6.88	3.78	5.98
2017	5.44	7.73	8.13	4.30	6.40
2018	4.60	6.96	7.25	3.94	5.68
2019	3.53	5.62	6.12	3.29	4.64
2020	4.28	6.78	7.05	4.07	5.54
2021	4.57	7.41	6.99	4.77	5.93
Company Average	**4.81**	**6.77**	**6.64**	**4.17**	**5.60**

DGVCL has reported lowest average operating profit margin ratio i.e. 4.17 which indicates almost equal amount of operating profit margin which may not be good while PGVCL is highest at 6.77 which means good operating profit margin compared with the sales generated.

One-Sample Test Result for Operating Profit Margin Ratio

	Test Value = 5.60					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
UGVCL	-3.335	11	.007	-.78833	-1.3087	-.2680
PGVCL	4.685	11	.001	1.16667	.6186	1.7148
MGVCL	4.678	11	.001	1.03833	.5498	1.5269
DGVCL	-8.497	11	.000	-1.43083	-1.8015	-1.0602

However differences seen for all the companies and highest negative mean difference is for GVCL while positive difference is for PGVCL. MGVCL and PGVCL are able to work up to industry performance and that is statistically significant.

4. **Net Profit Margin:**

Net Profit Margin Ratio of Selected Electricity Companies

Year	UGVCL	PGVCL	MGVCL	DGVCL	Industry Average
2010	0.12	0.07	0.62	0.48	0.32
2011	0.23	0.05	0.74	1.17	0.54

2012	0.19	0.11	0.91	1.21	0.61
2013	0.18	0.11	0.47	0.37	0.28
2014	0.18	0.10	0.46	0.68	0.35
2015	0.21	0.09	0.58	0.47	0.34
2016	0.64	0.10	0.82	0.57	0.53
2017	0.71	0.28	1.50	0.82	0.83
2018	0.99	0.93	1.62	0.80	1.08
2019	0.30	0.43	0.53	0.30	0.39
2020	0.89	1.26	0.99	0.91	1.01
2021	0.58	1.08	0.85	1.02	0.88
Company Average	**0.43**	**0.38**	**0.84**	**0.73**	**0.60**

Looking to the companies' averages, UGVCL and PGVCL reported below industry average performance in terms of net profit margin ratio while MGVCL and DGVCL have beaten the industry average. PGVCL has reported lowest average net profit margin ratio i.e. 0.38 which indicates not be good while MGVCL is highest at 0.73 which means good profitability position.

One Sample t test:

One-Sample Test Result for Net Profit Margin

| | Test Value = 0.60 | | | | | |
| | T | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
					Lower	Upper
UGVCL	-1.847	11	.092	-.16500	-.3617	.0317
PGVCL	-1.683	11	.121	-.21583	-.4981	.0664
MGVCL	2.205	11	.050	.24083	.0004	.4813
DGVCL	1.512	11	.159	.13333	-.0607	.3274

Result shows that all probability values are greater than 0.05 so this study fails to reject the null hypothesis and interpret that there is no significant difference in industry performance and company performance in terms of net profit margin ratio.

Comparison of financial performance:

Further to compare the financial performance of more than 2 independent groups i.e. electricity companies that we have selected here for this study are four. So further mean comparison is possible

with the help of ANOVA i.e. analysis of variance provided with the fulfillment of assumptions. If assumptions are not fulfilled, the study can use further non-parametric test of Kruskal Wallis which basically compares the median. Assumptions of ANOVA are as follows:

Normality Test:

So before moving for any statistical analysis for ANOVA and hypothesis testing, following is the results and interpretation of normality tests which seems more powerful and give reliable output compared to graphical representations. General hypothesis for the normality test is as under:

H0: Data are normally distributed

H1: Data are not normally distributed

Confidence Level: 5%

Tests of Normality for all variables under the study

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
CPM	.181	48	.000	.921	48	.003
GPM	.084	48	.200*	.976	48	.416
OPM	.099	48	.200*	.959	48	.094
NPM	.104	48	.200*	.948	48	.034

All the companies' all ratios showing majority are non-normal where probability values are less than 0.05 so we reject the null and interpret that data are not normally distributed. So further this research tried to conclude on the basis of non parametric Kruskal Wallis test.

Kruskal Wallis Test:

H0: There is no significant difference in median value of ratios among selected four electricity companies

H1: There is significant difference in median value of ratios among selected four electricity companies

Kruskal Wallis Test Result for All Variables

CPM	UGVCL	12	15.13	25.245 (0.000)
	PGVCL	12	33.42	
	MGVCL	12	35.79	
	DGVCL	12	13.67	

	Total	48		
GPM	UGVCL	12	24.75	5.620 (0.132)
	PGVCL	12	27.75	
	MGVCL	12	28.88	
	DGVCL	12	16.63	
	Total	48		
OPM	UGVCL	12	16.50	32.722 (0.000)
	PGVCL	12	36.33	
	MGVCL	12	35.29	
	DGVCL	12	9.88	
	Total	48		
NPM	UGVCL	12	19.88	11.776 (0.008)
	PGVCL	12	15.67	
	MGVCL	12	32.29	
	DGVCL	12	30.17	
	Total	48		

Looking to the probability values for all variables in the research, almost all are less than 0.05 except Gross Profit Margin**.**

Findings:

Findings are the major concern for every researcher, policymakers and concerned stakeholders who are going to be affected by the study.

1. Further profitability position of PGVCL and MGVCL is found strong enough in terms of cash profit ratio, operating profit ratio and net profit margin.
2. Findings are from one sample t test is as under:

Ratio Categories	Ratios	Positive Significant Difference	Negative Significant Difference
Profitability Position	Cash Profit Margin	PGVCL, MGVCL	UGVCL, DGVCL
	Gross Profit Margin	No Difference	No Difference
	Operating Profit Margin	PGVCL, MGVCL	UGVCL, DGVCL
	Net Profit Margin	No Difference	No Difference

Further it was found that profitability position of PGVCL and MGVCL is positive and statistically significant while UGVCL and DGVCL is showing negative significant profitability position.

3. Moreover study conducted Kruskal Wallis test which is non-parametric version of one way Analysis of Variance due to non fulfillment of normality assumptions. The study found that there are significant differences among four electricity companies under the study regarding all the variable considered in this study except gross profit margin, debt equity ratio, total liabilities to total assets, return on capital employed. Rests of all other financial performance criteria found to be statistically significant and differences are observed in all.

   o Cash profit margin where differences are found amongst the electricity companies and highest cash profit margin mean rank is for MGVCL followed by PGVCL indicating that profit earning capacity is high for these companies compared to cash investments. Lowest mean rank is for DGVCL followed by UGVCL.

   o Moreover, Operating profit margin where mean rank is found to be highest for PGVCL followed by MGVCL and the values are almost equal. Further differences are significant for DGVCL and UGVCL which are showing lowest value indicating that company is not doing well in terms of generating operating profit.

   o In line with the operating profit margin, there is final outcome for financial measurement of any company i.e. net profit margin and here DGVCL is found to be the highest value followed by MGVCL indicating good financial condition as far as net profit is concerned.

Conclusion & Suggestions:

The study concludes on various objectives drafted in the methodology part and hence taken the base of analysis and major findings that are discussed in previous section. Profitability position of PGVCL and MGVCL is strong enough in terms of cash profit ratio, operating profit ratio and net profit margin.

1. Gross profit ratio reflects the margin of profit that a concern is able to earn on its trading activity. All the selected companies should have to maintain this ratio at high level as it indicates operating efficiency. Companies should have to make the plan to reduce cost of goods sold and increase the sales. Difference between revenue realization and cost of supply should be brought down to a level to be able to earn profit.

2. The profitability of electricity distribution companies is depending on the pattern of consumers. Therefore utilities with high subsidizing consumers should be given the authority to purchase power on their own so as to lower their power purchase cost.

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