ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 8| August 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188

ANALYSIS OF FINANCIAL PERFORMANCE OF POWER DISCOMS USING DUPONT MODEL: A CASE STUDY OF GUJARAT DISCOMS

Mr.N.Vishnumayi Singh[1], Dr.S.Robita[2]
[1]*Research Scholar, Department of Commerce, Manipur University, Canchipur-795003*
[2]*Professor, Department of Commerce, Manipur University, Canchipur-795003*

Article DOI: https://doi.org/10.36713/epra11044
DOI No: 10.36713/epra11044

ABSTRACT

Power distribution in India is the weakest link in the entire chain of energy sector of the country and it burdens the other sub sectors which include generation and transmission and which in turn affect the overall economy. The present study attempts to measure the financial performance of the four state owned Gujarat distribution companies (discoms) using DuPont model for the period of five years. The data collected from the published annual financial statements of the companies was analysed using statistical tools using SPSS. The study found that the liquidity position of all the four discoms is satisfactory during the period of the study, it was also found that very low receivable days was maintained for the five years as compared to the national average. Being state owned companies serving the public profit margin was found to be low compared to the other components of ROE which are asset turnover and financial leverage. Correlation analysis shows that ROE has significant relationship with all the variables and ROE shares similar financial characteristics with ROA and ROCE. It is seen from the study that ROE is driven by low debt, high management efficiency and high asset turnover.

KEYWORDS: ***DuPont analysis, ROE, ROCE, ROA, discoms, financial performance***

INTRODUCTION

Electricity is one of the most important components of infrastructure for the growth of a country's economy and more so if the country is still is in the developing stage like India (Varghese & Eapen, 2016). In the Indian Constitution, electricity is included in the concurrent list of subjects. Planning for the sector is done by the Central Electricity Authority, an agency of the Government of India (Veluchamy, Sunder, Tripathi, & Nafi, 2018). It carries out various functions including the preparation of a National Electricity Plan for the country once in 5 years as per the National Electricity Policy. Every five years, the Government of India constitutes an "Electric Power Survey Committee" to forecast the State-wise electricity demand of the country. The electricity sector in India can be segmented into its different functions namely generation, transmission and distribution functions and most erstwhile state electricity boards and electricity departments have unbundled their operations into different companies each performing a specific function of generation, transmission or distribution (Singh, Credit ratings of power distribution utilities in northern region of India, 2020).

Among all these sub sectors, the distribution of power is the most important link in the value chain of the power sector as it is the primary source of cash inflow for the sector. The distribution sector consists of Power Distribution Companies (Discoms) responsible for the supply and distribution of energy to the consumers. However it is also the weakest link in the entire chain. Most power distribution companies incur losses every year—the total loss is estimated to be ₹ 90,000 crore in FY 2021. Discoms have taken on significant commercial debt to finance their operation, which has led to concerns about poor power sector performance spilling over into the financial sector and the broader economy like dominoes (Ernst & Young LLP, 2015). Ailing state-owned power distribution companies continue to hamper the efficient functioning of the generation and transmission sectors. The absence of competition, unsustainable cross-subsidies, economically inefficient tariff setting processes, expensive thermal power purchase agreements (PPAs), and a lack of modern technology and infrastructure development are adding to discoms' losses (Nirula, 2019).

The Government of India has initiated many reforms to improve the distribution sector's operational and commercial performance but all these reforms have not made a sustained impact yet. To help state distribution utilities cut their mounting losses, the government has introduced various financial packages most notably UDAY (Ujwal Discom Assurance Yojana) to bail out beseiged state discoms from time to time. However there has not been much success. The financial health of distribution sector is important for the country to achieve its ambitious renewable energy targets and attain its economic growth goals (Garg & Shah, 2020). The discoms' poor financial health means these companies struggle to make payments to energy generators and often fail to honour their contracts, undermining their ability to invest in technology and modernisation of the grid.

However the state discoms of Gujarat are an exception to the above narrative of the performance of state power distribution companies in general. The performance of power

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 8| August 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188

sector of Gujarat like most other sectors of economy in Gujarat is exemplary and is considered a model among all the discoms of the country (Palit, 2020). This paper focuses on the financial parameters of the Gujarat discoms to analyse their financial performance and to identify the areas of strengths and weakness. Some of the important financial parameters include liquidity ratios like current ratio and quick ratio, activity ratios like total asset turnover ratio, interest coverage ratio and debt collection period, leverage ratio which include debt to net worth ratio, equity multiplier and the profitability ratios including return on equity, return on assets and return on capital employed.

Gujarat discoms

The electricity distribution sector of the Indian state of Gujarat is considered the best compared to all the other Indian states. Gujarat discoms have some of the lowest AT&C losses, provides 24/7 reliable power supply throughout the energy surplus state and is among the few state distribution utilities which have positive net worth. All the four state Gujarat discoms have been awarded A+(highest) and ranked in the top 5 consistently for nine year in a row by the Power Finance Corporation in its Annual Integrated Rating Exercise (ICRA Analytics Limited; CARE Advisory Research, 2021). Therefore experts have called the Gujarat state distribution utilities as the model utilities which other states should emulate.

In this context, this study analyses the financial statements and tariff petitions of the four Gujarat state discoms which are UGVCL (Uttar Gujarat Vij Company Limited), PGVCL (Paschim Gujarat Vij Company Limited), MGVCL (Madhya Gujarat Vij Company Limited) and DGVCL (Dakshin Gujarat Vij Company Limited) to find their financial performance for five years 2016-2017 to 2020-2021 using DuPont analysis.

DUPONT MODEL CONCEPT

There are various models to find out the performance of a company. One of these models is the DuPont model which was created in the 1900s by Donaldson Brown for the DuPont corporation while doing an internal analysis for the said corporation (Sheela & Karthikeyan, 2012). Though created a century before, it is still very relevant and widely used by financial managers, market analysts and academicians alike. This model breaks down the Return on Equity into components or drivers which are the net profit margin(operating efficiency), total asset turnover(asset use efficiency) and equity multiplier(financial leverage) and analyses these individual parts to see how much each driver impact the profitability and whether the management effectively uses the resources at hand.

$$ROE = NPM * TAT * EM$$

Where, ROE= return on equity

NPM= net profit margin = net profit/revenue from operations

TAT= total asset turnover = Revenue from operations/average total assets

EM= equity multiplier = Average total assets/ shareholders' equity

The decomposition of the ROE allows users to determine what financial activities are contributing to the changes in ROE and it can be used to compare the operational efficiency of two similar firms. Moreover it can be used by managers to identify strengths and weaknesses that should be addressed (Kim, 2016).

LITERATURE REVIEW

(K, Abhilas, & Farhad, 2021) evaluated the efficiency of 45 electric discoms from 21 Indian states for the year 2018-2019 using 2 stage analysisSignificant findings include that only few discoms from the select set are technically efficient and the analysis showed that huge losses could be reduced by working only on improving efficiency of these electricity distribution firms.

(Das & Srikanth, 2020) studied the challenges faced by the Indian power sector and the financial distress of discoms which included supply demand mismatch due to over ambitious demand projections by looking at the GDP. The study found that power procurement which forms more than 80% of total expenditure of the discoms is very high.

(K & S, 2019) in their study evaluated financial performance of select automobile companies using DuPont analysis. This study also considered ROE, ROI and ROCE as most comprehensive measure of profitability. The paper identified strong relationship among the variables namely Net Profit Margin, Return on Assets, Return on Equity and Return on Capital Employed in the automobile industry using correlation and negative relation between Equity Multiplier and ROA, ROE, ROCE.

(Kim, 2016) measured the financial performance of food distribution industry in South Korea taking a sample of seven companies for a period of three years and studying their various ratios including liquidity, leverage, activity and profitability ratios. By applying DuPont analysis and correlation among the financial variables found strong relationship among Profit Margin, ROA and ROE from which can be interpreted that profit margin is directly proportional to management effectiveness and efficiency of investor's money.

(Sheela & Karthikeyan, 2012) measured the financial performance of pharmaceutical industry by taking three companies using DuPont analysis. The study concluded that ROE and ROI is the most comprehensive measure of the firm's profitability and found out that absolute amounts shown in the financial statements is not much helpful to investors or creditors or management. Instead ROE and ROI should be broken down to its components and studied to make better decisions.

(Srinivas, 2012) analysed the financial statements of Karnataka Power Corporation Linited for five years and found that KPCL liquidity position is satisfactory by analysing its current and quick ratio, its solvency position or its ability to pay off its long term obligations is also satisfactory and suggested that company should use its retained earnings to reduce burden on interest payments. The study also emphasised the need for revising the tariff to increase their profitability and to minimize the operating expenses.

OBJECTIVES

1. To study and compare the financial parameters of the selected power distribution companies.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 8| August 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188

2. To analyse the performance of the Gujarat discoms by decomposing Return on Equity and see which of the components drive the profitability ratios.
3. To examine the correlation between ROE, ROA, ROCE, NPM, EM and TAT.

RESEARCH METHODOLOGY

For the present study, the data of the four Gujarat power distribution companies is collected for a period of five years between 2016-2017 to 2020-2021. The data was secondary in nature and was collected from published annual financial statements of the respective companies and also from the Report on performance of power utilities which is published annually by Power Finance Corporation. The data so collected was classified, edited and fed into excel for calculation of the financial ratios and correlation analysis of the DuPont components was done using SPSS software. Descriptive statistics was used in terms of mean and standard deviation.

Table 1. DGVCL FINANCIAL PARAMETERS

Year	Current Ratio	Quick Ratio	Receivable Days	Debt equity ratio	Interest coverage ratio
2016-17	1.96	1.60	26	0.02	4.43
2017-18	2.34	1.99	12	0.02	4.93
2018-19	2.65	2.15	9	0.01	4.35
2019-20	2.89	2.44	19	0.01	4.89
2020-21	3.41	2.99	12	0.01	5.92
Mean	2.64	2.23	16	0.014	4.90
std. dev	0.55	0.52	7	0.005	0.63

Current ratio has increased over the five years gradually from 1.96 to 3.41 and debt equity ratio has decreased from 0.02 to 0.01 indicating excellent liquidity and solvency position of the firm. The interest coverage ratio has also maintained an upward trend. The debt collection period is lowest among the four discoms with mean of 16

Table 2. DGVCL DUPONT COMPOSITION

Year	NPM	EM	TAT	ROE	ROA	ROCE
2016-17	0.82	15.05	2.12	26.19	1.74	4.961
2017-18	0.80	15.23	2.04	24.88	1.63	4.01
2018-19	0.30	15.36	2.07	9.58	0.62	2.49
2019-20	0.81	15.84	2.04	26.03	1.64	3.89
2020-21	1.02	16.21	1.64	27.09	1.67	3.54
Mean	0.75	15.54	1.98	22.75	1.46	3.78
std. dev	0.27	0.48	0.19	7.41	0.47	0.892

There is a sudden decrease in the NPM during the year 2018-2019 (0.3%). EM remains consistent over the 5 years of study with mean 15.54 and standard deviation of only 0.48. NPM and net profit went down considerably for the year 2018-2019. The mean for ROE is 26.03, ROA is 1.46 and ROCE is 3.78. From the above table it can be seen that the ROE and ROA for the years other 2018-2019 remains somewhat consistent

Table 3. MGVCL FINANCIAL PARAMETERS

Year	Current Ratio	Quick Ratio	Receivable Days	Debt equity Ratio	Interest Coverage Ratio
2016-17	2.22	1.83	20	0.04	5.53
2017-18	2.92	2.55	22	0.04	6.52
2018-19	3.06	2.66	21	0.03	5.81
2019-20	3.16	2.76	25	0.02	6.03
2020-21	3.62	3.15	23	0.02	7.06
mean	3.00	2.59	22	0.03	6.19
std. dev	0.51	0.48	2	0.01	0.61

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 8| August 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188

Liquidity has improved over the 5 years as shown by the current ratio and quick ratio from 2.22 to 3.62 and from 1.83 to 3.15 respectively. Mean of receivable days is 22 days with standard deviation of 2 days. The debt equity ratio has also decreased from 0.04 to 0.02 in the 5 years.

Table 4. MGVCL DUPONT COMPOSITION

Year	NPM	EM	TAT	ROE	ROA	ROCE
2016-17	1.53	11.08	1.25	21.34	1.93	4.73
2017-18	1.66	11.74	1.19	23.22	1.98	3.92
2018-19	0.54	11.83	1.22	7.79	0.66	2.70
2019-20	0.91	12.09	1.19	13.09	1.08	3.72
2020-21	0.87	12.41	1.12	12.06	0.97	3.47
Mean	1.10	11.83	1.19	15.50	1.32	3.71
std. dev	0.48	0.49	0.05	6.54	0.59	0.74

Total asset turnover has a mean of 1.19 and standard deviation 0.05. ROE has gone down over the years from 21.34 to 12.06 with mean 15.5 and standard deviation 6.54. ROA and ROCE has also worsened during the study period from 1.93 to 0.97 and 4.73 to 3.47 respectively.

Table 5. PGVCL FINANCIAL PARAMETERS

Year	Current Ratio	Quick Ratio	Receivable Days	Debt equity ratio	Interest coverage ratio
2016-17	0.90	0.67	40	0.05	4.22
2017-18	1.25	0.92	40	0.04	5.84
2018-19	1.36	1.05	36	0.02	6.85
2019-20	2.05	1.51	39	0.01	6.85
2020-21	2.37	1.99	42	0.01	9.08
mean	1.59	1.23	39	0.03	6.57
std. dev	0.60	0.53	3	0.02	1.77

In pgvcl also, current ratio and quick ratio significantly increased from 0.9 to 2.37 and 0.67 to 1.99 respectively. Interest coverage ratio jumped considerably in the year 2020-2021 from 6.85 to 9.08.

Table 6. PGVCL DUPONT COMPOSITION

Year	NPM	EM	TAT	ROE	ROA	ROCE
2016-17	0.29	3.03	1.10	0.96	0.32	3.67
2017-18	0.95	2.55	1.11	2.70	1.06	3.05
2018-19	0.44	2.34	1.16	1.18	0.51	1.63
2019-20	0.47	2.23	1.08	1.13	0.51	2.01
2020-21	1.10	2.36	0.94	2.45	1.04	2.31
Mean	0.65	2.50	1.08	1.68	0.68	2.54
std. dev	0.35	0.32	0.08	0.82	0.34	0.82

TAT had shown an upward trend till 2018-2019 and come down in the final two years. As EM (mean 2.5) is very low compared to the other three discoms (DGVCL mean 15.54, MGVCL mean 11.83 and UGVCL mean 12.76), ROE (mean 1.68)is the lowest among the 4 distribution utilities.

Table 7. UGVCL FINANCIAL PARAMETERS

Year	Current Ratio	Quick Ratio	Receivable days	Debt equity Ratio	Interest coverage ratio
2016-17	1.73	1.37	26	0.02	3.48
2017-18	1.93	1.73	27	0.01	5.12
2018-19	2.21	2.07	25	0.01	4.74
2019-20	2.43	2.20	24	0.01	4.86
2020-21	2.36	2.22	26	0.01	6.29
mean	2.13	1.92	26	0.01	4.90
std. dev	0.30	0.36	2	0.006	1.00

Similar to the other 3 discoms, the liquidity position of ugvcl has increased in the 5 years of study from 1.73 to 2.36 and 1.37 to 2.22. However the age of receivables did not change much with a mean of 26 days and standard deviation of 2 days. The solvency position is also excellent with Debt to equity or borrowings to net worth ratio having mean of 0.01.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 8| August 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188

Table 8. UGVCL DUPONT COMPOSITION

Year	NPM	EM	TAT	ROE	ROA	ROCE
2016-17	0.73	12.43	1.62	14.62	1.18	4.85
2017-18	1.00	12.29	1.59	19.54	1.59	3.86
2018-19	0.30	12.54	1.75	6.58	0.53	2.35
2019-20	0.45	12.83	1.70	9.80	0.76	3.52
2020-21	0.58	13.72	1.49	11.85	0.86	3.00
Mean	0.61	12.76	1.63	12.48	0.98	3.51
std. dev	0.27	0.57	0.10	4.92	0.42	0.94

NPM shows no predictable trend with mean 0.61 and standard deviation 0.27, EM and TAT remain consistent with mean 12.76 and 1.6 and low standard deviation of 0.57 and 0.1 respectively. ROE shows a wavy trend with the year 2018-2019 being lowest (6.58%).

Table 9. CORRELATION ANALYSIS

		NPM	EM	TAT	ROE	ROA	ROCE
NPM	Pearson Correlation	1	.111	-.225	.551*	.840**	.491*
	Sig. (2-tailed)		.640	.340	.012	.000	.028
	N	20	20	20	20	20	20
EM	Pearson Correlation	.111	1	.758**	.787**	.489*	.515*
	Sig. (2-tailed)	.640		.000	.000	.029	.020
	N	20	20	20	20	20	20
TAT	Pearson Correlation	-.225	.758**	1	.598**	.302	.357
	Sig. (2-tailed)	.340	.000		.005	.196	.123
	N	20	20	20	20	20	20
ROE	Pearson Correlation	.551*	.787**	.598**	1	.890**	.733**
	Sig. (2-tailed)	.012	.000	.005		.000	.000
	N	20	20	20	20	20	20
ROA	Pearson Correlation	.840**	.489*	.302	.890**	1	.717**
	Sig. (2-tailed)	.000	.029	.196	.000		.000
	N	20	20	20	20	20	20
ROCE	Pearson Correlation	.491*	.515*	.357	.733**	.717**	1
	Sig. (2-tailed)	.028	.020	.123	.000	.000	
	N	20	20	20	20	20	20
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							

NPM shows positive association with ROE(0.551) and ROA(0.84). Financial leverage EM has strong relationship with TAT(0.758) and ROE(0.787). ROE shows significant relationship with all the variables NPM(0.551), EM(0.787), TAT(0.598), ROA(0.89) and ROCE(0.733). ROE shares similar financial characteristics with ROE and ROCE as can be seen from the high correlation coefficients.

CONCLUSION

The present study attempts to focus on measuring the financial performance of the four Gujarat state discoms using DuPont analysis. For this purpose, the study has analysed the financial parameters of the select discoms for five years 2017 to 2021 which include liquidity ratios, solvency, activity and profitability ratios like ROE, ROA and ROCE. ROE has been decomposed into its three components namely NPM, TAT and EM as given in the tables and analysed the trends and relationship among the variables. The liquidity of the four discoms during the study period is satisfactory meaning that all the four discoms can comfortably meet their short term obligations. The debt collection period is also very low compared to the national average of 142 days. The highest receivable days is of PGVCL(39 days) and lowest is of DGVCL(16 days). In terms of the companies' ability to

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 8| August 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188

honour it's debt payments which is measured by ICR, the discoms under study have shown exemplary results with even the lowest ratio of DGVCL and UGVCL (4.9) being much higher than the critical national average of 0.5. NPM is expectedly low as the select discoms are state owned serving the public with subsidised tariff. However ROE is driven by a high leverage with DGVCL having the highest EM(15.54) along with highest ROE(22.75) and PGVCL have the lowest leverage 2.5 along with lowest ROE(1.68). The other profitability ratios of all the four discoms is satisfactory with overall mean of ROA(1.11) and ROCE(3.86).

The correlation analysis of the DuPont components and the profitability ratios show that all the profitability ratios of ROE, ROA and ROCE share similar financial characteristics with each other. ROE also has significant relationship with NPM, TAT and EM. Interstingly, the study shows that EM has high correlation with TAT. It is also found that for the four companies ROE is driven by high leverage, high asset turnover and high management efficiency. The discoms in future should try to increase the profit margin, DGVCL should decrease the leverage and PGVCL should try to improve the leverage and all the four discoms should maintain the low receivable days.

FUTURE DIRECTION OF STUDY

In future, the scope of the study can be expanded to include more discoms or all the discoms of the country. The performance between the private discoms and state owned discoms can be compared. The findings may have been different if larger sample was included. The study period could also be extended to 10 years or more. Another direction would be comparing the performance of the discoms having different categories of rank (A+ to C) awarded in the report released by the Ministry of Power. The results of this study of financial performance of top ranked discoms could be used in the study of financial performance of MSPDCL(Manipur State Power Distribution Company Limited) the lone power discom of the state of Manipur and one of the worst performing discoms of the country in comparing both and to understand where MSPDCL should make changes.

REFERENCES

1. *Daleia, N. N., & Gupta, A. (2015, April). Performance of Electricity Distribution Companies in Delhi: An Evaluation Study. Economics and Policy of Energy and the Environment.*
2. *Das, S. D., & Srikanth, R. (2020, December). Viability of power distribution in India- Challenges and Way Forward. Energy Policy, 147.*
3. *Ernst & Young LLP. (2015). Study on "Performance of Distribution Utilities. India: Forum of Regulators.*
4. *Garg, V., & Shah, K. (2020). The Curious Case of India's Discoms. Institute for Energy Economics and Financial Analysis.*
5. *ICRA Analytics Limited; CARE Advisory Research. (2021). Ranking & Ninth Annual Integrated Rating of State Power Distribution Utilities. Ministry of Power, Government of India.*
6. *K, B., & S, S. (2019, January). A STUDY ON FINANCIAL PERFORMANCE EVALUATION USING DUPONT ANALYSIS IN SELECT AUTOMOBILE COMPANIES. International Journal of Management, Technology And Engineering, 9(1), 354-362.*
7. *K, S. G., Abhilas, P., & Farhad, T.-H. (2021, September). Performance assessment of state owned electricity distribution utilities in India. Economic Analysis and Policy, 71, 516-531.*
8. *Kim, H.-S. (2016). A Study of Financial Performance using DuPont Analysis. Culinary Science & Hospitality Research, 22(6), 52-60.*
9. *MP Ensystems Advisory Pvt. Ltd. (2018). Analysis of Financial Health of DISCOMs and its Link with End-use Efficiency Implementation. Shakti Sustainable Energy Foundation.*
10. *Nirula, A. (2019). India's Power Distribution Sector: An assessment of financial and operational sustainability. Brookings India.*
11. *Palit, D. (2020). Gujarat's Electricity Sector - The Fairy Tale Revival. Energy Transition Strategies: Gujarat's Low-Carbon Development Pathway. Washington DC: Center for Strategic and International Studies.*
12. *Power Finance Corporation limited. (2021). Report on Performance of Power Utilities. New Delhi: Power Finance Corporation Limited.*
13. *Shani, T., Gupta, T., & Parashar, A. (2017, August). RETURN ON EQUITY ANALYSIS USING DUPONT MODEL. International Journal of Advanced Research, 5(8), 1504-1508.*
14. *Sheela, S. C., & Karthikeyan, D. K. (2012). Financial Performance of Pharmaceutical Industry in India using DuPont Analysis. European Journal of Business and Management, 4(14), 84-91.*
15. *Singh, K. (2020). Credit ratings of power distribution utilities in northern region of India. Asian Journal of Economics, Finance and Management, 11-19.*
16. *Singh, K., & Vashishtha, S. (2020). A Performance Analysis of Power Distribution Utilities of Haryana. Asian Basic and Applied Research Journal, 2(1), 13-19.*
17. *Singh, K., & Vashishtha, S. (2020, December). Impact of Poll Promises and Political Interference on Financial Performance of Power Distribution Companies in Haryana, India. Journal of Politics & Governance, 8(11), 26-33.*
18. *Srinivas, K. (2012). An analysis of financial statements of Karnataka Power Corporation Limited, Bangalore. International Journal of Engineering and Management Research (IJEMR), 2(3), 53-57.*
19. *Varghese, G., & Eapen, L. M. (2016, January and February). Power Sector in India- Recent Challenges and Measures Undertaken. Asian Journal of Research in Business Economics & Management, 6(1), 7-14.*
20. *Veluchamy, A., Sunder, R. G., Tripathi, R., & Nafi, R. M. (2018). Powering India: The Next-Generation Reforms in Power Distribution Sector. International Journal of Applied Engineering Research, 13(21), 15016-15034.*