



The Effects of Working Capital Management on the Profitability of Assam Power Distribution Company Limited

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Abstract:

Financing current assets and managing adequate working capital are the two most vital decisions a finance manager undertakes. Power Sector Companies require huge capital investment and the effective utilization of these fixed assets depends on sound working capital. The study is conducted using time-series data analysis from publicly available annual reports of APDCL for the past 13 years, i.e., 2009-10 to 2021-22. As a proxy to measure working capital, the liquidity ratios are determined by evaluating the degree of uniformity among the liquidity positions. Gross working capital is computed for the past years and compared to the respective Estimated Gross Working Capital that gives an outlay of the acute shortage or excess investment made by the company. Lastly, a correlation matrix is constructed to ascertain the relationship and association between working capital and profitability, followed by multiple regression analysis between its dependent and independent variables. The findings indicate (i) an improving scenario in the working capital ratios, with enough room for improvement (ii) the liquidity elements have no uniformity in their movements and (iii) the calculated Inventory Turnover Ratio impacts the company's profitability.

Keywords: Power Companies, Working Capital Management, Liquidity, Profitability, Assam

1. Introduction

Working Capital Management is the most critical component of financial measurements that assess the balance sheet's strength and directly affect the company's liquidity and profitability. For a finance manager, managing working capital efficiently is just as necessary as managing the company's long-term financial investments. Fixed assets of a company can be utilized properly only when it maintains enough working capital, which in turn contributes to short-term performance (Raheman, A and Nasr. M, 2007; Punam Prasad et al. 2019), and long-term financial performance (Samiloglu, F. and Demirgunes, K. 2008, Sharma, T. and Rathore, U. 2013, Sharma, T. and Rathore, U. 2013).

When working capital is inadequate, it can lead to insolvency, while an excess can lead to wasteful investment in funds that yield no return. As a result, maintaining an adequate amount of working capital becomes a challenging task for every organization. Bureau of Public Enterprises, in their many studies, have pointed out overcapitalization as one of the prime reasons why public sector undertakings in India have shown poor performance.

In the last few years, many scholars investigated and analyzed the association between managing working capital and profitability. In their report, Shiv Kumar and Thimmaiah (2016) stated that adequate working capital improves financial attributes like liquidity, solvency, and profitability. Mahato and Jagannathan (2016) state that every organization requires adequate working capital, the shortage or excess of which may lead to illiquidity, hamper production, and reduce sales.

As of now, several studies have reported that investment in working capital has a favourable or unfavourable influence on the profitability of companies (Wang, 2002; Deloof, 2003; Vishnani, S. and Shah, B. 2007; Raheman, A. and Nasr, M. 2007; Samiloglu and Demirgunes, 2008; Olufemi, I. F. and Olubanjo, T.A. 2009; Mathuva, 2009; Dong and Su, 2010; Mamoun, 2011; Banos-Caballero et al., 2012; Monday et al. (2013); Ondago, P.A. 2014; Iqbal et al., 2014; Kumar S. et al. 2015, Saravanan et al., 2017; Maheshwari, 2017; Morshed, 2020; Senan, N.A. et.al. 2021). However, the researcher did not come across any study on the power sector of Assam, with special emphasis on working capital and profitability. Assam Power Distribution Company Limited (APDCL) looks after the power distribution of Assam. APDCL was incorporated on October 23rd, 2009, and registered under the Companies Act, of 1956. It is a public limited company wholly owned by the Government of Assam, which is engaged in maintaining and operating the power distribution system in the state. According to Part XIII of the

Electricity Act, 2003, the aim of forming this company is to take over, manage and operate the electricity distribution system. Presently, it has been actively supplying power from Sadiya to Mancachar, Jonai to Lowairpowa, and North Cachar Hills to Morigaon despite many physical and geographical hindrances. In regions like Amarpur under the Chapakhowa Sub-Division and the Char areas of the Brahmaputra River, where the distribution network could not reach, APDCL has implemented off-grid solar projects. Serving a more than 64 lakhs consumer base, APDCL is also the power supplier to major industrial centers such as Coal India Ltd., Brahmaputra Gas Cracker & Polymer Limited, Cement Corporation of India, Assam Petrochemicals Limited, and Hindustan Paper Corporation Limited. Power is an essential aspect of daily life, and one cannot ignore the role of APDCL in meeting this need. At the same time, serving a vast customer base and maintaining long-term growth and performance requires sound decision-making. One of the vital elements that contribute to a firm's performance and development is the availability of adequate working capital, as seen in the work carried out by various researchers. The study carries out a time series data analysis acquired from the financial statements, emphasizing the company's working capital and profitability over the years.

2. Research Objective and Hypothesis Development

- a) To analyze the management of working capital in APDCL.
- b) To evaluate the position of liquidity in APDCL.
- c) To identify the association between liquidity and profitability of APDCL.

The following hypothesis is framed in line with the objectives-

Ho1: Estimated working capital has no relationship with the Actual Working Capital of APDCL.

Ho2: Estimated Working Capital of APDCL has no impact on its sales.

Ho3: The movement among the liquidity ratios of APDCL is non-uniform

Ho3: The liquidity of APDCL does not affect profitability.

3. METHODOLOGY

3.1. Sample Study:

The study on working capital and its effect on the profitability of APDCL is based on the annual reports right from its incorporation to its current date, i.e., from 2009-10 to 2019-20. The data collected over 13 years is then compiled and processed using MS EXCEL and SPSS 20.

3.2. Measurement of Variables

The study uses Return on Capital Employed (ROCE) as a proxy to measure profitability, which is supported by many previous researchers (Vishnani, S. 2007; Sarkar, C.R. 2013; Safiah, F. 2015; Kumar, S., 2015; Maheshwari, A. 2017;). It is measured as follows:

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Shareholder's Equity} + \text{Long-term Liabilities}}$$

Where EBIT= Earnings before Interest & Tax

The Independent variables are the Working Capital ratios which are given below:

- a) **Current Ratio (CR):** It is one of the significant ratios that measure the short-term liquidity position, i.e., whether a firm has enough resources to meet its current obligations. The ratio is derived by dividing its current assets by its current liabilities with an ideal ratio of 2:1.
- b) **Quick Ratio (QR):** It is a much more conventional measure of short-term liquidity than the current ratio. It measures the company's ability to meet its current obligations with easily convertible quick funds in hand. The formula for computing the quick ratio is dividing a company's quick assets by its current liabilities. For a quick ratio to be considered desirable, it has to be in the form of 1:1.
- c) **Current Asset to Total Asset Ratio (CATAR):** This ratio tests the relative liquidity of the total assets and shows the proportion of current assets to total assets. CATAR is the company's current assets divided by its respective total assets. The higher the investment in current assets, the more the firm's liquidity will lessen profitability. Maintaining an optimum level of current assets by considering the liquidity and profitability of the firm is a challenging task.
- d) **Current Assets Turnover Ratio (CATR):** This ratio measures the efficiency of a company to increase sales and generate revenue using its current assets. The Current Assets Turnover ratio shows the contribution of current assets toward the net sales of a company. A decreasing net sale to current assets ratio over the years is always a welcome improvement.
- e) **Inventory Turnover Ratio (ITR):** This ratio establishes the relationship between the cost of goods sold and average inventory held during the year. ITR specifies how quickly the inventory of a company is used or sold. A high inventory turnover ratio implies strong sales, quick receivables, and vice versa.
- f) **Inventory to Total Current Assets Ratio (ICAR):** This ratio establishes the relationship between the inventory or stock held by a company with its total current assets.

- g) **Debtors to Total Current Assets Ratio (DCAR):** This ratio measures the proportion of total debtors in a company to its total current assets.
- h) **Liquid Resources to Total Current Assets Ratio (LRCAR):** The relationship between liquid assets and current assets is established using this ratio. That is, it measures the proportion of liquid funds in cash and bank balances to that of total current assets in a company.
- i) **Other Current Assets to Total Current Assets Ratio (OTCAR):** OTCAR measures the number of funds invested in miscellaneous current assets to its respective total current assets.

3.3. Research Tools

The study uses ratio analysis, percentages, averages, and ranking of the collected data to evaluate the company's position in operational efficiency and liquidity. Statistical tests namely Kendall's Coefficient of Concordance, chi-square test, Correlation analysis, and Regression analysis are further used to achieve the objectives of the study.

3.4. Study Model:

The study applies a simple linear regression model to understand the relationship between Estimated Working Capital and Sales. Liquidity and Profitability are measured using the multiple regression model. For carrying out the multiple regression analysis, ROCE is the independent variable and CR, QR, CATAR, WCTR, ITR, and DTR are the independent variables chosen for the study.

4. Analysis and Interpretation

The yearly investment in Gross Working Capital (GWC) utilized in the working of APDCL and significant liquidity and efficiency ratios for the period under study is shown below in table 8.1. GWC indicates the fund invested in the total current assets of a company. Working capital management ratios are the ratios to measure short-term financial health and efficiency. The crucial ratios undertaken for the study are the CR, QR, CATAR, CATR, and ITR. The gross working capital over the years has drastically risen at 81.54% from Rs. 2456.14 crores in 2010 to Rs. 4458.98 crores in 2022 with 2018 recording the highest investment in the working capital

Table 4.1. Statement showing investment in Gross Working Capital along with calculation of relevant ratios

YEAR	GWC (In Rs. Crores)	CR	QR	CATAR	CATR	ITR
2010	2456.14	1.160138	1.117934	0.563577	0.573253	13.79
2011	2824.14	1.021145	0.981158	0.544615	0.561075	18.51
2012	3375.27	1.224903	1.167597	0.558042	0.606313	6.71
2013	3477.85	1.145775	1.087162	0.528913	0.661849	10.73
2014	3754.50	0.838831	0.779768	0.49646	0.709013	9.43
2015	3916.90	0.737353	0.674391	0.459322	0.814466	8.73
2016	4343.23	0.738186	0.667305	0.456425	0.843702	7.56
2017	5652.25	0.87054	0.801978	0.50563	0.737765	7.52
2018	6430.69	1.01449	0.944427	0.507262	0.73814	7.4
2019	4307.31	0.91044	0.836697	0.403572	0.882457	8.46
2020	5164.90	1.1767	1.0782	0.4202	0.79540	9.50
2021	4177.61	0.81346	0.70340	0.4312	0.79666	9.61
2022	4458.98	0.92394	0.80344	0.4456	0.79876	9.73
Average	4503.025	0.99	0.92	0.50	0.72	9.85
Standard Deviation	1599.87	0.17	0.18	0.54	0.11	3.48
CAGR (%)	11	-1.5	-2	-2.8	4.1	-5

Source: Self-Computed from Annual Reports

Analysis of operational efficiency and short-term solvency position of APDCL:

- a) **Current Ratio:** The current ratio of APDCL over the years has constantly fluctuated. For the initial four years, i.e., 2010 to 2013, the Current ratio was somewhat close to the ideal ratio of 2:1. From the year 2014, it declined to a great extent where current assets could no longer finance current liabilities until 2018, when the current ratio is more than one, meaning APDCL has moderate finance to remain solvent in the short run.

The ratio for 2019 is not satisfactory because the CR is less than one, creating a deficit in meeting short-term obligations if all of it gets due at once. However, 2020 showed improvement in the current ratio as it increased above one, indicating a short-term solvency position. But 2021 and 2022 further showed an unsatisfactory current ratio.

- b) **Quick ratio:** The quick ratio of APDCL in the initial years, i.e., 2010 to 2013, is satisfactory and above the conventional norms of 1:1, as observed in table 8.1. From 2014 until 2019, the company has a quick ratio of less than 1, i.e., it has no liquid assets to pay its current liabilities. But the quick ratio in 2020 increased above the ideal ratio, making it easier for the company to get rid of its current liabilities instantly. On the other hand, 2021 and 2022 witness further decrease in the quick ratio.
- c) **Current Assets to Total Assets Ratio:** The average CATAR is 0.50, meaning APDCL has maintained current assets at 50% on an average of the funds invested in total assets. It is observed that the amount occupied in current assets throughout the years has remained more or less the same.
- d) **Current Assets Turnover Ratio:** It is evident that APDCL efficiently uses its assets to produce sales. The CATR ranges from 57% in 2010 to 80% in 2022 with minimal fluctuations between these years. On an average of 13 years, APDCL has maintained a CSR of 72% indicating high use of its current assets to increase sales.
- e) **Inventory Turnover Ratio:** There has been a very high inventory turnover ratio in 2010, 2011, and 2013. But since 2014, APDCL has been able to maintain ITR ranging between 7-10 times with minimal fluctuations throughout the years. In 2022, the ITR is 9.73 which is considered good enough for a power company. The computed ITR on average is 9.85, meaning that they replenish their entire inventory more than 9 times on average in the last 13 years.

Ho1: Estimated working capital has no relationship with the Actual Working Capital of APDCL.

The correlation coefficient between GWC and EWC is .977 at the .001 level of significance. This reveals the high level of association between GWC and EWC, indicating efficiency and optimum management of working capital by APDCL. The GWC, EWC along with the excess/shortage is shown in Table 8.2. for the period under study. Except for 2010, 2014, 2015, 2016, and 2019, the remaining years experienced excess investment in working capital. 2013 witnessed an efficient investment in working capital where the difference between GWC and EWC was found to be the least as compared to other years. The recent year 2020, 2021 and 2022 indicates an excess investment in the working capital of the company.

Table 4.2.: Excess/Deficit of Estimated Working Capital over Gross Working Capital

YEAR	GWC	EWC	Excess/Shortage
2010	2456.14	2542.69229	-86.55229
2011	2824.15	2717.23358	106.91642
2012	3375.27	3173.83645	201.43355
2013	3477.85	3426.24271	51.60729
2014	3754.50	3782.28441	-27.78441
2015	3916.90	4304.40575	-387.50575
2016	4343.23	4773.16729	-429.93729
2017	5652.26	5273.00761	379.25239
2018	6430.69	5843.09148	587.59852
2019	4307.31	6314.82844	-395.02844
2020	5164.90	4895.70569	269.19431
2021	4177.61	3990.37548	187.23452
2022	4458.98	4247.69244	211.28756

Source: Computed from the annual report and OLS regression in SPSS

Ho2: Estimated Working Capital (EWC) of APDCL has no impact on its sales.

The EWC of APDCL is computed by presuming its dependence on sales by applying the simple linear regression equation model.

Table 4.3.: Statement showing the association between EWC and Sales

	Unstandardized					
	Coefficients					
Model	Coefficients	Standard	P-Value	Degree of	R square	Adjusted
Estimates		Errors		Freedom		R square
Intercept(a)	1031.309	274.153				
Sales(b)	1.036	.075	.000	10	.955	.950

Source: Self- Computed from Annual Reports and analyzed in SPSS

Taking estimated working capital as a dependent variable and sales as the independent variable reveals a coefficient of determination at 95.5% which is significant at .001%, meaning there exists a strong correlation between EWC and Sales.

Ho3: The movement among the liquidity ratios of APDCL is non-uniform.

The liquidity position of APDCL over the study period is analyzed using Motaal's Comprehensive Test of liquidity. This test involves a process of ranking the liquidity ratios to reach a comprehensive assessment of liquidity. To carry out this test, the study uses three ratios, namely Working Capital to Total Current Assets Ratio (WCCAR), Liquid Resources to Total Current Assets Ratio (LRCAR), and Inventory to Total Current Assets Ratio (ICAR). A higher value of WCCAR and LRCAR depicts higher financial strength, so Rank 1 is allotted to the highest value, and so on. On the contrary, a low value of ICAR indicates a favourable position, and hence the lowest value is allotted Rank 1. The ranks of all three ratios are added for each respective year to arrive at the total rank. At last, the ultimate ranking is based on the assumption that the lower the total rank, the more liquid the company's position in that year, which is ranked as 1. Table 4.4. below depicts Motaal's Comprehensive Test of Liquidity.

Table 4.4. MOTAAL'S Comprehensive Test of Liquidity

YEAR	WCCAR (%)	LRCAR (%)	ICAR (%)	LIQUIDITY RANKS			Total Rank	Ultimate Rank
				WCCAR	LRCAR	ICAR		
2010	13.8034	60.4705	3.6378	3	2	1	6	I
2011	2.07071	63.8769	3.9159	5	1	2	8	III

2012	18.3609	58.8845	4.6784	1	3	4	7	II
2013	12.7228	49.6508	5.1155	4	4	6	12	IV
2014	-19.213	45.0268	7.0412	9	5	8	20	VI
2015	-35.62	39.0868	8.5390	11	10	11	31	XI
2016	-35.467	34.8692	9.6021	10	12	12	32	XII
2017	-14.871	41.7076	7.8758	8	8	9	23	VIII
2018	1.42831	43.8874	6.9063	6	6	7	17	V
2019	-9.837	42.6232	8.0998	7	7	9	22	VII
2020	15.0193	40.315	8.3737	2	10	10	20	VI
2021	-35.97	33.346	4.9324	12	13	5	30	X
2022	-36.10	36.657	4.0900	13	11	3	27	IX

Source: Self-Computed from Annual Reports

Table 4.5. Test of liquidity ranks using Kendall's W

Test Statistics

N	11
Kendall's W ^a	.019
Chi-Square	.424
Df	2
Asymp. Sig.	.809

a. Kendall's Coefficient of Concordance

Source: Self-Computed from Annual Reports and analyzed in SPSS

The test depicts that the highest liquidity position of APDCL turned out to be in the year 2010 when the first financial statements were prepared. The year 2020 witnessed a moderate liquidity position as it is placed at Rank VI, whereas the years 2021 and 2022 ranked X and IX respectively.

The null hypothesis of having an association among the various elements of liquidity is tested using Kendall's W followed by a Chi-square value that indicates its significance. Kendall's W value of .019, Chi-square of .424, and P-value exceed 0.01% and 0.05%, meaning the results are statistically insignificant. Thus, the null hypothesis is accepted, which states non-uniformity among the three liquidity ratios in the working capital structure of APDCL.

Ho4: The liquidity of APDCL does not affect profitability

The liquidity is measured using CR, QR, CATAR, WCTR, DTR, and ITR, whereas ROCE is employed to measure its profitability. The relationship between the liquidity indicators and profitability is first measured using the Correlation Matrix. Table 8.6. reports an insignificant and negative correlation between ROCE and CR, QR, CATAR, WCTR, DTR but a significant negative correlation between ROCE and ITR. Moreover, CR and QR are found to be positively correlated and significant at a 1% level of significance. It is well known that the readily convertible to cash assets have less risk and lower expected returns. Moreover, looking into the annual reports of APDCL, it is observed that the company suffered losses until 2018. Therefore, it is rational to expect an inverse relationship between liquidity indicators and the profitability of the company.

Table 4.6. Pearson Correlation Matrix

	ROCE	CR	QR	CATAR	WCTR	DTR	ITR
ROCE	1						
CR	-.177	1					
QR	-.243	.996**	1				
CATAR	-.542	.460	.525	1			
WCTR	-.123	.280	.289	.334	1		
DTR	-.385	.343	.373	.327	-.057	1	
ITR	-.915**	.247	.299	.402	.245	.259	1

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Self- Computed from Annual Reports and analysed in SPSS

To further determine the overall fit of the dependent variable and the relative contribution of each of the predictors in the dependent variable, multiple regression analysis is employed.

Table 4.7. Model Summary of ROCE**Model Summary^b**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.963 ^a	.927	.818	.0239981	1.537

Source: Self- Computed from Annual Reports and analysed in SPSS

Table 4.8. ANOVA of ROCE**ANOVA^a**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.029	6	.005	8.473	.029 ^b
	Residual	.002	4	.001		
	Total	.032	10			

Source: Self- Computed from Annual Reports and analysed in SPSS

Table 4.9. Multiple Regression Table

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.183	.263		.695	.525
Current Ratio	.337	1.398	1.064	.241	.822
Quick ratio	-.294	1.451	-.939	-.203	.849
Current Assets to Total Assets Ratio	-.221	.392	-.213	-.565	.603
Working Capital turnover Ratio	.000	.000	.114	.727	.507
Debtors Turnover Ratio	-.008	.011	-.113	-.684	.531
Inventory Turnover Ratio	-.013	.003	-.811	-3.769	.020

a. Dependent Variable: ROCE

Source: Self- Computed from Annual Reports and analysed in SPSS

The multiple correlation coefficient analysis indicates a value of 0.963, meaning the predictors are highly influenced by profitability. The value of R-square indicates that the predictors taken together contribute about 92.7% of the variations in the company's profitability. The adjusted R-square of the model is .818, meaning the independent variables explain 81.8% of the variance (dependent variable). Moving to the ANOVA table, P-value is statistically significant at a 5% level of significance. The regression table 8.8. depicts that out of 6 independent variables, only ITR is statistically significant at a 5% level of significance and other variables are insignificant as it exceeds the 5% mark. However, as one goes through the annual report of APDCL, it is observed that the company suffered losses until 2018, and from 2018, the company has started making a profit. With more years of losses than profit during the study period, the impact of the independent variables on profitability can be partially established. Also, the R, R square and adjusted R square values give us a clear view of liquidity impact on profitability. Thus, rejecting the null hypothesis that states liquidity has no impact on profitability.

5. FINDINGS AND CONCLUSION

As seen in the annual reports, APDCL suffered losses until 2018, but from 2018 the company has started to generate a good amount of profit. In 2022, the amount of profit before tax was Rs. 33,635.19 lakhs, and the significant impact of working capital can be noticed.

In recent years, the company's current ratio has been managed to an extent where the current assets can meet its current obligations, but the quick ratio indicates less amount of liquid cash than required until 2020, where the liquid cash is maintained more than the ideal ratio of 1:1. However, the year 2021 and 2022 witnessed a ratio less than the ideal ratio.

The inventory turnover ratio was very high until 2014 when it is maintained between 7-10 times with minimal fluctuations throughout the years. In 2022, the ITR was 9.73, which is considered good enough for a power company. The computed ITR is 9.85, meaning that they replenished their entire inventory more than nine times on average in the last 13 years.

The model estimates of EWC with linear dependency on sales are statistically significant at a 0.01% level with a coefficient of 95.5%; there is also a high level of association between GWC and EWC. If the last five years are taken into consideration, it is seen that 2016 and 2019 indicate an acute shortage in working capital, whereas 2017, 2018, 2020, 2021 and 2022 witness excess investment in working capital.

Table 8.5. on liquidity, ranks indicate a lack of consistency in the movement of liquidity ratios. The liquidity position of APDCL was observed to be desirable until 2014, after which the position declined. The later

years witnessed a decrease in LRCAR and an increase in ICAR as compared to the earlier year. It is observed that out of the three liquidity ratios, LRCAR and ITCR cause a declining trend in liquidity.

The Pearson Correlation Matrix indicates two important findings. Firstly, out of six liquidity indicators, only ITR is significant at 1% but negatively correlated to ROCE. Secondly, CR and QR have a strong positive correlation that is significant at 1%.

The ANOVA table 8.8. indicate there exists a regression relationship between the variables. The regression analysis on liquidity and profitability indicates that CR, QR, CATAR, WCTR, and DTR have no significant impact on the company's profitability. On the other hand, the inventory turnover ratio is found to have a significant negative influence. This means only ITR is statistically significant in the prediction of ROCE, which is taken as a measure of profitability.

Overall, this paper provides a summary of the working capital management of APDCL. The decisions taken up by the management on working capital are observed to be in the right direction as APDCL has recovered from a loss-making company to a profit-making company as seen in the last three years also the working capital ratios show an upward trend. Public Utility undertakings like electricity need minimal working capital as it offers cash sales against the supply services, and as, not many funds are tied up in inventories and receivables. So, the amount to be invested in working capital needs proper attention from the management. The year 2019 suffered a deficit in gross working capital whereas 2022 indicates an excess investment. The company should estimate the gross working capital in advance by referring to previous years so that there is neither deficit nor excess blockage of funds. However, if the company continues to make strict rules and regulations on monthly bill collection against the disbursement of electricity services, the company can do away with very little working capital and direct the funds towards profit-generating investments. Lastly, since the inventory turnover ratio impacts profitability, the company should focus on maintaining a high inventory turnover ratio for higher profits.

10. SCOPE FOR FURTHER STUDY:

There are several research areas for future research. The study on the performance of APDCL is unexplored primarily, and various studies can be carried out soon. From 2018, the company has started to profit, so the researchers can explore the financial performance in the next five years starting from 2018. The researchers can also undertake a study on the factors that impact the revenue-earning capacity and profitability of APDCL. Future research can also be performed taking different profitability ratios as a measure of profitability. Lastly,

researchers can look into the profitability of APDCL using the working capital efficiency multiplier, a new measure of profitability as stated by Prasad, P. 2019 in their research work.

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