

Working Capital Management in Power Plant Engineering Works - A Case Study of Andhra Pradesh

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Abstract

This paper deals with working capital management in Power Plant Engineering Works. Power Plant Engineering Works is a reputed Indian electric transformer manufacturer company catering to people in Visakhapatnam, Kakinada, Rajahmundry, Srikakulam and Vizianagaram regions of Andhra Pradesh. Power Plant Engineering Works was serving people for the last Twenty four years. The company is popular for offering quality and reliable products to the customers. Their institutional clients include big giants like VCTTL, CPWD and BHEL. In this paper an attempt is made to examine the structure and composition of working capital in the Enterprise during the period of study covering ten years from 2006-07 to 2015-16. The data gathered is analysed through the technique of percentages and certain appropriate ratios relating to working capital management. The ratios covered includes current ratio, quick ratio, super quick ratio, gross working capital turnover ratio, net working capital turnover ratio, cash turnover ratio, inventory turnover ratio, debtors turnover ratio and average collection period. Chi square test is used for testing the hypotheses formed. Cash turnover ratio, Inventory turnover ratio, debtor turnover ratios and average collection periods are not uniform during the period of study and showed wide fluctuations. Current ratio, Quick ratio, super quick ratio, Gross working turnover ratio, Net working capital turnover ratio are uniform during the period of study. To conclude, working capital management is satisfactory in the company.

Key words: Current Ratio, Debtors Turnover, Inventory Turnover, Net Working capital, Working capital structure

Introduction

Power Plant Engineering Works is a reputed Indian electric transformer manufacturer catering to people in Visakhapatnam, Kakinada, Rajahmundry, Srikakulam and Vizianagaram regions of Andhra Pradesh. Power Plant Engineering Works was serving people for the last Twenty four years. The company is popular for offering quality and reliable products to the customers. Depending on the work, the Company reach customer within two to three hours. Their institutional clients include big giants like VCTTL, CPWD and BHEL. This Enterprise has an annual turnover of Rs.100.70 lakhs. The total Current Assets of the company are Rs.89.72 lakhs and the current liabilities are Rs. 21.13 lakhs. The company has man power of Forty five. It is an ISO 9001:2008 certified company. In this paper an attempt is made to examine working capital management in Power Plant Engineering Works.

Review of Literature

Mishra (1975) studied the efficiency of working capital management in six sample public sector units. The study identified that management of various components of working capital in sample units was highly unsatisfactory. Suk, Seung and Rowland (1992) in their research conducted an in-depth survey to analyze the liquidity practices of ninety four sample Japanese companies operating in the United States. Sivarama (1999) in his study

on working capital management in the Indian paper industry, found a close association between profitability and working capital efficiency. eddy (2000) analyzed the working capital management in thirty small scale industries in the Cuddapah district of Andhra Pradesh and found that debtor management policy and the collection mechanism to be very unsystematic and highly inefficient that resulted into excess investment in debtors. Ghosh and Maji (2003) made an empirical study on the relationship between utilization of current assets and operating profitability in the Indian cement and tea industries. Bardia (2004) conducted a study on the issue pertaining to the relationship between working capital management and profitability of Navaratna steel manufacturing public sector enterprise. Prof. B.P.Singh (2012) investigated the relationship between the components of working capital and profitability. He observed that the telecom industry is operating below average so far as working capital is concerned. Pasupathi (2013) conducted a comparative study of WCM performance in commercial vehicles, passenger cars and multi utility vehicles and two and three wheelers sectors of Indian automobile industry. UtkarshGoel et al. (2015) conducted a study to explore the impact of corporate governance practices on Working capital Management (WCM) in Indian firms. S.Selvanayaki et al. (2015) focused on evaluating the WCM practices adopted by the rice milling firms and analyzed its impact on profitability. Venkateswararao.P, Surya Chandra Rao.D and HemaVenkata Siva Sree.Ch (2017)¹¹ examined working capital management in PL Plast Pvt Ltd. Venkateswararao.P, and HemaVenkata Siva Sree.Ch (2018)¹² examined working capital management in Sri Rama Chandra Paper Boards Ltd. Venkateswararao.P, and HemaVenkata Siva Sree.Ch (2018)¹³ examined working capital management in Sri Nagavalli solvent oils Pvt. Ltd. Venkateswararao.P (2018)¹⁴ examined the working capital management in Cuddapah Spinning Mills Ltd. It was found that there was no study on working capital management in a transformer manufacturing company. Hence, this study is taken up.

Objectives

The general objective of the study is to examine the working capital management in Power Plant Engineering Works. The specific objectives include the following.

1. To examine the structure and composition of working capital in Power Plant Engineering Works during the period of study.
2. To analyse the liquidity position of Small Enterprise during the period of study.
3. To find the gross working capital and networking capital turnover in the company.
4. To examine the efficiency in cash, debtors and inventory management in the Small Enterprise under study.
5. To offer suggestions for effective working capital management if required.

Hypotheses

H₀₁: Current ratio in Power Plant Engineering Works is uniform during the period of study.

H₀₂: Quick ratio in Power Plant Engineering Works is uniform during the period of study.

H₀₃: Super quick ratio in Power Plant Engineering Works is uniform during the period of study.

H₀₄: Gross working capital turnover ratio in Power Plant Engineering Works is uniform during the period of study.

H₀₅: Net working capital turnover ratio in Power Plant Engineering Works is uniform during the period of study.

H₀₆: Cash turnover ratio in Power Plant Engineering Works is uniform during the period of study.

H₀₇: Inventory turnover ratio in Power Plant Engineering Works is uniform during the period of study.

H₀₈: Debtors turnover ratio in Power Plant Engineering Works is uniform during the period of study.

H₀₉: Average collection period in Power Plant Engineering Works is uniform during the period of study.

Methodology

The present study is mainly based on secondary data. The data is taken from the financial statements including balance sheet, trading account and profit and loss account of Power Plant Engineering Works. The period of study is ten years covering the financial years from 2006-07 to 2015-16. The data gathered is analysed through the technique of percentages and certain appropriate ratios relating to working capital management. The ratios covered includes current ratio, quick ratio, super quick ratio, gross working capital turnover ratio, net working capital turnover ratio, cash turnover ratio, inventory turnover ratio, debtors turnover ratio and average collection period. Chi square test is used for testing the hypotheses formed.

Analysis and Discussion Of Results

Working capital structure of Power Plant Engineering Works is presented in table 1. It is observed that Inventory occupied highest percentage of total current assets during 2007 and 2008. It varies between 90.96 during 2007 and 5.53 during 2010. Debtors as a percentage of total current assets varied in between 4.85 during 2007, 2008 and 59.14 during 2010. It is also observed that cash and bank balance as a percentage of current assets varied between 3.59 during 2008 and 26.35 during 2009. Loans and advances as a percentage of current assets varied between 1.34 during 2009 and 45.81 during 2016. There were no loans and advances during the first two years of the study. Other current assets as a percentage of total current assets varied between 0.54 during 2008 and 8.21 during 2010. Sundry creditors as a percentage of total current liabilities varied between 14.12 during 2014 and 92.11 during 2009. Short-term borrowings by the Business organisation were nil during the period of study. Short-term provisions were nil during 2007, 2008 and 2016. Short-term provisions as a percentage of current liabilities were 3.59 during 2013 and 17.79 during 2014. Other current liabilities were nil during 2009. It varies between 22.31 during 2008 and 68.09 during 2014. It is observed that Net Working Capital in the company varied between Rs.7.31 Lakhs during 2007 to Rs.68.59 Lakhs during 2016. It was maintained at high levels during 2015 and 2016.

Table-1: Working Capital structure of Power Plant Engineering Works during 2006-2007 to 2015-2016

(Figures in Lakhs)

Particulars	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Current Assets										
Cash & Bank balances	0.77	0.8	5.92	4.88	8.65	11.88	11.37	8.42	17.89	13.65
% of TCA	3.63	3.59	26.35	8.38	11.44	19.07	18.70	15.62	22.57	15.21
Debtors	1.03	1.08	7.92	34.45	28.71	15.49	17.54	19.36	24.64	22.05
% of TCA	4.85	4.85	35.25	59.14	37.97	24.86	28.84	35.93	31.09	24.58
Loans & Advances	0	0	0.3	10.92	18.62	17.28	20.36	15.44	22.83	41.1
% of TCA	0.00	0.00	1.34	18.75	24.63	27.74	33.48	28.65	28.80	45.81
Other Current Assets	0.12	0.12	0.22	4.78	0.67	2.4	1.88	3.11	5.07	4.43
% of TCA	0.57	0.54	0.98	8.21	0.89	3.85	3.09	5.77	6.40	4.94
Inventory	19.31	20.27	8.11	3.22	18.96	15.25	9.66	7.56	8.83	8.49
% of TCA	90.96	90.94	36.09	5.53	25.08	24.48	15.89	14.03	11.14	9.46
Total Current Assets (TCA)	21.23	22.29	22.47	58.25	75.61	62.3	60.81	53.89	79.26	89.72
Current Liabilities										
Sundry Creditors	10.81	11.35	7.71	20.16	25.85	14.41	17.6	3.46	12.33	6.96
% of TCL	77.66	77.69	92.11	47.37	42.74	34.15	44.17	14.12	29.71	32.94
Other current liabilities	3.11	3.26	0	17.81	30.09	23.14	20.82	16.69	24.35	14.17
% of TCL	22.34	22.31	0.00	41.85	49.75	54.83	52.25	68.09	58.67	67.06
Short term borrowings	0	0	0	0	0	0	0	0	0	0
% of TCL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Short term provisions	0	0	0.66	4.59	4.54	4.65	1.43	4.36	4.82	0
% of TCL	0.00	0.00	7.89	10.78	7.51	11.02	3.59	17.79	11.61	0.00
Total Current Liabilities (TCL)	13.92	14.61	8.37	42.56	60.48	42.2	39.85	24.51	41.5	21.13
NWC	7.31	7.68	14.1	15.69	15.13	20.1	20.96	29.38	37.76	68.59

Source: Annual Reports of Power Plant Engineering Works from 2006-07 to 2015-2016.

Current Ratio

The current ratio in the company was maintained at normal level in the company. It has varied between 1.25 during 2011 and 4.24 during 2016 was shown in the table. It is found in the significance test that current ratio is uniform during the period of study.

Table-2: Current Ratio

(Figures in Lakhs)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Current Assets	21.23	22.29	22.47	58.25	75.61	62.3	60.81	53.89	79.26	89.72
Current Liabilities	13.92	14.61	8.37	42.56	60.48	42.2	39.85	24.51	41.5	21.13
Current ratio	1.52	1.52	2.68	1.36	1.25	1.47	1.52	2.19	1.90	4.24

Source: Annual Reports of Power Plant Engineering Works from 2006-07 to 2015-2016.

Calculated value of χ^2 for current ratio = 3.795.

The Critical value of χ^2 at 9 degrees of freedom at 5% level of Significance is 16.919

Calculated value is less than Critical Value i.e., 3.795 < 16.919. H_0 is accepted.

Quick Ratio

The quick ratio of the company as shown in the table has varied between 0.14 during 2007, 2008 to 3.84 during 2016. It is found in the significance test that quick ratio is uniform during the period of study.

Table -3: Quick Ratio

(Figures in Lakhs)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Liquid Assets	1.92	2.02	14.36	55.03	56.65	47.05	51.15	46.33	70.43	81.23
Current Liabilities	13.92	14.61	8.37	42.56	60.48	42.2	39.85	24.51	41.5	21.13
Quick ratio	0.14	0.14	1.72	1.29	0.94	1.11	1.28	1.89	1.70	3.84

Source: Annual Reports of Power Plant Engineering Works from 2006-07 to 2015-2016.

Calculated value of χ^2 for Quick ratio = 7.034.

The Critical value of χ^2 at 9 degrees of freedom at 5% level of Significance is 16.919
Calculated value is less than Critical Value i.e., $7.034 < 16.919$, Hence, H_{02} is accepted.

Super Quick Ratio

The super quick ratio of the company as shown in the table has varied between 0.05 during 2008 and 0.71 during 2009. It is found in the significance test that super quick ratio is uniform during the period of study.

Table-4: Super Quick Ratio

(Figures in Lakhs)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cash	0.77	0.8	5.92	4.88	8.65	11.88	11.37	8.42	17.89	13.65
Current Liabilities	13.92	14.61	8.37	42.56	60.48	42.2	39.85	24.51	41.5	21.13
Super Quick ratio	0.06	0.05	0.71	0.11	0.14	0.28	0.29	0.34	0.43	0.65

Source: Annual Reports of Power Plant Engineering Works from 2006-07 to 2015-2016.

Calculated value of χ^2 for Super Quick ratio = 1.605.

The Critical value of χ^2 at 9 degrees of freedom at 5% level of Significance is 16.919.

Calculated value is less than Critical Value i.e., $1.605 < 16.919$, Hence, H_{03} is accepted.

Gross Working Capital Turnover Ratio

The Gross working capital turnover ratio of the company as shown in the table has varied between 1.28 during 2007, 2008 and 4.59 during 2009. It is found in the significance test that Gross working capital turnover ratio is uniform during the period of study.

Table-5: Gross Working Capital turnover Ratio

(Figures in Lakhs)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales	27.25	28.61	103.24	131.79	139.77	109.66	96.96	71.13	94.62	100.70
Gross working capital	21.23	22.29	22.47	58.25	75.61	62.3	60.81	53.89	79.26	89.72
Ratio	1.28	1.28	4.59	2.26	1.85	1.76	1.59	1.32	1.19	1.12

Source: Annual Reports of Power Plant Engineering Works from 2006-07 to 2015-2016.

Calculated value of χ^2 for Gross Working Capital turnover ratio = 5.287.

The Critical value of x_2 at 9 degrees of freedom at 5% level of Significance is 16.919
 Calculated value is less than Critical Value i.e., $5.287 < 16.919$, Hence, H_{04} is accepted.

Net Working Capital Turnover Ratio

The net working capital turnover ratio of the company as shown in the table has varied between 1.47 during 2016 and 9.24 during 2011. It is found in the significance test that net working capital turnover ratio is uniform during the period of study.

Table-6: Net Working Capital Turnover Ratio

(Figures In lakhs)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales	27.25	28.61	103.24	131.79	139.77	109.66	96.96	71.13	94.62	100.70
Net Working Capital	7.31	7.68	14.1	15.69	15.13	20.1	20.96	29.38	37.76	68.59
Ratio	3.73	3.73	7.32	8.40	9.24	5.46	4.63	2.42	2.51	1.47

Source: Annual Reports of Power Plant Engineering Works from 2006-07 to 2015-2016.

Calculated value of x_2 for Net Working capital turnover ratio =13.022.

The Critical value of x_2 at 9 degrees of freedom at 5% level of Significance is 16.919

Calculated value is less than Critical Value i.e., $13.022 < 16.919$, Hence, H_{05} is accepted.

Cash Turnover Ratio

The cash turnover ratio of the company as shown in the table has varied between 6.39 during 2016 and 36.22 during 2008. It is found in the significance test that cash turnover ratio is not uniform during the period of study.

Table-7: Cash Turnover Ratio

(Figures In lakhs)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales	27.25	28.61	103.24	131.79	139.77	109.66	96.96	71.13	94.62	100.70
Average Cash Balance	0.77	0.79	3.36	5.4	6.77	10.27	11.62	9.90	13.16	15.77
Cash Turnover Ratio	35.39	36.22	30.73	24.41	20.65	10.68	8.34	7.18	7.19	6.39

Source: Annual Reports of Power Plant Engineering Works from 2006-07 to 2015-2016.

Calculated value of x_2 for Cash turnover ratio =72.391.

The Critical value of x_2 at 9 degrees of freedom at 5% level of Significance is 16.919

Calculated value is greater than Critical Value i.e. $72.391 > 16.919$, Hence, H_{06} is rejected.

Inventory Turnover Ratio

The inventory turnover ratio of the company as shown in the table has varied between 1.41 during 2007 to 23.26 during 2010. It is found in the significance test that Inventory turnover ratio is not uniform during the period of study.

Table-8: Inventory Turnover Ratio

(Figures In lakhs)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales	27.25	28.61	103.24	131.79	139.77	109.66	96.96	71.13	94.62	100.70
Average Inventory	19.31	19.79	14.19	5.665	11.09	17.105	12.455	8.61	8.195	8.66
Ratio	1.41	1.45	7.28	23.26	12.60	6.41	7.78	8.26	11.55	11.63

Source: Annual Reports of Power Plant Engineering Works from 2006-07 to 2015-2016.

Calculated value of x_2 for Inventory turnover ratio =38.827.

The Critical value of x_2 at 9 degrees of freedom at 5% level of Significance is 16.919

Calculated value is greater than Critical Value i.e. $38.827 > 16.919$, Hence, H_{07} is rejected.

Debtors Turnover Ratio

The debtors' turnover ratio of the company as shown in the table has varied between 3.86 during 2014 to 26.99 during 2008. It is found in the significance test that Debtors turnover ratio is not uniform during the period of study.

Table-9: Debtors Turnover Ratio

(Figures In lakhs)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales	27.25	28.61	103.24	131.79	139.77	109.66	96.96	71.13	94.62	100.70
Average debtors	1.03	1.06	4.5	21.19	31.58	22.1	16.52	18.45	22	23.35
Debtors Turnover Ratio	26.46	26.99	22.94	6.22	4.43	4.96	5.87	3.86	4.30	4.31

Source: Annual Reports of Power Plant Engineering Works from 2006-07 to 2015-2016.

Calculated value of χ^2 for Debtors turnover ratio =82.172.

The Critical value of χ^2 at 9 degrees of freedom at 5% level of Significance is 16.919

Calculated value is greater than Critical Value i.e., $82.172 > 16.919$, Hence, H_{08} is rejected.

Average Collection Period

The average collection period as shown in the table has varied between 14 days during 2007, 2008 to 95 days during 2014. It is found in the significance test that Average collection period is not uniform during the period of study.

Table-10: Average Collection Period

(Figures In lakhs)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Days in a year	365	365	365	365	365	365	365	365	365	365
Debtors Turnover Ratio	26.46	26.99	22.94	6.22	4.43	4.96	5.87	3.86	4.30	4.31
Average Collection Period	14	14	16	59	82	74	62	95	85	85

Source: Annual Reports of Power Plant Engineering Works from 2006-07 to 2015-2016.

Calculated value of χ^2 for Average collection period =507.877.

The Critical value of χ^2 at 9 degrees of freedom at 5% level of Significance is 16.919

Calculated value is greater than Critical Value i.e. $507.877 > 16.919$, Hence, H_{09} is rejected.

Conclusion

It is clear that inventory occupied first place followed by debtors as a percentage of current assets in Power Plant Engineering Works during the period of study. Current ratio of the company is maintained at normal level which indicates that liquidity in the company is good. Debtors' turnover ratio was very less in the last seven years of the study which reflects in high Average collection period. Cash turnover ratio, Inventory turnover ratio, debtor turnover ratios and average collection periods are not uniform during the period of study and showed wide fluctuations. Collection of debts and cash utilization was poorly done in the company during the period of study. Current ratio, Quick ratio, super quick ratio, Gross working turnover ratio, Net working capital turnover ratio are uniform during the period of study. To conclude, working capital management is satisfactory in the company.