

# DOES WORKING CAPITAL HAS AN IMPACT ON PROFITABILITY OF INDIAN STEEL INDUSTRY

Dr. Anil K. Bhatt<sup>1</sup>, Nirmala Shrotriya<sup>2</sup>

1. Professor, Pacific Institute of Business Studies, Udaipur-Rajasthan, mob. 9828282960

2. Research Scholar, Pacific Institute of Higher Education and Research University, Udaipur.

Working capital has a major role in day to day business activities. It is simply defined as the excess amount of current assets over current liabilities. Working capital also means the fund which is needed for the operations which are taken place in a firm every day. So working capital is considered as a fund which revolves all the time. This revolving fund consists of continues conversion of cash and raw materials in to inventory, then inventory to sales or debtors and this debtors into cash or investment. The existing Working capital in the company is also commonly known as Net Working Capital or net current assets, is the excess if current assets over current liabilities. But this is on a particular day i.e., 31<sup>st</sup> March's position. While it is important to know whether the company really has correct level of WC which is required to them? For this purpose there is a need to find out the required working capital and its relation with the profitability. Thus, the research work has included measuring the *impact of WC on profitability*. Further there must be discussions with the accounting experts of the selected 10 steel companies to know what they feel about their desired level and actual level of working capital

**Keywords:** *EVA, Net operating profit after tax (NOPAT), Leverage, Capital Employed, Weighted Average Cost of Capital (WACC) and Traditional measures.*

Working capital has a major role in day to day business activities. It is simply defined as the excess amount of current assets over current liabilities. Working capital also means the fund which is needed for the operations which are taken place in a firm every day. So working capital is considered as a fund which revolves all the time. This revolving fund consists of continues conversion of cash and raw materials in to inventory, then inventory to sales or debtors and this debtors into cash or investment. Therefore in short we can say that working capital is nothing but circulation of current assets(Khan et.al, 2012; Chandra et.al, 2012; Chandra et.al, 2012; Chouhan & Verma, 2014:a; Chouhan. & Verma 2014:b; Chouhan, 2013). After knowing what is exactly working capital we have to analyse what are the main components of working capital. The existing Working capital in the company is also commonly known as Net Working Capital or net current assets, is the excess if current assets over current liabilities. But this is on a particular day i.e., 31<sup>st</sup> March's position (Chouhan et.al, 2014; Chouhan et. al, 2013; Khan et.al, 2014). While it is important to know whether the company really has correct level of WC which is required to them? Not only is that it also important to know that whether the level of WC has a relation with the profitability and what managers believe about it(Naghshbandi et.al, 2016; Chouhan et.al,

2016, Chouhan, V., & Naghshbandi, N. 2015; Goswami, Chandra & Chouhan, 2012; Chouhan & Gorana, 2014). For this purpose the current study were undertaken in steel industry.

## 1. OBJECTIVES

The objectives of this study were as follows:

- i. To measure the relation between the EVA and profitability.
- ii. To measure the satisfaction of the managers with the various components of WC in their company.

## 2. REVIEW OF LITERATURE

The reviews related with WC and Profitability are presented in a Table-1 as under.

**Table-1: Review of Related Literature**

Sl.	Scholarly Observations/studies	Related Areas	Variables	Relation
1.	Horrigan, J. O. (1965)	Financial ratio analysis	Working capital and profitability	Positive Relation
2.	Altman, E. I.(1968)	Corporate Bankruptcy Prediction	Working capital and profitability	Positive Relation
3.	Grass (1972)	Control of Working Capital	Working capital and profitability	Positive Relation
4.	Merville, L. J., and Tavis, L. A. (1973)	Optimum Working Capital Policy	Economic Environment and Working Capital	Positive Relation
5.	Chakraborty, S. K. (1976)	Indian Cement, Sugar And Fertilizer Industries	Working Capital, Turnover and Profit	Positive Relation
6.	Vijaya, K. A. (1977)	Co-operative and private sugar industries of Tamilnadu	Working capital of Co-operative and Sugar	Negative Relation
7.	Parosh and Timari(1978)	Israeli companies	Profitability and Working Capital	Positive Relation
8.	Vijaysaradhi, S. P. and RajeswaraRao (1978)	Indian Public Enterprises	Profitability and Working Capital	Negative Relation
9.	Gitman, Lawrence J., E. A. Moses, and L T. White(1979)	US Top 150 and Bottom 150 Firms from Fortune 1000 largest firms	Profitability and Working Capital	Positive Relation Short-Term Assets

				Management Policies.
10.	Richard, V. and Laughlin, E.(1980)	Liquidity analysis	Profitability and Working Capital	Positive Relation
11.	Smith, K(1980)	Profitability and Liquidity	Profitability and Liquidity	Positive Relation
12.	Smith, Keith V. and Shirley Blake Sell (1980)	US Firms	Profitability and Working Capital	Positive Relation
13.	Banerjee, B.(1982)	Indian Corporate Sector	Working Capital and Profitability	Positive Relation
14.	Gitmann, L. J.(1982)	Major US Firm, Fortune 1000''	Working capital and profitability	Positive Relation
15.	Emery, Gary W.(1984)	-----	Working Capital, Current and Quick ratio V/s Profitability	Negative Relation
16.	Luo, C. H. (1984)	Financial Ratio In Taiwan	Working capital and profitability	Positive Relation
17.	Myers, Stewart and Nicolas Majluf, (1984)	Corporate Financing and Investment Decision	Working capital and profitability	Negative Relation
18.	Gitman, Lawrence J., and Charles E. Maxwell( 1985)	US Firms	Working capital and profitability	Positive Relation
19.	Liu, F. L. (1985)	Manufacturing Industry in Taiwan	Performance and Financial Ratio	Positive Relation
20.	Shulman, J. M. and Cox, R. A. K. (1985)	WC Management	Working Capital and Profitability	Positive Relation
21.	Hawawini, G., Viallet C., and Vora, A. (1986)	Working Capital Decision at Sloan Corporate Sector	Working Capital and Net Liquid Balance	Positive Relation
22.	Panda, G. S.(1986)	SSI in Orissa	Working Capital and Profitability	Positive Relation
23.	Emery, G.W.(1987)	WC and Demand analysis	WC and Demand analysis	Positive Relation

24.	Sarkar, J.B. and Saha, S.N.(1987)	Indian Public Sector	Working Capital and Profitability	Positive Relation
25.	Brennan, M., Maksimovic, V. and Zechner, J.(1988)	Vendor Financing to Companies	Vendor Financing for Working Capital and Profitability	Positive Relation
26.	Jain, R.K.(1988)	10 Manufacturing Trading & Service Industries of Rajasthan	Working Capital and Profitability	Negative Relation
27.	Mukherjee, A. K.(1988)	Indian Public Enterprises	Profitability and Liquidity	Negative Relation
28.	Panda J. and Satapathy A.K.(1988)	Private Cement Industry	Working Capital and Profitability	Positive Relation
29.	Shin, Hyun-Han and Soenen, Luc (1988)	58,985 firms, 1975 to 1994	Working capital and profitability	Negative Relation
30.	Kamath, Ravindra, (1989)	Liquidity Measurement	Working Capital, Current and Quick ratio V/s Profitability	Negative Relation
31.	Binder, A. S. and Maccini, L. J.(1991)	Inventory Research	Profitability and Inventory	Positive Relation
32.	Gibert, Erik W. and Reichert, Alan K.(1992)	USA Largest Corporation	Working Capital & cash Management.	Positive Relation
33.	Shi, Y. H (1992)	Taiwan Manufacturing Industries	Working Capital and Profitability	Positive Relation
34.	Yang, A. M. (1992)	Taiwan Textile Industries	Working Capital and Profitability	Positive Relation
35.	Long, M.S., Malitz, I. B. and Ravid, S. A. (1993)	UK	Working Capital and Customer Credit	Positive Relation
36.	Kargar, J., and Blumenthal, R. A. (1994)	Small Business	Leverage and impact on Working Capital	Positive Relation
37.	Rajan, Raghuram and Luigi Zingales(1995)	International Data	Working capital and profitability	Negative Relation

38.	Vijaykumar, A. and Venatachalam, A.(1995)	31 Sugar Companies in Tamilnadu	Liquidity and Profitability	Negative Relation
39.	Zhou, D. C. (1995)	Manufacturing industry in Taiwan	Business Cycle And Financial Ratio	Positive Relation
40.	Peel, M. L., and Wilson, N. (1996)	Small Firm Sector	Working Capital and Profitability	Positive Relation

### 3. SAMPLE COMPANIES

For the purpose of this paper the sample characteristics are shown in table-2

**Table-2: Sample characteristics & Working capital in Sample Companies**

Name of Company		Net profit (NOPBT)	CA	CL	WC
TATA STEEL	2013-14	9713.5	11564.5	18881.78	-7317.28
	2012-13	7836.6	11350.6	16488.65	-5138.05
	2011-12	9857.35	12819.57	16838.49	-4018.92
	2010-11	9776.85	24212.3	10995.81	13216.49
	2009-10	7214.3	12250.61	9003.53	3247.08
SAIL	2013-14	2265.43	26890.75	28340.28	-1449.53
	2012-13	3469.98	27615.89	22504.46	5111.43
	2011-12	5150.87	22752.23	18423.37	4328.86
	2010-11	7194.31	38090.36	17356.96	20733.4
	2009-10	10132.03	39154.16	17148.53	22005.63
VISA STEEL	2013-14	1478.28	3449.53	11106.75	-7657.22
	2012-13	1075.72	3599.4	8079.14	-4479.74
	2011-12	1188.79	5910.39	21022.16	-15111.8
	2010-11	513.77	6934.9	10807.54	-3872.64
	2009-10	474.16	6333.18	7780.24	-1447.06
RINL	2013-14	549.15	8400.66	10211.56	-1810.9
	2012-13	526.47	9977.75	10184.67	-206.92
	2011-12	1110.01	8492.11	7221.61	1270.5
	2010-11	981.66	7401.68	5117.85	2283.83
	2009-10	1247.65	9550.66	4307.84	5242.82
JSW STEEL	2013-14	1955.33	14998.81	20671.6	-5672.79
	2012-13	2054.12	14322.84	1559.92	12762.92
	2011-12	2094.56	14061.7	17368.02	-3306.32
	2010-11	2782.28	10188.37	10064.73	123.64
	2009-10	2819.65	5559.52	7261.89	-1702.37

WELSPUN CORPORATION LIMITED	2013-14	-	36719.49	22793.24	13926.25
	2012-13	2569.96	77134.64	51137.52	25997.12
	2011-12	3731.92	78620.1	57322.13	21297.97
	2010-11	5263.63	34181.07	22330.65	11850.42
	2009-10	8085.24	36503.75	17738.08	18765.67
BHUSHAN STEEL	2013-14	93548.88	667403.39	885923.86	-218520
	2012-13	87692.48	631681.22	809062.05	-177381
	2011-12	348813	551177	10067350	-9516173
	2010-11	-713795	446306	1304000	-857694
	2009-10	115136.49	377020.83	160358.78	216662.1
ELECTROS TEEL STEELS LIMITED	2013-14	-29112	1059747.23	157038.4	902708.8
	2012-13	27999.83	977635.32	235426.49	742208.8
	2011-12	14978.22	857246.1	151486.99	705759.1
	2010-11	61344686	230197.57	227189.76	3007.80
	2009-10	-	173621.44	86356.80	87264.64
JINDAL STAINLESS LIMITED	2013-14	-141354.13	577765.88	670661.12	-92895.2
	2012-13	-119946	622023.91	599866.23	22157.68
	2011-12	-15381.87	545027.65	575357.42	-30329.8
	2010-11	44735.66	467510.8	177633.66	289877.1
	2009-10	57037.64	419806.01	251597.31	168208.7
ADHUNIK INDUSTRIES LIMITED	2013-14	601.15	19345.73	12338.73	7006.99
	2012-13	518.03	19204.47	11841.06	7363.40
	2011-12	774.87	19048.83	11338.43	7710.39
	2010-11	33158.61	18310.21	5988.92	12321.28
	2009-10	3384.28	15535.51	4909.94	10625.57

## 4. RESEARCH METHODOLOGY AND HYPOTHESIS

### 4.1 Collection of Data:

The data for this research is collected from secondary source mainly by the annual report of the companies. For these purpose annual reports of companies, articles, Database Such AS CMIE, Stock Markets, Securities Companies and journals etc., have also been used as. Healthy samples of 10 companies of Steel industry, having maximum share in the production, were selected for 5 year period.

### 4.2 Data analysis Tool:

To identify the dependence of Profitability on Working capital Pearson correlation and multiple regression for measuring the managers perception were used with SPSS-19 software.

### 4.3 Hypothesis

To conduct the study following hypotheses were drawn:

H1= Working Capital Management demonstrates a significant relationship with profitability of an organization.

H<sub>2</sub>: The attributes satisfaction regarding working capital management on different factors has significantly influence on satisfaction from desired level of working capital.

## 5. WC AND PROFITABILITY ANALYSIS

As per the objective of the study the impact of the WC over profitability was measured with the help of correlation between the profitability and level of Working capital:

**H<sub>1</sub>:** Working Capital Management demonstrates a significant relationship with profitability of an organization.

To test the above hypothesis the Karl Pearson's coefficient of correlation were used with SPSS-19 software. The results were shown in **table-3** as under:

**Table-3: Correlations between the profitability and existing working capital**

		WC	NP
WC	Pearson Correlation	1	.951**
	Sig. (2-tailed)		.000
	N	48	43
NP	Pearson Correlation	.951**	1
	Sig. (2-tailed)	.000	
	N	43	43

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

Table-3 revealed that there is a significant and high degree of positive correlation between the profitability and working capital. Thus it is essential for the steel companies to maintain the desired level of the working capital.

At this stage the perception of the financial professionals are sought in relation to satisfaction from various components. The following hypothesis was developed:

H<sub>2</sub>: The attributes satisfaction regarding working capital management on different factors has significantly influence on satisfaction from desired level of working capital.

To identify key variables multivariate regression analysis has been used with SPSS-19 software and results were shown in table-4 as under:

**Table-4: Multiple regression of satisfaction**

<b>a. Descriptive Statistics</b>			
	Mean	Std. Deviation	N
SAT_WC	4.7625	.50925	80
SAT_CM	4.7000	.53722	80
SAT_IM	3.6500	.82830	80
SAT_RM	3.6250	.94635	80
SAT_DM	3.3625	.94459	80
<b>b. Variables Entered/Removed<sup>a</sup></b>			



Model	Variables Entered	Variables Removed	Method
1	SAT_CM		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: SAT\_WC

### c. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.847 <sup>a</sup>	.717	.713	.27267	.717	197.553	1	78	.000

a. Predictors: (Constant), SAT\_CM

### d. ANOVA<sup>b</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.688	1	14.688	197.553	.000 <sup>a</sup>
	Residual	5.799	78	.074		
	Total	20.488	79			

a. Predictors: (Constant), SAT\_CM

b. Dependent Variable: SAT\_WC

### e. Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Partial	Tolerance	VIF
1	(Constant)	.990	.270		3.666	.000					
	SAT_CM	.803	.057	.847	14.055	.000	.847	.847	.847	1.000	1.00

a. Dependent Variable: SAT\_WC

The final Regression model with 1 independent variable (SAT\_CM) explains almost 71.3% of the variance of satisfaction from level of WC. Also, the standard errors of the estimate has been reduced to .27267, which means that at 95% level, the margin of errors for any predicted value of Satisfaction from level of WC can be calculated as  $\pm 0.5344332$  ( $1.96 \times .27267$ ). The one regression coefficients, plus the constraints are significant at 0.05 levels. The impact of multi colinerarity in the 1 variable is substantial. It has the tolerance value less than 0.953, indicating that only over 4.7% of the variance is accounted for by the other variables in the equation.

### ANOVA Analysis

The ANOVA analysis provides the statistical test for overall model fit in terms of F Ratio. The total sum of squares (20.488) is the squared error that would accrue if the mean of Satisfaction from WCM has been used to predict the dependent variable. Using the values of SAT\_CM this errors can be reduced by 71.69% ( $14.688/20.488$ ). This reduction is deemed statistically significant with the F ratio of 197.553 and significance at level of .000<sup>a</sup>. With the above analysis



it can be conclude that only one variables i.e., SAT\_CM explains the satisfaction of respondents from WC levels in their companies.

## 6. CONCLUSION

It was found in the study that there is a significant and high degree of positive correlation between the profitability and working capital. Thus it is essential for the steel companies to maintain the desired level of the working capital. Maximum respondents revealed that their company has adopted aggressive policy for WC management thus their WC was found to be desired or less than the desired level of the company. From the findings, it is also clear that The Company's financial officers and top management are aware about the desired level of working capital and satisfied with the level Cash management of their company. The satisfactions were majorly significant in case of Centralization of cash management decisions. Thus it is important for the companies to manage their WC in better way.

## REFERENCES

1. Banerjee, B. (1982). "Corporate liquidity and profitability in India", *Research Bulletin*, ICWAI, pp. 225-234.
2. Binder, A. S. and Maccini, L. J. (1991), "The Resurgence of Inventory Research: What Have We Learned?", *Journal of Economics Survey*, Volume. 5, No. 4, pp. 291-328.
3. Brennan, M., Maksimovic, V. and Zechner, J.(1988). "Vendor Financing", *Journal of Finance*, Volume 43, No. 5, pp. 1127-1141
4. Chakraborty, Kaushik (2008), "Working Capital and Profitability: An Empirical Analysis of Their Relationship with Reference to Selected Companies in the Indian Pharmaceutical Industries", *The ICFAIAN Journal of Management Research*, Volume VII, No. 12, pp. 41-58.
5. Chakraborty, S. K. (1976), "Funds Flow and Liquidity Management", *Accounting and Finance*, Oxford University Press, Kolkata, pp. 81-91.
6. Chandra, B., Chouhan, V., and Goswami, S.,(2012:a) Analyzing Trends and Profitability vis-à-vis Working Capital Organizations of India Management (WCM) – A Study of Select Information Technology (IT), *Indian Journal of Finance*, ISSN: 0973-8711, Vol.6, No. 7, July, PP 13-26.
7. Chandra, B., Goswami, S. and Chouhan, V., (2012: b) Investigating Attitude towards On-Line Advertising on Social Media – An Empirical Study, *Management Insight*, SMS Varanasi, ISSN: 0973-936X, Vol. VIII, No. 1, June, PP 1-14.
8. Chouhan, V. & Gorana, H. (2014). Analysing Consumer Decision making for FMCG products on basis of different culture: a case study of Rajasthan and Gujarat states, *American International Journal of Research in Humanities, Arts and Social Sciences*, 8(2), 217-222.
9. Chouhan, V. & Verma, P., (2014:b), Measuring validity of performance appraisal tools in Performance Appraisal System, *Nirnay the Journal of Decision Science*, Vol. 6, No. 1, Jan-July, pp 57-64.
10. Chouhan, V. & Verma, Pushpa (2014:a), Improving effectiveness of Performance appraisal tool: Who thinks that it uses improved techniques?, *Business Spectrum*, 4(1), 71-82.
11. Chouhan, V., & Naghshbandi, N. (2015). Measuring Employees Value: A Critical Study on Human Resources Accounting in India. *International Journal of Management, Accounting and Economics*, 2(4), 277-292.
12. Chouhan, V., (2013), Global Convergence of Accounting Standard And Indian Perspective, *International Journal of Research in Finance & Marketing*, 33(7), 15-27
13. Chouhan, V., Chandra, B., Goswami, S. (2014), Predicting financial stability of select BSE companies revisiting Altman Z score, *International Letters of Social and Humanistic Sciences*, 15(2), 92-105.

14. Chouhan, V., Verma, Pushpa, Sanghvi, Himanshu and Gupta, Apurv (2013), Assessing Worker's and Manager's Perception on Judgment Accuracy in Performance Appraisal System (PAS) International Journal of Engineering, Business and Enterprise Applications (IJEBA), 5(1), 95-99.
15. Chouhan, Vineet, Chandra, Bibhas, Goswami, Shubham & Verma, P.(2016).Analyzing the Performance Appraisal System of a Public Sector Organization in India: The Case of Rajasthan State Mines and Minerals Limited, IUP Journal of Management Research, 15(1), 48-74.
16. Deloof, Marc (2003). "Does Working Capital Management Affect Profitability of Belgian Firms?", *Journal of Business*, Volume 30, No 3 & 4, pp. 573 – 587.
17. Dutta, J.S.(2000), "Working Capital Management of Horticulture Industry in Himachal Pradesh: A Case Study of HPMC", Thesis, Himachal Pradesh University.
18. Emery, G.W.(1987). "An Optimal Financial Response to Variable Demand", *Journal of Financial and Quantitative Analysis*, Volume 22, No. 2, pp. 209-225.
19. Emery, Gary W. (1984). "Measuring Short-Term Liquidity", *Journal of Cash Management*, July-August, Volume 4, No. 4, pp. 25-32.
20. Gibert, Erik W. and Reichert, Alan K.(1992), "Current Trend in Payment System and Information Technology among Large US Corporation", *Journal of Cash Management*, September- October, Volume 12, No. 5, pp. 47-54.
21. Gitman, L.J., Mercurio, V., (1982), "Cost of capital techniques used by major U. S. firms: survey and analysis of Fortune's 1000", *Financial Management*, Volume 14, pp.21-29.
22. Gitman, Lawrence J., and Charles E. Maxwell (1985), "Financial Activities of Major US Firms: Survey and Analysis of Fortune's 1000," *Financial Management*, winter, Volume 14, No. 4, pp. 57-65.
23. Gitman, Lawrence J., E. A. Moses, and L T. White (1979), "An Assessment of Corporate Cash Management Practices", *Financial Management*, spring, Volume 14, No. 1, pp. 32-41.
24. Goswami, S., Chandra, B & Chouhan, V. (2012). Analyzing Customer Perception towards Hypermarkets – An Empirical Study. The Alternative-Journal of Management Studies and Research (BIT Mesra), 2, 87-107.
25. Grass, M.(1972). "Control of Working Capital", *Grower Press Limited*, Essex, pp. 11-12.
26. Hawawini, G., Viallet C., and Vora, A. (1986), "Industry Influence on Corporate Working Capital Decisions", *Sloan Management Review*, Volume 27, No. 4, pp. 15-24.
27. Horrigan, J. O. (1965). "Some Empirical Base of Financial Ratios Analysis", *The Accounting Review*, July, Volume 45, Number 4, pp. 558-68.
28. Howorth, C. and Westhead, P. (2003). "The Focus of Working Capital Management in UK Small Firms", *Management Accounting Research*, Volume 14, No. 2, pp. 94-111.
29. Huang, X. Y.(2000), "The Empirical Study of Working Capital Management in Tiwan Industry Effect and Liquidity, Master's Dissertation, National Cheng Kung University, Taiwan.
30. Jain, R.K.(1988), "*Working Capital Management of State Enterprises in India*", National Publishing House, Jaipur, pp. 260-272.
31. Jana, K. (2011), "The Product Patent And Its Impact On Working Capital Management of Ranbaxy Laboratories Limited", *Indian Journal of Finance*, Volume 5, Number 8, August, pp. 44-50.
32. Kamath, Ravindra, (1989), "How Useful is Common Liquidity Measures?" *Journal of Cash Management*, January- February, Volume 9, Issue 1, pp. 24-28.
33. Kargar, J., and Blumenthal, R. A. (1994), "Leverage Impact on Working Capital in Small Business", *TMA Journal*, Volume 14, No. 6, pp. 46-53.
34. Kaushik (2008), "Working Capital and Profitability: An Empirical Analysis of Their Relationship with Reference to Selected Companies in the Indian Pharmaceutical Industries", *The ICFAIAN Journal of Management Research*, Volume VII, No. 12, pp. 41-58.
35. Khan, S., Chouhan, V., Chandra, B. & Goswami, S. (2012). Measurement of Value Creation Vis-à-Vis EVA: Analysis of Select BSE Companies, *Pacific Business Review*, 5(1), 114-131.
36. Khan, S., Chouhan, V., Chandra, B., & Goswami, S. (2014). Sustainable accounting reporting practices of Indian cement industry: An exploratory study. *Uncertain Supply Chain Management*, 2(2), 61-72.
37. Khatik, S.K. and Jain, Rashmi(2009), "Working Capital Analysis of Public State Undertaking (A Case Study of Madhya Pradesh State Electricity Board)", *Indian Journal of Finance*, **Volume 3, Number 5, May, pp.**
38. Lazaridis, Ioannis and Tryfondinis Dimitrios(2006). "Relationship between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange", *Journal of Financial Management and Analysis*, Volume 19, No. 1, pp. 26-35.

39. Liu, F. L. (1985), "The Stationary of Financial Ratio of Manufacturing Industry in Taiwan from 1973 to 1983", Master's Dissertation, National Cheng Chi University, Taiwan.
40. Long, M.S., Malitz, I. B. and Ravid, S. A. (1993). "Trade Credit, Quality Guarantees, and Product Marketability", *Financial Management*, Volume 22, Number 4, pp. 117-127.
41. Luo, C. H. (1984), "The Operation Performance and the Financial Ratio in Taiwan", Master's Dissertation, National Cheng Kung University, Taiwan.
42. Mallik, A. K. and Sur, D. (1998), "Working Capital and Profitability: A Case Study in Interrelation", *The Management Accountant*, ICWAI, November, Volume 33, Number 11, pp. 805-809.
43. Mallik, A. K. and Sur, D. (1998), "Working Capital Management: A Case Study of Hindustan lever Ltd.", *Finance India*, Indian Institute of Finance, Volume XII, Number 3, September, pp. 851-871.
44. Maxwell, Charles E., Gitman, Lawrence J. and Smith, Stephanie A.M. (1998), "Working Capital Management and Financial-Service Consumption Preference of US and Foreign Firms: A Comparison of 1979 and 1996 Preference", *Financial Practice and Education*, Volume 8, Number 4, pp. 46-52.
45. Merville, L. J., and Tavis, L. A. (1973). "Optimal Working Capital Policies: A Chance Constrained Programming Approach", *Journal of Financial and Quantitative Analysis*, Volume 7, No. 1, pp. 47-60.
46. Mukherjee, A. K. (1988). "Management of Working Capital in Public Enterprises", Vohra publishers and Distributors, Allahabad, pp.302-308.
47. Myers, Stewart and Nicolas Majluf, (1984). "Corporate Financing and Investment Decisions Where Firms Have Information that Investors Do Not Have", *Journal of Finance Economics*, June, Volume 13, No. 2, pp. 187-221.
48. Naghshbandi, N., Chouhan, V., Jain, P. (2016). Value based measurement of financial performance. *International Journal of Applied Research*, 2(2), 365-369.
49. Panda J. and Satapathy A.K. (1988). "Working Capital Structure of Private Enterprises: A Study of Cement Industry", Discover Publishing House, New Delhi, pp 131-146.
50. Panda, G. S. (1986). "Management of working capital in small scale industries", Deep and Deep Publishers, New Delhi, pp. 267-269.
51. Parosh and Timari (1978), "In Financial Ratios: Analysis and Prediction by Me Tamari", Paul Elek Books, London, p 426.
52. Peel, M. L., and Wilson, N. (1996). "Working Capital and Financial Management Practices in the Small Firm Sector", *International Small Business Journal*, Volume 14, No. 2, pp. 52-68.
53. Petersen, M., A and Rajan, R. G. (1997). "Trade Credit: Theory and Evidence", *Review of Financial Studies*, Fall, Volume 10, No. 3, pp. 661-691.
54. Pike R., Nam Sang Cheng (2001). "Credit Management: An Examination of Policy Choices", Practices and Late Payment in UK Companies", *Journal of Business Finance & Accounting*, Volume 28, Issue 7-8, September/October, pp. 1013-1042.
55. Rajan, Raghuram and Luigi Zingales (1995), "What Do We Know about Capital Structure - Some Evidence from International Data", *Journal of Finance*, December, Volume 50, No. 5, pp. 1421-1460.
56. Richard, V. and Laughlin, E. (1980), "A Cash Conversion Cycle Approach to Liquidity Analysis", *Financial Management*, Volume 9, Number 1, Spring, pp. 32-38.
57. Sarkar, J.B. and Saha, S.N. (1987). "Profitability Crisis and Working Capital Management in the Public Sector in India: A Case Study", *the Management Accountant*, ICWAI, Volume 22, Number 5, May, pp. 328-333.
58. Sathyamoorthi, C.R. and Wally-Dima, L. B. (2008). "Working Capital Management: The Case of Listed Retail Domestic Companies In Botswana", *The ICFAIAN Journal of Management Research*, Volume VII, No. 5, pp. 7-24.
59. Shi, Y. H. (1992). "The Working Capital Management in Manufacturing Industry", Master's Dissertation, National Cheng Chi University, Taiwan.
60. Shin, Hyun-Han and Soenen, Luc (1988), "Efficiency of Working Capital Management and Corporate Profitability", *Financial Practice and Education- Fall/Winter*, Volume 4, Number 2, pp. 37-45.
61. Shulman, J. M. and Cox, R. A. K. (1985). "An Integrative Approach to Working Capital Management", *Journal of Cash Management*, Volume 5, No. 6, pp. 64-68.
62. Singh, J.P. and Pandey, Shishir (2008). "Impact of Working Capital Management in the Profitability of Hindalco Industries Limited", *The ICFAIAN Journal of Financial Economics*, Volume VI, No. 4, pp. 62-72.

63. Singh, J.P. and Pandey, Shishir(2008). "Impact of Working Capital Management in the Profitability of Hindalko Industries Limited", *The ICFAIAN Journal of Financial Economics*, Volume VI, No. 4, pp. 62-72.
64. Singh, Pradeep (2008). "Inventory and Working Capital Management: An Empirical Analysis", *The Icfaian Journal of Accounting Research*, Volume VII, No. 2, pp. 53-73.
65. Singh, S. and Bansal,S.K. (2010) "Management of Working Capital in IFFCO and KRIBHCO - A Comparative Study", *Indian Journal of Finance*, Volume 4, Number 2, February.
66. Sivarama, Prasad R.(1999), "Working Capital Management in Indian Paper Industry", Thesis, Nagarjuna University, Nagarjuna Nagar.
67. Smith, K (1980). "Profitability versus Liquidity Trade off in Working Capital Management", In Smith K.K and Paul, St., *Reading on the Management of Working Capital*, West Publishing Company, pp. 549-562.
68. Smith, Keith V. and Shirley Blake Sell (1980). "*Working Capital Management in Practice*," in Readings on the Management of Working Capital, 2nd. Edition, West Publishing Co., St. Paul, MN, pp. 51-84.
69. Smith, M. and Beaumont (1997). "Measuring association between Working Capital and Return on Investment ", *South African Journal of Business Management*, Volume 28, No. 1, pp. 1-4.
70. Smith, M. B.(1997), "Modeling Association Between Working Capital and Operating Profit: Survey Findings", *Journal of Financial Management and Analysis*, Volume 10, Issue 2, pp. 51-61.
71. Su, F. C. (2001). "The Impact of the Change of Business Cycle in Manufacturing Industry", Master's Dissertation, National Cheng Chi University, Taiwan.
72. Summers, B. and Wilson, N. (2000). "Trade Credit Management and the Decision to Use Factoring: An Empirical Study", *Journal of Business Finance & Accounting*, Volume 27, Issue 1-2, January/March, Pages: 37-68
73. Sur, D., Biswas, J. and Ganguly, P. (2001). "Liquidity Management in Indian Private Sector Enterprises: A Case Study of Indian Primary Aluminum Producing Industry", *Indian Journal of Accounting, IAA*, Volume XXXII, Number 2, June, pp. 8-14.
74. Taffler, R. (1997), "The Correct way to use Published Financial Statement Data", Paper Presented at the annual Conference of the AUTA, 30 July, 1997, by Birmingham City Business School & British Accounting Association, Birmingham, U. K.
75. Vijaya, K. A. (1977). "A Comparative Study of Working Capital Management in Co-operatives and Private Sector companies in the sugar industries of Tamilnadu", Thesis, Bharathiar University, Coimbatore.
76. Vijaykumar, A. and Venkatachalam, A. (1995). "Working Capital and Profitability: An Empirical Analysis", *The Management Accountant*, Volume 30, Number 6, ICWAI, June, pp.748-750.
77. Vijaysaradhi, S. P. and RajeswaraRao (1978). "Working Capital Investment and Financing Public Sector Enterprises", *The Management Accountant*, Volume 13, Number 5, May, pp. 391-400.
78. Wilner, B. (2000). "The Exploitation of Relationships in Financial Distress: The Case of Trade Credit", *The Journal of Finance*, Volume 55, Issue 1, pp. 153-178.
79. Wu, Q. S. (2001). "The Determinant of Working Capital Management Policy and its Impact on Performance", *National Science Council Project*, Project No. NSC 89-2416-H-224-028, pp. 108-110.
80. Yang, A. M. (1992). "In the Application of Financial Ratios to the Measurement of Firms Performance for Taiwan Textile Industry", Master's Dissertation, National Chiao Tung University, Taiwan.
81. Zhou, D. C. (1995). "The Impact of the Change of Business Cycle on Financial Ratio in Manufacturing Industry", *Journal of the Bank of Taiwan*, Volume 46, No. 2, pp. 67-98.