

Impact of Working Capital Policy on Profitability - A Study in Indian Context

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Abstract: Working Capital Management concerning with short-term financial decision making has been relatively neglected in the literature of finance. Shortage of funds for working capital has caused many businesses to fail and in many cases, has arrested their growth. Working Capital Management has, thus, become a basis and broad aspect of judging the performance of a corporate entity. Both public sector and private sector have not always given proper attention to the problems of working capital planning. The assured availability of even current assets through budgetary support generally brings to them laxity. Not only is there working capital policy indeterminate, planned levels of individual current assets are not always subjective to rigorous practices. A corporate entity may adopt aggressive working capital policy or it may also be used for financing decisions of the corporate sector in the form of high level of current liabilities in relation to total assets. In view of this backdrop, the present paper is a modest attempt to examine whether working capital policy affects profitability of Tata Steel Ltd., the selected company in India.

Keywords: Working capital policy, profitability, aggressive working capital policy, conservative working capital policy, financial decisions, current assets, current liabilities.

INTRODUCTION

Working capital plays a crucial role in the satisfactory ongoing of a firm. Working capital management is a significant part of business decisions and is of major concern to the finance manager in as much as accomplishment of value maximization goal depends essentially on prudent working capital decisions. Maintaining optimum level of working capital is a crux of the problem with which the finance manager is seriously concerned because problem of trade off between risk and return is involved. Thus, basic problem facing a finance manager of a corporate sector is to trade off between conflicting but equally important goals of liquidity and profitability. Greater the liquid resources of the firm, lesser will be its profitability and the vice-versa. A finance manager has to maintain the working capital at such level as may assure satisfactory earnings to the corporate without jeopardizing its working capital or liability position.

Practically, a corporate may adopt aggressive or conservative working capital investment policy or it may adopt aggressive or conservative working capital financing policy. Both high level and low level of current assets may have impact or influence on profitability and liquidity. Hence, there should be an optimum investment in both current and fixed assets for maximization of the value of the corporate or firm. The need for efficient working capital policy in the context of profitability has, thus, become extremely important

for the smooth running of any business enterprise. Viewed in this perspective, the present study devoted to working capital policy and its impact on profitability may be very rewarding one.

The motivation of this paper is to point out whether working capital policy affects profitability of Tata Steel Ltd., a reputed Steel industry company in India. Though various studies have been carried out in the area of working capital management, little empirical research has been done to examine the relationship between working capital policy and profitability. Herein lies research gap. This paper is, therefore, expected to contribute to the better understanding of working capital policy and its impact on profitability in the liberalized and highly competitive steel industry in India and for better illustration, through a case study of steel company.

LITERATURE REVIEW

Working capital management plays a vital role for the firm's profitability and its value. In fact, efficient working capital management, planning and policy being a part of the overall corporate strategy to create shareholders' value can reduce their level of risk and improve the overall scenario of profitability. A large number of studies relating to the area of working capital have been carried out in different times. A few remarkable tested studies that have been carried out in

the area of working capital are presented briefly here as under.

Gupta and Ronald [1] examined the differences in the average financial ratios between industries. The findings of their study concluded that there were differences in the average activity, liquidity and profitability ratios among industry groups.

Van Horne [2] regarding the relationship between working capital and profitability, Van Horne reads as "Higher the working capital lowers the profitability and vice versa".

Walkar [3] regarding working capital and profitability relationship, Walkar thinks "If working capital is varied relative to sales, the amount of risk that a firm assumes is also varied and the opportunity of gain or loss is increased".

Chu, *et al.* [4] examined the differences of financial ratio groups between the hospital sectors and industrial firm sectors. They observed significant differences in the financial ratio groups between the two sectors.

Soenen [5] studied the relationship between net trade cycle and return on investment of U.S. firms. The study observed a negative relationship between the length of net trade cycle and return on assets. Further study revealed that the negative relationship was different across industries depending on the type of industry.

Lamberson [6] found very small relationship between changes in economic conditions and changes in working capital.

Jose, *et al.* [7] studied the relationship between aggressive working capital and profitability of U.S. firms. The study showed a significant negative relationship between the cash conversion cycle i.e. working capital management and profitability.

Weinraub and Visscher [8] examined the relative relationship between aggressive / conservative working capital policies of U.S. firms during the period from 1984 to 1993. They observed significantly different working capital management policies in the years under reference.

A few other studies also were carried out by Howorth & Westhead [9], Ghosh & Maji [10].

Filbeck and Krueger [11] examined the working capital management policies of 32 non-financial industries in U.S.A. Their study revealed significant differences among the industries in working capital

practices over time. Lazaridis & Tryfonidis [12] also carried out a similar study.

Objective of the Study

The distinct objective of the study is to examine whether working capital policy affects profitability of Tata Steel Ltd. in India. With a view to fulfilling this distinct objective, the following incidental objectives are required to be achieved:-

- To examine working capital policy in terms of working capital investment policy and working capital financing policy.
- To examine the relationship between working capital investment policy and working capital financing policy.
- To examine the impact of working capital policy on profitability.

Data and Research Methodology

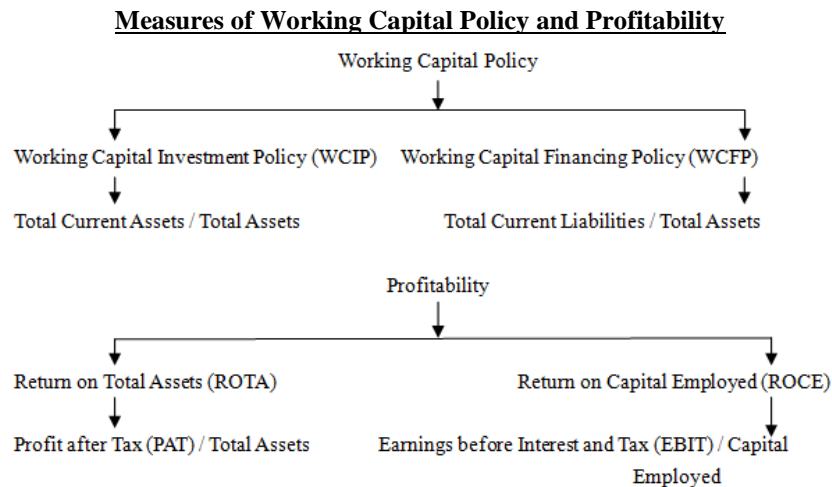
The researcher, being an external analyst, has to depend mainly on published annual reports and accounts, the secondary data for the examination of working capital policy and its impact on profitability of the selected company i.e. Tata Steel Ltd. for the period from 2011-12 to 2015-16 [13]. The latest year for which data is available is 2015-16. The analysis, therefore, confines itself to the period from 2011-12 to 2015-16. Though there was found apathy or indifference on the part of executives in supplying information, the researcher could overcome the same through moral persuasion and intensive pestering. It was made clear to them that the information so collected will be exclusively used for academic purpose and proper secrecy will be maintained. Editing, classification and tabulation of the aforesaid data have been done as per the requirement of the study.

For the purpose of analyzing the relationship of working capital policy and profitability of the company under study, the technique of ratio analysis, statistical techniques like mean, standard deviation, coefficient of variation, Spearman's Rank Correlation, etc. have been employed. With a view to testing the significance of relationship between working capital policy and profitability worked out by the rank correlation coefficient, the "t" test has also been applied.

In this paper, working capital investment policy and working capital financing policy are applied as proxy for working capital policy. Aggressive working capital investment policy indicates low level of investment in current assets, while a conservative working capital investment policy involves high level of current assets. On the other hand, aggressive working capital financing policy is represented by high level of current liabilities, while a conservative working capital financing policy is represented by low level of current

liabilities. In this context, the performance indicators of working capital policy and profitability are measured by

the following ratios:-



Hypothesis Development

In conformity with the aforesaid objectives of the study, the testable hypotheses have been developed and presented as under:-

1st Hypothesis

H₀ (i): There exists no significant relationship between working capital investment policy and working capital financing policy.

H₁ (i): There exists significant relationship between working capital investment policy and working capital financing policy.

2nd Hypothesis

H₀ (ii): There exists no significant impact of working capital policy on profitability.

H₁ (ii): There exists significant impact of working capital policy on profitability.

For testing the hypothesis, 5% level of significance is considered in the study. Spearman’s Rank Correlation Coefficient [14] is used to measure the relationship between working capital investment policy and working capital financing policy; working capital investment policy and profitability & working capital planning policy and profitability. Spearman’s Rank Correlation Coefficient is computed as follows:-

Spearman’s Rank Correlation Coefficient:

$$R^1 = 1 - \frac{6\{\sum d^2 + \sum(t^3 - t)/12\}}{n^3 - n} \quad (a)$$

The significance of the correlation coefficient is tested by “t”- test which is shown below:-

$$t = \frac{R^1}{\sqrt{1 - (R^1)^2}} \times \sqrt{n - 2} \quad (b)$$

In (a), d = difference in the ranks of an individual in the two characters;

t = number of individuals in a tie;

n = number of individuals; and

R¹ = Rank Correlation Coefficient.

In (b), R¹ = Rank Correlation Coefficient; and

n – 2 = Degrees of Freedom.

A Brief Profile of Tata Steel Ltd.

Tata Steel, the flagship company of the Tata Group, established in 1907 is the first integrated steel company in Asia and is at present the world’s second most geographically diversified steel producer and a Fortune 500 company. Tata Steel is the world’s 6th largest steel company with an existing annual crude steel production capacity of 30MillionTons Per Annum (MTPA). Tata Steel Ltd. is present in over 50 developed European and fast growing Asian markets with manufacturing units in 26 countries. This company has created a manufacturing and marketing network in Europe, South East Asia and the pacific countries. Tata Steel Thailand is the largest producer of long steel products in Thailand. The iron ore mines and collieries in India give the company a distinct advantage in raw material sourcing. This company has signed an agreement with Steel Authority of India Limited to establish a 50:50 joint venture company for coal mining in India. Tata Steel India is the first integrated steel company in the world, outside Japan, to be awarded the Deming Application Prize, 2008 for excellence in Total Quality Management. Besides this, Tata Steel Ltd. receives different prestigious awards several times in India and abroad. In view of the above, it may be of great interest to the financial statement analysts to know whether the flagship company has been maintaining any relationship between working capital policy and

profitability -- one of the important aspects of financial management.

Analysis and Major Findings

Analysis of Working Capital Policy

Working capital investment policy (WCIP) and working capital financing policy (WCFP) have been used in this study as proxy for working capital policy. Working capital policy represented by WCIP and

WCFP of Tata Steel Ltd. in India are exhibited in Table – 1 and Figure-1. Table - 1 and Figure-1 show that Tata Steel Ltd., the selected company has been following aggressive investment policy for all the years of study. On an average, the company has invested 11.40% of total assets in current assets indicating low level of current assets in total assets which, in turn, reveals aggressive investment policy followed by the company.

Table-1: Working capital policy of Tata Steel Ltd. (in aggregate)

Year	Working Capital Investment Policy (WCIP) (%)	Working Capital Financing Policy (WCFP) (%)
2011-12	13.32	17.50
2012-13	11.25	16.13
2013-14	10.39	16.97
2014-15	10.35	14.47
2015-16	11.70	17.12
Mean	11.40	16.44
S.D.	1.09	1.08
C.V.	9.56	6.57

Source: - Annual Reports and Accounts; Results Computed.

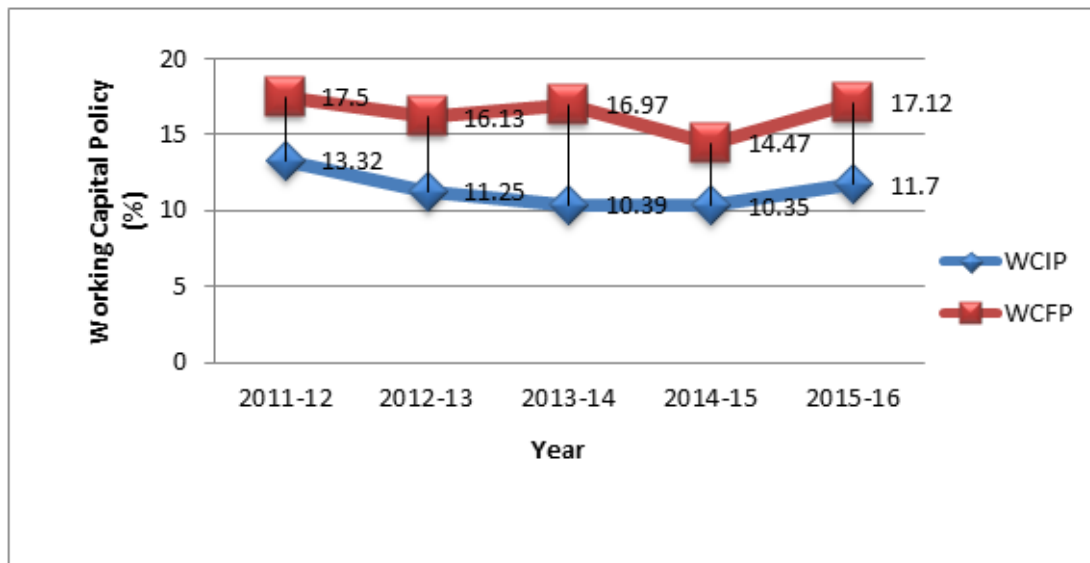


Fig-1: Working Capital Policy of Tata Steel Ltd

The selected company has also shown a relatively aggressive financing policy [15] in all the years of study with an average of 16.44%. The Standard deviations (S.D.) of WCIP and WCFP are found to be 1.09% and 1.08% respectively; the coefficient of variations (C.V.) of WCIP and WCFP are found to be 9.56% and 6.57% respectively during the study period.

Relationship between Working Capital Investment Policy and Working Capital Financing Policy

WCIP and WCFP, the two performance drivers of working capital policy, the performance indicator are measured by total current assets / total assets and total current liabilities / total assets respectively. For measuring the relationship between WCIP and WCFP, correlation technique has been adopted in the study.

Table-2: Rank correlation between working capital investment policy and working capital financing policy of Tata Steel Ltd.

Year	Current Assets to Total Assets (%)	WCIP rank (r ₁)	Current Liabilities to Total Assets (%)	WCFP rank (r ₂)	(r ₁ - r ₂) d	d ²
2011-12	13.32	1	17.50	1	0	0
2012-13	11.25	3	16.13	4	-1	1
2013-14	10.39	4	16.97	3	1	1
2014-15	10.35	5	14.47	5	0	0
2015-16	11.70	2	17.12	2	0	0
						$\sum d^2 = 2$

R¹ = 0.9; Computed Value (t) = 3.58; Critical Value ('t') = 3.18

Source: - Annual Reports and Accounts; Results Computed.

Table - 2 shows positive correlation coefficient between WCIP and WCFP. The computed value of "t" i.e. 3.58 is more than the critical value of "t" i.e. 3.18 at 5% level of significance. Hence, H₀ (i) i.e. the null hypothesis may be rejected, which signifies that there exists significant relationship between WCIP and WCFP. This also implies correlation of WCIP and WCFP during the period under study.

Working Capital Policy and Profitability

Working capital policy is concerned with obtaining economic fields, using them in a profitable manner and controlling them to maintain economy and profitability. Working capital policy helps to establish a proper balance among risk, liquidity and profitability. Considering the importance of working capital policies in the context of profitability, this study has made an attempt to examine the impact of working capital policy

on profitability of giant steel company in India. In this part, impact of working capital policy (i.e. WCIP and WCFP) on profitability has been analysed with the help of commonly applied accounting based measures of profitability i.e. Return on Total Assets (ROTA) and Return on Capital Employed (ROCE). ROTA and ROCE, the two performance drivers of profitability, the performance indicator of profitability is measured by PAT / Total Assets and EBIT / Capital Employed respectively. These relationships have been examined one by one with the help of correlation technique; for testing the hypothesis, 5% level of significance is considered in the study.

Relationship between WCIP and ROTA

In this part, the impact of working capital investment policy on return on total assets has been analyzed with the help of correlation technique.

Table 3: Rank correlation between WCIP and ROTA of Tata Steel Ltd.

Year	Current Assets to Total Assets (%)	WCIP rank (r ₁)	ROTA (%)	Profitability rank (r ₂)	(r ₁ - r ₂) d	d ²
2011-12	13.32	1	6.96	1	0	0
2012-13	11.25	3	4.95	4	-1	1
2013-14	10.39	4	5.76	2	2	4
2014-15	10.35	5	5.56	3	2	4
2015-16	11.70	2	3.98	5	-3	9
						$\sum d^2 = 18$

R¹ = 0.1; Computed Value (t) = 0.18; Critical Value ('t') = 3.18

Source: - Annual Reports and Accounts; Results Computed.

Table - 3 reports that working capital investment policy has no significant impact on profitability represented by ROTA. The computed value of "t" (i.e. 0.18) is less than the critical value of "t" (i.e. 3.18) at 5% level of significance thereby leading to the acceptance of H₀ (ii), the second null hypothesis. Hence, the result is observed to be insignificant

relationship between the working capital investment policy and profitability.

Relationship between WCIP and ROCE

To measure the relationship between working capital investment policy and return on capital employed has been used in this study.

Table 4: Rank correlation between WCIP and ROCE of Tata Steel Ltd.

Year	Current Assets to Total Assets (%)	WCIP rank (r ₁)	ROCE (%)	Profitability rank (r ₂)	(r ₁ - r ₂) d	d ²
2011-12	13.32	1	14.77	1	0	0
2012-13	11.25	3	12.80	3	0	0
2013-14	10.39	4	13.37	2	2	4
2014-15	10.35	5	9.25	4	1	1
2015-16	11.70	2	9.03	5	-3	9
						$\sum d^2 = 14$

R¹ = 0.3; Computed Value (t) = 0.55; Critical Value (*t') = 3.18
 Source: - Annual Reports and Accounts; Results Computed.

Table - 4 exhibits that working capital investment policy has also no significant impact on profitability represented by ROCE. Here also, the computed value of "t" (i.e. 0.55) is less than the critical value of "t" (i.e. 3.18) at 5% level of significance leading to the acceptance of H₀ (ii), the second null hypothesis. Hence, here also, the result is found to be insignificant relationship between the working capital investment policy and profitability. Profitability is not found to be

significantly influenced by working capital investment policy.

Relationship between WCFP and ROTA

In this section, the relationship between working capital financial policy and return on total assets has been judged with the help of same statistical tool and technique i.e. correlation coefficient. The study conforms to the same conclusion i.e. no significant relationship between WCFP and ROTA.

Table-5: Rank correlation between WCFP and ROTA of Tata Steel Ltd.

Year	Current Assets to Total Assets (%)	WCFP rank (r ₁)	ROTA (%)	Profitability rank (r ₂)	(r ₁ - r ₂) d	d ²
2011-12	17.50	1	6.96	1	0	0
2012-13	16.13	4	4.95	4	0	0
2013-14	16.97	3	5.76	2	1	1
2014-15	14.47	5	5.56	3	2	4
2015-16	17.12	2	3.98	5	-3	9
						$\sum d^2 = 14$

R¹ = 0.3; Computed Value (t) = 0.55; Critical Value (*t') = 3.18
 Source: - Annual Reports and Accounts; Results Computed.

The analysis shows (Table - 5) that the computed value of "t" (i.e. 0.55) is less than the critical value of "t" (i.e. 3.18) at 5% level of significance, thereby leading to the acceptance of the H₀ (ii), the second null hypothesis indicating no significant influence of working capital financing policy and profitability.

Relationship between WCFP and ROCE

Relationship between working capital financial policy and return on capital employed has been studied to judge the influence of working capital policy on profitability. The same statistical tool and technique i.e. correlation coefficient has also been applied.

Table-6: Rank correlation between WCFP and ROCE of Tata Steel Ltd.

Year	Current Assets to Total Assets (%)	WCFP rank (r ₁)	ROCE (%)	Profitability rank (r ₂)	(r ₁ - r ₂) d	d ²
2011-12	17.50	1	14.77	1	0	0
2012-13	16.13	4	12.80	3	1	1
2013-14	16.97	3	13.37	2	1	1
2014-15	14.47	5	9.25	4	1	1
2015-16	17.12	2	9.03	5	-3	9
						$\sum d^2 = 12$

R¹ = 0.4; Computed Value (t) = 0.75; Critical Value (*t') = 3.18
 Source: - Annual Reports and Accounts; Results Computed.

Table - 6 reflects that working capital financing policy has no significant influence on profitability represented by ROCE. From the table, the analysis with the application of correlation coefficient reports that the computed value of "t" (i.e. 0.75) is less than the critical value of "t" (i.e. 3.18) at 5% level of significance. It leads to the acceptance of H_0 (ii), the second null hypothesis of the study. In this case also, the working capital financing policy does not corroborate to the profitability during the period under study indicating insignificant relationship between working capital financing policy and profitability.

Concluding Observation

The foregoing analysis shows that Tata Steel Ltd., the selected company under study follows aggressive investment policy in all the years of study. Moreover, the study reveals significant relationship between working capital investment policy and working capital financing policy.

Further study shows that working capital investment policy and working capital financing policy have no significant impact on profitability in both the cases of return on total assets and return on capital employed in all the years under reference.

It may, therefore, be concluded that though there exists a significant relationship between working capital investment policy (WCIP) and working capital financing policy (WCFP), no significant relationship is found to exist between working capital policy and profitability of Tata Steel Ltd.; rather, they are mildly related to each other in the said company.

Concluding Comment

The study mainly based on published annual reports i.e. secondary data has its inherent limitations. Moreover, one unit has been selected for study. An in-depth study may be explored for more than one unit and also for different industries over a long period of time to draw a more meaningful conclusion. Even then, it may serve as a pointer to the prevailing practices, based on which many policy decisions can be undertaken. Further research can also be undertaken with the inclusion of both private sector companies within the steel industry and following other market based measures of profitability.

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