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A Study On Working Capital Efficiency And Profitability - Net Operating Cycle And Return On Net Working Capital

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ABSTRACT: The extant literature measures the impact of working capital efficiency on the profitability of firms using accounting measures such as ROA, ROCE, ROE, and Gross Operating Income (GOI). All these measures establish an indirect approach to study the association of working capital efficiency with the profitability of the firms and have reported a mixed evidence of association (positive and significant association) or negative and significant association or insignificant association. This paper establishes a direct relationship by introducing 'Return on Net Working Capital' (RONWC) as a new profitability measure of working capital management. The study finds the existence of a significant negative relationship between return on net working capital (RONWC) and net trade cycle (NTC). This study contributes by aiding managers in measuring the impact of the investment in working capital on the profitability of their firms in a direct manner using return on net working capital. The present study proposes Return on Net working Capital (RONWC) as a direct profitability measure of working capital efficiency to academia and practitioners.

IndexTerms: Working capital management; Working capital efficiency; Return on net working capital; Profitability; Net trade cycle

I. INTRODUCTION

In today's dynamic and competitive business environment, effective financial management is crucial for the sustainability and growth of any industry. Among the many financial practices that companies adopt, liquidity management plays a vital role in ensuring that a company can meet its short-term obligations while maintaining the ability to invest in growth opportunities.

Liquidity Management and Profitability: An Overview

Liquidity is the ability of a company to meet its short-term financial obligations using its most liquid assets, such as cash and receivables. Effective liquidity management ensures that the company can operate smoothly by having enough working capital to cover day-to-day expenses while maintaining the flexibility to invest in future growth opportunities. Liquidity management, however, is not just about having access

to funds when needed. It involves strategic planning to maintain an optimal balance between cash flows, working capital, and profitability.

In this context, profitability refers to a company's ability to generate earnings in excess of its costs, and it is typically measured using financial ratios like Return on Assets (ROA), Return on Equity (ROE), and net profit margins. The relationship between liquidity and profitability is complex. While a company needs adequate liquidity to operate efficiently, excessive liquidity can lead to inefficient use of capital, resulting in reduced returns. Conversely, inadequate liquidity may lead to financial distress, operational inefficiencies, and a failure to seize growth opportunities. Therefore, finding the right balance between liquidity and profitability is critical for the success of any company.

For companies in capital-intensive industries such as cement, where operational costs are high and cash flow management is essential, liquidity management becomes even more critical. The cement industry, a cornerstone of infrastructure development globally, faces unique financial challenges due to its heavy reliance on raw materials, energy, and labor, coupled with fluctuating demand.

NEED OF THE STUDY:

Academic research work has been so far carried over on the relationship between working capital efficiency (NTC/CCC) and profitability (ROCE/ROE/ROA/Gross Operating Income) of firms have reported a mixed evidence, where some of them reported a strong positive relationship between these variables.

To fill up this research gap, the empirical study introduces and tests "return on net working capital (RONWC)" as a direct profitability measure of working capital management in listed companies of the cement industry.

II. RESEARCH METHODOLOGY

Objectives of the study

- ❖ To study the current ratio and NTC (Net Trade Cycle) of five leading listed companies in the Indian cement industry from financial data for the past 5 financial years.
- ❖ To measure the Return on Net Working Capital (RONWC) of the 5 listed cement companies for the past 5 financial years.
- ❖ To empirically test if there is a relationship between working capital efficiency measured by the net trade cycle and profitability measured by the Return on Net Working Capital.

SECONDARY DATA

For this study, the secondary data is collected from annual reports of past 5 years of the 5 cement companies.

Population and sample: Cement companies constitute the universe of the study. Sample taken for the study is 5 leading listed cement companies, selected on the basis of market capitalization, namely Ultra

Tech, Cements, Ambuja Cements, Shree Cements, JK Cements, Ramco cements.

TOOLS USED FOR DATA ANALYSIS

Ratios, Simple correlation

Theoretical framework and variables used for the study:

The empirical work tests the inverse relationship between profitability (RONWC) and working capital efficiency (NTC).

A.LIQUIDITYRATIOS

1. Current Ratio =Current Assets/Current Liabilities

B.PROFITABILITYRATIOS

1. Return on Capital Employed=Earnings Before Interest &Tax/Total Equity
2. Return on Net Working Capital = Earnings Before Tax / (Current Assets – Current Liabilities)

Calculation of cash conversion cycle (or Net trade Cycle)

3. Net Trade Cycle = (365 / Inventory turnover ratio) + (365 / Receivables turnover ratio) – (365 / Creditors turnover ratio)

C.EFFICIENCYRATIOS

1. Receivables Turnover Ratio=Net credit Sales/Average Accounts Receivable
2. Inventory Turnover Ratio=Cost of goods sold/Average Inventory
3. Accounts Payable or (Creditors) Turnover Ratio = Net Credit Purchases/Average Accounts Payable

Variables used for the study are Net Trade Cycle (Cash Conversion Cycle) and Return on Net Working Capital.

III. Results and Discussion

ULTRATECH CEMENTS:

S.NO	RATIOS/YEAR	2023-2024	2022-2023	2021-2022	2020-2021	2019-2020
1	Current Ratio	0.84	0.98	0.99	1.17	1.16
2	Inventory Turnover Ratio	1.35	1.51	1.45	11.6	9.6
3	Debtor Turnover Ratio	6.71	4.04	3.72	2.86	3.13
4	ROCE	0.14	0.12	0.15	0.15	0.12
5	Return on NWC	-2.4	-2.73	**-3.12**	**2.9**	2.37
6	Creditor Turnover Ratio	7.92	20.54	26.9	32.69	61.55
7	Net Trade Cycle (Days)	279	314	**336**	**148**	149

S.NO	YEAR	CA	CL	NWC	PBT	RONWC
1	2023-2024	21,036.06	24,961.05	-3,924.99	9,422.22	-2.4006
2	2022-2023	20,724.88	23,431.79	-2,706.91	7,416.25	-2.7397
3	2021-2022	17,479.94	20,155.19	-2,675.25	8,364.40	-3.1266
4	2020-2021	23,053.69	20,347.76	2,705.93	7,857.64	2.90386
5	2019-2020	16, 141.75	13,931.58	2,210.17	5,242.30	2.37

CORRELATION:

S.N0		RONWC
1	Net Trade Cycle	-0.657

The current ratio of more than 1 is considered ideal. In this case, it is 1.17 in the year 2020-2021. For all the other years, it is slightly less than 1.

The inventory turnover ratio is very low except in 2020-21, when it is 11.6 times which means that inventory holding period is 32 days (approx.). A high inventory ratio is good which means that inventory is quickly converted to sales and that the inventory holding period is low.

A relatively high debtors turnover ratio of 6.71 times is found in the year 2023-2024, which means that debtors collection period is 54 days (365 divided by 6.71). For all the other years, debtors' collection period is relatively low, which would mean there, is a longer time taken by the company to collect cash from debtors (accounts receivables).

The creditors' turnover ratio which is high in most of the years is the lowest in 2023-2024, which means the creditors are settled after a deferred period in 2023-2024, a longer creditors' payment period is found in 2023-2024.

The net trade cycle (number of days) is 336, which is the highest in the year 2021-2022, which indicates inefficient working capital management, when compared to other financial years. The return on net working capital of -3.12 in the year 2021-2022 is the least as the net trade cycle or cash conversion cycle is the highest in the year.

As the net trade cycle has increased, the return on net working capital decreases. From the observed data, it is very evident that there is a negative correlation.

The net trade cycle in days is 148, which is the least of all the five years in the year 2020-2021 and the return on net working capital of 2.9 is the highest in that year.

There is a strong negative correlation between Net Trade Cycle and the return on net working capital (RONWC).

AMBUJA CEMENTS:

S.NO	RATIOS/YEAR	2023-2024	2022-2023	2021-2022	2020-2021	2019-2020
1	Current Ratio	2.10	1.67	1.51	1.38	1.57
2	Inventory Turnover Ratio	5.42	5.1	29.25	27.77	20.68
3	Debtor Turnover Ratio	27.58	36.8	56.92	31.72	32.29
4	ROCE	0.09	0.11	0.09	0.13	0.12
5	Return on NWC	0.72	**0.39**	0.89	1.12	0.73
6	Creditor Turnover Ratio	9.62	9.87	14.14	11.16	12.28
7	Net Trade Cycle (Days)	42.63	**44.51**	-6.92	-8.06	-0.77

S.NO	YEAR	CA	CL	NWC	PBT	RONWC
1	2023-2024	15006.1	7122.29	7883.85	5,689.05	0.72161
2	2022-2023	19247.2	11513.67	7733.57	3,055.05	0.39504
3	2021-2022	17022.4	11227.89	5794.53	5,164.47	0.89127
4	2020-2021	12804.8	9260.4	3544.43	3,991.59	1.12616
5	2019-2020	14319	9070.31	5248.7	3,875.31	0.73834

CORRELATION

S.NO		RONWC
1	Net Trade Cycle	-0.788864264

The current ratio of more than 1 is considered ideal. In this case, it is above 1 in all the years.

The inventory turnover ratio of 29.25 is very high in 2020-21, compared to other years which is good which means that inventory is quickly converted to sales and that the inventory holding period is low.

A high debtors turnover ratio of 56.92 is also found in the year 2020-21, which means that debtors is quickly converted to cash or that debtors collection period is the least.

The creditors turnover ratio of 14.14 is the highest in the year 2020-21, which means that creditors are settled quickly in that year.

The net trade cycle (number of days) is the highest in the year 2022-2023, which indicates inefficient working capital management, when compared to other financial years. The return on net working capital of 0.39 in the year 2022-2023 is also the least in the year when net trade cycle or cash conversion cycle is the highest.

There is found to be a strong negative correlation between Net Trade Cycle and The return on net working capital (RONWC).

SHREE CEMENTS:

S.NO	RATIOS	2023-2024	2022-2023	2021-2022	2020-2021	2019-2020
1	Current Ratio	1.87	1.23	1.69	2.05	2.13
2	Inventory Turnover Ratio	7.03	7.35	7.86	8.52	8.34
3	Debtor Turnover Ratio	26.79	28.45	33.58	25.9	14.37
4	ROCE	0.15	0.09	0.17	0.19	0.14
5	Return on NWC	**0.33**	0.70	0.77	0.82	0.44
6	Creditor Turnover Ratio	27.2	31.2	43.47	10.7	14.18
7	Net Trade Cycle (Days)	**52.14**	50.79	48.9	22.81	43.44

S.NO	YEAR	CA	CL	NWC	PBT	RONWC
1	2023-2024	12212.2	6127.83	6084.38	2045.63	0.33
2	2022-2023	8967.93	6732.12	2235.81	1558.64	0.70
3	2021-2022	8470.33	4686.44	3783.89	2930.92	0.77
4	2020-2021	7199.46	3515.38	3684.08	3025.72	0.82
5	2019-2020	7893.82	3407.92	4485.9	1960.21	0.44

CORRELATION

S.NO		RONWC
1	Net Trade Cycle	-0.467060285

The current ratio of more than 1 is considered ideal. In this case, it is above 1 in all the years.

The inventory turnover ratio is very low in all the years, hovering around 7 (times), which is a cause for concern as it indicates a very longer inventory holding period i.e. the inventory is held as stock for 52 days or so.

A high debtors turnover ratio of 33.58 is also found in the year 2021-22, which means that debtors is quickly converted to cash or that debtors collection period is the least in that year.

The creditor's turnover ratio of 10.7 is the least in the year 2020-21, which means that creditors payment period of 34 days is the longest of all the five years in 2020-21.

The net trade cycle (number of days) of 52.14 is the highest in the year 2023-2024, which indicates inefficient working capital management when compared to other financial years. The return on net working capital of 0.33 in the year 2023-2024 is the least as the net trade cycle or cash conversion cycle is the highest in that year.

There is a moderately strong negative correlation between Net Trade Cycle and The return on net working capital (**RONWC).**

JK CEMENTS:

S.NO	RATIOS/YEAR	2023-2024	2022-2023	2021-2022	2020-2021	2019-2020
1	Current Ratio	1.56	1.59	1.37	1.72	1.34
2	Inventory Turnover Ratio	10.94	9.23	8.36	9.49	8.71
3	Debtor Turnover Ratio	23.38	21.96	19.79	21.53	24.67
4	ROCE	0.07	0.04	0.07	0.08	0.17
5	Return on NWC	**1.19**	0.13	**0.07**	0.05	0.16
6	Creditor Turnover Ratio	13.52	12.79	12.35	12.43	11.6
7	Net Trade Cycle (Days)	**21.98**	27.63	**32.55**	26.05	25.24

S.NO	YEAR	CA	CL	NWC	PBT	RONWC
1	2023-2024	4416	3400	1016	1212.38	1.19
2	2022-2023	28028.40	22616.83	5411.57	717.73	0.13
3	2021-2022	31813.64	23278.30	8535.34	630.67	0.07
4	2020-2021	31830.97	19573.57	12257.40	602.83	0.05
5	2019-2020	22345.71	18246.89	4098.82	652	0.16

CORRELATION

S.NO		RONWC
1	Net Trade Cycle	-0.705827538

The current ratio of more than 1 is considered ideal. In this case, it is above 1 in all the years.

The inventory turnover ratio is more or less around 9 in all the five years. It is the highest in 2023-24 (10.94)

The debtors' turnover ratio is around 20 in all the five financial years. It is the highest in 2019-2020 (24.67).

The creditors' turnover ratio is around 12 times in all the five financial years. It is the least in 2019-2020 (11.6).

The net trade cycle (number of days) of 32.55 days is the highest in the year 2021-2022, which indicates inefficient working capital management, when compared to other financial years. The return on net working capital of 0.07 is the least in that year.

The net trade cycle of 21.98 days is the least in 2023-2024 and the return on net working capital of 1.19 is the maximum in that year.

There is found to be a strong negative correlation between Net Trade Cycle and The return on net working capital (**RONWC).**

RAMCO CEMENTS:

S.NO	RATIOS/YEAR	2023-2024	2022-2023	2021-2022	2020-2021	2019-2020
1	Current Ratio	0.57	0.61	0.61	0.60	0.67
2	Inventory Turnover Ratio	10.13	9.35	8.29	8.48	8.9
3	Debtor Turnover Ratio	14.03	20.27	16.59	11.77	10.73
4	ROCE	0.06	0.05	0.1	0.1	0.09
5	Return on NWC	**-0.31**	-0.39	-0.74	-1.19	-1.04
6	Creditor Turnover Ratio	11.4	14.6	14.03	15.2	18.25
7	Net Trade Cycle (Days)	**30**	32	40	50	55

S.NO	YEAR	CA	CL	NWC	PBT	RONWC
1	2023-2024	2249.96	3971.43	-1721.5	541.66	-0.3146
2	2022-2023	1886.87	3088.09	-1201.2	471.98	-0.3929
3	2021-2022	1707.37	2782.69	-1075.3	803.44	-0.7472
4	2020-2021	1458.91	2419.37	-960.46	1,143.50	-1.1906
5	2019-2020	1575.71	2336.32	-760.61	792.24	-1.0416

CORRELATION

S.NO		RONWC
1	Net Trade Cycle	-0.9522

The current ratio is less than 1 in all the 5 years. It is a cause for concern.

The inventory turnover ratio is more or less around 9 in all the five years. It is the highest in 2023-24 (10.13), which means inventory is converted to sales within 36 days in 2023-2024. A low inventory turnover ratio is also a cause for concern.

The debtors' turnover ratio is the highest in 2022-2023 (20.27) which means the debtors holding period is the least in 2022-23, which is 18 days (365/20.27).

The creditors' turnover ratio of 11.4 is the least in 2023-2024. Therefore, the creditors' payment period is the maximum (32 days) in 2023-2024. In other years, it is 14 and above. It is very high in 2019-2020 (18.25), which will result in a shorter creditor's payment period.

The net trade cycle (number of days) of 30 days is the least in the year 2023-2024, which indicates highly efficient working capital management, when compared to other financial years. The return on net working

capital is negative in all the five years. As can be seen from the above table, the return on net working capital of -0.31 is the greatest. The return on net working capital keeps on decreasing with increase in net trade cycle in days. There is a strong negative correlation between the observed data.

The net trade cycle of 21.98 days is the least in 2023-2024 and the return on net working capital of 1.19 is the maximum in that year.

The net trade cycle in number of days is the maximum in 2019-2020, which is 55 days and the return on net working capital of -1.04 is the least in that year.

There is found to be a strong negative correlation between Net Trade Cycle and The return on net working capital (RONWC).

Conclusion

The existing accounting metrics aim to measure the impact of working capital efficiency on the profitability of the firms by using traditional mechanics such as ROA, ROCE, ROE and Gross Operating Profit. However, the extant literature reveals the existence of an indirect relationship between working capital efficiency and profitability of the firms. The practitioners and academia are not able to measure the direct impact of working capital efficiency on the profitability of the firms. Hence, there arises a need to measure the effect of working capital efficiency on the profitability of the firms in a direct manner.

This study used a new measure of profitability (RONWC) to investigate the relationship with working capital efficiency (NTC). This study proposes the concept of Return on Net working Capital (RONWC) as a direct profitability measure of working capital efficiency to academia and practitioners. The researchers and practitioners could possibly consider RONWC as a direct measure of working capital efficiency in addition to the existing indirect measures. Further, the study may be extended to understand the relationship between return on net working capital (RONWC) and working capital efficiency in other industries. Data for 10 years also needs to be studied for a better comprehensive picture on working capital profitability and operational efficiency.

Acknowledgement:

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