



WORKING CAPITAL MANAGEMENT OF LIQUOR MANUFACTURING COMPANIES IN INDIA

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Abstract

The overall success of the company depends upon its working capital position. The working capital is the life-blood and nerve centre of a business firm. The importance of working capital is any industry needs no special emphasis. No business can run effectively without a sufficient quantity of working capital. It is crucial to retain right level of working capital. Working capital management is one of the most important functions of corporate management. Even very successful business owners may need working capital funds when the unexpected circumstances arise. The liquor companies have played a major role in this mass production and product in import and export. India is considered as a lucrative and majorly unexplored destination for alcoholic drinks by several international companies operating in saturated alcoholic beverages markets. The Indian Liquor industry has helped in the growth of Indian economy. The liquor companies have also contributed to the Indian liquor industries. Efficiency of Working Capital Management practices of selected Liquor Companies in India. Measuring the overall efficiency of working capital management, in following three ways are Performance Index, Utilization Index, and Efficiency Index covers a period of five years taking from March 2011 to March 2015. The study is empirical in nature and executed using the data published by Liquor Manufacturing companies in India. The research study is solely based on secondary data. The financial data related to Selected Liquor Companies in India were collected from the website and annual reports of selected Liquor Companies.

Keywords: Working Capital, Performance Index, Utilization Index, Efficiency Index.

Introduction

The working capital is the life-blood and nerve centre of a business firm. The importance of working capital is any industry needs no special emphasis. No business can run effectively without a sufficient quantity of working capital. It is crucial to retain right level of working capital. Working capital management is one of the most important functions of corporate management. Working capital can be utilized for the payment of lease, employee's payroll, and pretty much any other operating costs that are involved in the everyday life of business. Even very successful business owners may need working capital funds when the unexpected circumstances arise. The overall success of the company depends upon its working capital position. So, it should be handled properly because it shows the efficiency and financial strength of company. Efficient management of working capital means management of various components of working capital in such a way that an adequate amount of working capital is maintained for smooth running of a firm and for fulfillment of objectives of liquidity and profitability. India is considered as a lucrative and majorly unexplored destination for alcoholic drinks by several international companies operating in saturated alcoholic beverages markets. India's alcoholic beverage market has grown steadily in the last 5 years. Liquor is the second most consumed alcoholic beverage in India and has a commanding presence in the northern states of India. However, the scenario is changing and a decline in the market share of Country Liquor has been noticed IMFL is the largest segment in the Indian alcoholic beverage industry. This market has been further bifurcated into Whisky, Rum, Brandy, Vodka and Gin. This industry has grown at an overall steady pace triggered by increasing population and disposable income, and also the fact that it is increasingly gaining social acceptance. Liquor is a rapidly expanding segment in the Indian alcoholic beverages industry. It is the third largest market and second fastest growing market in the Indian alcoholic beverages industry. Beer market has been segmented into strong beer and mild beer on the basis of their alcohol content. Strong beer which has alcohol content more than 5 percentages, dominates the Indian market stating its popularity and preference.

Importance of the Study

The Indian Liquor industry has helped in the growth of Indian economy. The Liquor Industry earned more Revenue compared with other Manufacturing Industry. The liquor companies have also contributed to the Indian liquor industries. The liquor companies have played a major role in this mass production and product in import and export. Alcohol is playing an increasingly important role in India's emerging economy as the number of consumers of spirits and imported brands is growing rapidly. They are not only play an important role in Liquor Business but also contribute substantial value addition in term of service quality, Customer satisfaction, Innovation and cost effectiveness of the Liquor Companies in India. The pragmatic importance of working capital management in finance, an attempt is made in this study to look into the working capital management of six selected liquor companies in India. The specific purpose of the study is to examine the efficiency



of working capital management practices of selected liquor companies in India. Measuring the overall efficiency of working capital management, in following three ways

- ◆ Performance Index
- ◆ Utilization Index
- ◆ Efficiency Index

Statement of the Problem

The liquor industry has created quite a few problems for this vital sector. The Industry face some problems such as, manufacturing expenses, government impose high taxes, and high cost for logistics expenses, managed by bureaucrats who lack the vision for the industry. They do not have the requisite experience and understanding of the sector. High taxes on Spirits manufacturing expenses and equally high liquor industries charge were the major cost heads for Indian carriers. In this study are attempt every year the sales and consumption of Liquor an increased. So the researcher attempt that to analyze Profitability, Liquidity Turnover and Comparative analysis and risk-return relationship of liquor manufacturing companies in India

Scope of the Study

The present study is undertaken to discuss the Financial Performance, and Market Efficiency of Liquor Companies in India. It aims at analyzing the individual performance of selected Liquor Companies in India. This Financial Performance is also evaluated by using Liquidity, Profitability and Turnover ratios. Market performance is also analyzed by using required rate of return, beta, and actual rate of return. The study are analysis for a periods of five years from 2010-2011 to 2014-2015.

Methodology

The study is empirical in nature and executed using the data published by Liquor Manufacturing companies in India. The research study is solely based on secondary data. The financial data related to Selected Liquor Companies in India were collected from the website and annual reports of selected liquor companies.

Period of the Study

The present study covers a period of five years taking from March 2011 to March 2015.

SAMPLING DESIGN

The sample Liquor Companies are selected on the basis of convenient sampling method. A sample of Six Liquor Companies has been selected on the basis of availability of data and also these Six Liquor Companies are the main largest Liquor Manufacturing Companies in India.

The following Liquor Companies have been selected for the study

1. United Spirits
2. United Breweries
3. Radico Khaitan
4. Tilaknagar Industries
5. Jagatjit Industries
6. Globus Spirits

Performance Index

In case of working capital management, performance Index (PI) denotes average performance index of the various components current assets. The working capital management may be said efficient if the proportionate rise in sales is more than the proportionate rise in current assets during a particularly period. Logically, overall performance index more than one indicates efficient management of working capital. The performance index has been calculated by using the following formula:

$$PI_{MWC} = [\sum_{i=1}^N \frac{Mi_{(t-1)}}{Mi_t}] / N \times I_T \dots\dots\dots (1)$$

Where, I_T = turnover index or sales index defined as $S_t/S_{(t-1)}$

M_i = Individual group of current assets.

N = No of current assets in the group.

And $I = 1, 2, \dots\dots\dots N$.

Simply

$PI_{MWC} = \frac{\text{Current Assets}}{\text{Number of Current Assets} \times \text{Turnover Index}}$



Utilization Index

On the other hand, Utilization Index (UI) indicates the ability of the firm in utilizing its current assets as a whole for the purpose of generating sales. This ultimately reflects the operating cycle of the firm, which can be shortened by means of increasing the degree of utilization. Thus, a value of UI greater than one is always desirable from the management of a company. The Utilization Index (UI) has been calculated by using the model:

$$UI_{MWC} = R_{(t-1)} / R_t \dots\dots\dots (2)$$

Where, R = Current Assets /sales

Efficiency Index

Finally the Efficiency Index (EI) measures the ultimate efficiency in working capital management of a concern. Since, it has been derived by multiplying the PI and UI, a value more than one will obviously indicate a good sign regarding the working capital management. The ultimate efficiency of working capital management depends on both the PI and UI and not solely on one of them. The Efficiency Index has been calculated as:

$$EI_{MWC} = PI_{MWC} \times UI_{MWC} \dots\dots\dots (3)$$

Return on Capital Employed (ROCE)

A financial ratio that measures a company’s profitability and the efficiency with which it’s capital is employed. Return on Capital Employed (ROCE) is calculated as:

$$ROCE = \text{Earnings Before Interest and Tax (EBIT)} / \text{Capital Employed}$$

“Capital Employed” as shown in the denominator is the sum of shareholders equity and debt liabilities; it can be simplified as (Total Assets –Current Liabilities). Instead of using capital employed at an arbitrary point in time, analysts and investors often calculate ROCE based on “Average Capital Employed,” which takes the average opening and closing capital employed for the time period. A higher ROCE indicates more efficient use of capital. ROCE should be higher than the company’s capital cost; otherwise it indicates that the company is not employing its capital effectively and is not generating shareholder value.

Structure of Working Capital

The different elements or components of current assets and current liabilities constitute the structure of working capital which can be illustrated in the shape of a chart as follows:

Structure of Current Assets and Current Liabilities

Current Liabilities	Current Assets
Bank Overdrafts	Cash and Bank Balance
Creditors	Inventories: Raw-Materials Work-In-Progress Finished Goods
Outstanding Expenses	Spare Parts
Bills Payable	Account Receivables
Short –term Loans	Bills Receivables
Proposed Dividends	Accrued Income
Provision for Taxation, etc.	Prepaid Expenses Short-term Investments

Computation of performance index (PI), utilization index (UI), and efficiency index (EI) of the selected liquor companies in India.

Computation of PI, UI and EI of the United Spirits

The following tables 1 highlight the performance index, utilization index, and efficiency index of the united spirits during the year 2010-2011 to 2014-2015.



Table 1, UNITED SPIRITS
In the years from 2010-2011 to 2014-2015 (Rs. In crores)

Items of Current Assets	2010-11	2011-12	2012-13	2013-14	2014-15
Inventories	1162.13	1452.24	1321.46	1535.40	1554.24
Sundry Debtors	958.59	1282.80	1768.69	1713.58	1745.48
Cash and Bank Balances	154.92	277.70	145.61	497.29	239.69
Loan and Advances	5482.84	6277.13	7022.05	4916.61	3793.51
Total Index	7758.48	9289.87	1025.81	8662.88	7332.92
Average Index	1939.62	2322.46	2564.45	2165.72	1833.23
Turnover Index	5.48	5.193	14.34	5.546	13.25
PI	10629	12054	36774	11998	24290
UI	0.357	0.399	0.170	0.439	0.171
EI	3794.55	4809.54	6251.58	5267.00	4153.59

Source: Computed

The data presented in the table 1 reveals that the Performance Index, Utilization Index, Efficiency Index of the United Spirits in the year from 2010-2011 to 2014-2015. In the study, the Performance Index for United Spirits is more than one in three accounting periods out of five accounting years; it is highest in the year 2012-2013 of the Performance Index was 36774 and the lowest in the year of 2013-2014 of Performance Index was 11998. So, overall performance of United Spirits reflects a satisfactory position over the study period so far as the Performance Index is concerned.

In the present study, Utilization Index of United Spirits in the year from 2010-2011 to 2014-2015 of five accounting periods out of five accounting years; in the initial year 2010-2011 the Utilization Index of United Spirits was 0.357. After that the next three years 2011-2012 to 2013-2014 the Utilization Index increased to 0.349. In the last year 2014-2015 the Utilization Index was decreased to 0.171.

In the study Efficiency Index of United Spirits in the year 2010-2011 to 2014-2015 of five accounting periods. The Efficiency Index of United Spirits is more than one in three accounting periods out of five years. It is highest in the year 2012-2013 of the Efficiency Index was 6251.58 and lowest in the year 2010-2011 of the Efficiency Index was 3794.55. So, the overall performance United Spirits which indicates a huge satisfactory position during the study periods.

Computation of PI, UI and EI of the United Breweries

The following Table 2 highlights the performance index, utilization index and efficiency index of United Breweries during the period 2010-2011 to 2014-2015.

Table 2, UNITED BREWERIES
In the years from 2010-2011 to 2014-2015 (Rs. In crores)

Items of Current Assets	2010-11	2011-12	2012-13	2013-14	2014-15
Inventories	289.80	399.88	512.63	543.28	558.38
Sundry Debtors	519.86	699.97	813.30	958.60	964.28
Cash & Bank Balance	129.06	177.23	232.77	142.40	10.76
Loans & Advance	659.10	563.99	446.52	536.78	420.74
Total Index	1597.82	1841.07	2005.22	2181.06	1954.16
Average Index	399.45	460.26	501.30	545.26	488.54
Turnover Index	15.88	14.66	12.73	7.796	14.75



PI	6343	6747	6381.54	4250.84	7205.96
UI	0.203	0.217	0.238	0.388	0.186
EI	1287.62	1464	151.9	1649.32	1340.30

Source: Computed

The data presented in the table 2 reveals that the Performance Index, Utilization Index, Efficiency Index of United Breweries in the year 2010-2011 to 2014-2015. In this study, the Performance Index for United Breweries is more than one in three accounting periods out of the five accounting year; it is highest in the year 2014-2015 of the Performance Index was 7205. And lowest in the year of 2013-2014 of Performance Index was 4250.84. So, the overall Performance Index of United Breweries reflect a satisfactory position over the study period so for as the Performance Index is concerned.

Utilization Index for United Breweries in the year from 2010-2011 to 2014-2015 accounting periods. In the initial year 2010-2011 the Utilization Index of United Breweries was 0.203. In the next three years 2011-2012 to 2013-2014 the Utilization Index increased to 0.388. In the last year 2014-2015 the Utilization Index of United Breweries decreased to 0.186.

In the study the Efficiency Index for United Breweries in the year 2010-2011 to 2014-2015 of five accounting periods. The Efficiency Index of United Breweries is more than one in three accounting periods out of five years. It is highest in the year 2013-2014 of the Efficiency Index was 1649.32 and lowest in the year 2012-2013 of the Efficiency Index was 151.9. So, the overall performance of United Breweries which indicates a tremendous satisfactory position during the study period.

Computation of PI, UI and EI of the Radico Khaitan

The following tables 3 highlight the performance index, utilization index, and efficiency index of the Radico Khaitan during the year 2010-2011 to 2014-2015.

Table 3,RADICO KHAITAN
In the year from 2010-2011 to 2014-2015 (Rs. In crores)

Items of Current Assets	2010-11	2011-12	2012-13	2013-14	2014-15
Inventories	126.87	177.45	184.95	210.31	213.03
Sundry Debtors	319.10	347.79	435.38	523.32	477.81
Cash & Bank Balance	8.89	21.04	16.00	15.29	10.33
Loans & Advance	351.08	494.47	523.37	579.81	714.92
Total Index	805.94	1040.75	115.97	1328.73	1416.09
Average Index	201.48	260.18	289.92	332.18	354.02
Turnover Index	13.33	6.44	6.80	6.90	15.08
PI	2685.72	1675.55	1972.32	2292.70	5338.63
UI	0.268	0.477	0.505	0.515	0.218
EI	706.34	799.23	996.02	1180.74	1164

Source: Computed

The data presented in the table 3 reveals that the Performance Index, Utilization Index, Efficiency Index of the Radico Khaitan in the year from 2010-2011 to 2014-2015. In the study, the Performance Index for Radico Khaitan is more than one in three accounting periods out of five accounting years; it is highest in the year 2014-2015 of the Performance Index was 5338.63 and the lowest in the year of 2011-2012 of Performance Index was 1675.55. So, overall performance of Radico Khaitan reflects a satisfactory position over the study period so for as the Performance Index is concerned.

In the present study, Utilization Index of Radico Khaitan in the year from 2010-2011 to 2014-2015 of five accounting periods out of five accounting years; in the initial year 2010-2011 the Utilization Index of Radico Khaitan was 0.268. After that the next three years 2011-2012 to 2013-2014 the Utilization Index increased to 0.515. In the last year 2014-2015 the Utilization Index was decreased to 0.218.

In the study the Efficiency Index for Radico Khaitan in the year 2010-2011 to 2014-2015 of five accounting periods. The Efficiency Index of Radico Khaitan is more than one in three accounting periods out of five years. It is highest in the year 2013-2014 of the Efficiency Index was 1180.74 and lowest in the year 2010-2011 of the Efficiency Index was 706.34. So, the overall performance of the Radico Khaitan, which indicates a tremendous satisfactory position during the study period.



Computation of PI, UI and EI of Tilaknagar Industries

The following tables.4 highlights the performance index, utilization index, and efficiency index of the united Tilaknagar Industries the year 2010-2011 to 2014-2015.

Table 4, Tilaknagar Industries
In the year from 2010-2011 to 2014-2015 (Rs. In crores)

Items of Current Assets	2010-11	2011-12	2012-13	2013-14	2014-15
Inventories	61.97	108.14	106.62	104.87	99.64
Sundry Debtors	70.17	89.49	134.82	181.17	126.69
Cash & Bank Balance	9.85	8.09	10.59	10.76	22.04
Loan & Advance	366.72	384.51	535.39	652.25	731.22
Total Index	508.71	590.23	787.42	949.05	979.59
Average Index	127.17	147.55	196.85	237.26	244.89
Turnover Index	5.64	4.22	5.33	8.90	8.25
PI	717.23	623.84	1050.58	2112.56	2020.34
UI	0.405	0.449	0.442	0.317	0.302
EI	290.47	230.10	464.35	669.68	610.14

Source: Computed

The data presented in the table 4 reveals that the Performance Index, Utilization Index, Efficiency Index of the Tilaknagar Industries in the year from 2010-2011 to 2014-2015. In the study, the Performance Index for Tilaknagar Industries is more than one in three accounting periods out of five accounting years; it is highest in the year 2013-2014 of the Performance Index was 2112.56 and the lowest in the year of 2011-2012 of Performance Index was 623.84. So, overall performance of Tilaknagar Industries reflects a satisfactory position over the study period so far as the Performance Index is concerned.

In the present study, Utilization index of Tilaknagar Industries in the year from 2010-2011 to 2014-2015 of five accounting periods out of five accounting years; in the initial year 2010-2011 the utilization index of Tilaknagar Industries was 0.405. After that the next three years 2011-2012 to 2013-2014 the Utilization Index increased to 0.449. In the last year 2014-2015 the Utilization Index was decreased to 0.302.

In the study the Efficiency Index for Tilaknagar Industries in the year from 2010-2011 to 2014-2015 of five accounting periods. The Efficiency Index of Tilaknagar Industries is more than one in three accounting periods out of five years. It is highest in the year 2013-2014 of the Efficiency Index was 668.69 and lowest in the year 2011-2012 of the Efficiency Index was 230.10. So, the overall performance of the Tilaknagar Industries which indicates a Quite Satisfactory position during the study periods.

Computation of PI, UI and EI of the Jagatjit Industries

The following tables 5 highlight the performance index, utilization index, and efficiency index of the Jagatjit Industries during the year 2010-2011 to 2014-2015.

Table 5, Jagatjit Industries
In the year from 2010-2011 to 2014-2015 (Rs. In crores)

Items of Current Assets	2010-11	2011-12	2012-13	2013-14	2014-15
Inventories	117.59	144.15	140.65	116.95	113.85
Sundry debtors	169.87	199.04	223.08	218.08	235.24
Cash & bank balance	38.56	55.16	21.29	10.47	8.93
Loans & advance	37.90	34.50	42.97	47.66	45.16
Total index	363.92	432.85	427.99	393.16	403.18
Average index	90.98	108.21	106.99	98.29	100.79
Turnover index	11.45	10.27	9.90	11.34	10.45
PI	1041.72	1111.53	1060.16	1115	1053
UI	0.27	0.29	0.30	0.29	0.37
EI	281.26	322.34	318.04	323.36	389.61

Source: Computed



The data presented in the table 5 reveals that the Performance Index, Utilization Index, Efficiency Index of the Jagatjit Industries in the year from 2010-2011 to 2014-2015. In the study, the Performance Index for Jagatjit Industries is more than one in three accounting periods out of five accounting years; it is highest in the year 2012-2013 of the Performance Index was 1060.16 and the lowest in the year of 2014-2015 of Performance Index was 1053. So, overall performance of Jagatjit Industries reflects a satisfactory position over the study period so for as the Performance Index is concerned.

In the present study, Utilization Index of Jagatjit Industries in the year from 2010-2011 to 2014-2015 Of five accounting periods out of five accounting years; in the initial year 2010-2011 the Utilization Index of Jagatjit Industries was 0.27. After that the next three years 2011-2012 to 2013-2014 the Utilization Index increased to 0.29. In the last year 2014-2015 the Utilization Index was decreased to 0.37.

In the study the Efficiency Index for Jagatjit Industries in the year 2010-2011 to 2014-2015 of five accounting periods. The Efficiency Index of Jagatjit Industries is more than one in three accounting periods out of five years. It is highest in the year 2014-2015 of the Efficiency Index was 389.61 and lowest in the year 2010-2011 of the Efficiency Index was 281.26. So, the overall performance of Jagatjit Industries which indicates a satisfactory position during the study period.

Computation of PI, UI and EI of the Globus Spirits

The following tables 6 highlight the performance index, utilization index, and efficiency index of the Globus Spirits during the year 2010-2011 to 2014-2015.

Table 6, Globus Spirits
In the year from 2010-2011 to 2014-2015 (Rs. In crores)

Items of Current Assets	2010-11	2011-12	2012-13	2013-14	2014-15
Inventories	33.25	46.83	35.58	45.52	50.05
Sundry Debtors	42.05	55.33	62.13	47.30	38.15
Cash & bank balance	5.46	7.25	31.23	6.38	6.43
Loan & Advance	47.82	50.35	39.11	53.68	58.12
Total Index	128.58	159.76	168.05	152.88	152.75
Average Index	32.14	39.94	42.01	38.22	38.18
Turnover Index	15.75	15.22	18.75	14.54	17.66
PI	506.20	607.88	787.68	555.71	674.25
UI	0.154	0.153	0.193	0.149	0.107
EI	77.95	93.00	152.02	82.80	72.14

Source: Computed

The data presented in the table 6 reveals that the Performance index, Utilization Index, Efficiency Index of the Globus Spirits in the year from 2010-2011 to 2014-2015. In the study, the Performance Index for is more than one in three accounting periods out of five accounting years; it is highest in the year 2012-2013 of the Performance Index was 787.68 and the lowest in the year of 2010-2011 of Performance Index was 506.20. So, overall performance of Globus Spirits reflects a satisfactory position over the study period so for as the Performance Index is concerned.

In the present study, Utilization Index of Globus Spirits in the year from 2010-2011 to 2014-2015 Of five accounting periods out of five accounting years; in the initial year 2010-2011 the Utilization Index of Globus Spirits was 0.154. After that the next three years 2011-2012 to 2013-2014 the Utilization Index increased to 0.193. In the last year 2014-2015 the utilization index was decreased to 0.107.

In the study the Efficiency Index for Globus Spirits in the year 2010-2011 to 2014-2015 of five accounting periods. The Efficiency Index of Globus Spirits is more than one in three accounting periods out of five years. It is highest in the year 2012-2013 of the Efficiency Index was 152.02 and lowest in the year 2014-2015 of the Efficiency Index was 72.14. So, the overall performance of united spirits which indicates a satisfactory position during the study period.



Table 7, Overall performance of PI, UI and EI of selected liquor companies in India
(Rs. In crores)

Years		2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
United Spirits	PI	10629	12054	36774	11998	24290
	UI	0.35	0.399	0.170	0.439	0.171
	EI	3794.55	4809.54	6251.58	5267.00	4153.59
United Breweries	PI	6343	6747	6381.54	4250.84	7205.96
	UI	0.203	0.217	0.238	0.388	0.186
	EI	1287.62	1464	151.9	1649.32	1340.30
Radico Khaitan	PI	2685.72	1675.55	1972.32	2292.70	5338.63
	UI	0.268	0.477	0.505	0.515	0.218
	EI	706.34	799.23	996.02	1180.74	1164
Tilaknagar Industries	PI	717.23	623.84	1050.58	2112.56	2020.34
	UI	0.405	0.449	0.442	0.317	0.302
	EI	290.47	230.10	464.35	669.68	610.14
Jagatjit Industries	PI	1041.72	1111.53	1060.16	1115	1053
	UI	0.27	0.29	0.30	0.29	0.37
	EI	281.26	322.34	318.04	323.36	389.61
Globus Spirits	PI	506.20	607.88	787.68	555.71	674.25
	UI	0.154	0.153	0.193	0.149	0.107
	EI	77.95	93.00	152.02	82.80	72.14

Source: Computed

Simple correlation analysis between the efficiency in working capital management and the profitability of the selected liquor companies in India

Correlation Analysis of the United Spirits

The following table 8 highlight the correlation Analysis and value of 't' test of the united spirits during the period 2010-2011 to 2014-2015

Table 8, Correlation Analysis in United Spirits for the year from 2010-2011 to 2014-2015

Years	2010-11	2011-12	2012-13	2013-14	2014-15	r	Calculate value of |t|
PI	10629	12054	36774	11998	24290	10.075	3.854
UI	0.357	0.399	0.170	0.439	0.171	9.220	3.821
EI	3794.55	4809.54	6251.58	5267.00	4153.59	3.368	2.436
ROCE	1.037	1.117	1.221	0.633	1.0492	...	...

Source: Computed

The data presented in the table 8 reflects that there are positive associations between ROCE and PI, UI and EI for the company United Spirits during the period under study. Out of the three indicates of measuring the efficiency of working capital management. The value of correlation between ROCE and PI, and UI and EI for the company United Spirits

Correlation Analysis of the United Breweries

The following table 9 highlight the correlation Analysis and value of 't' test of the United Breweries during the period 2010-2011 to 2014-2015.

Table 9, Correlation Analysis in United Breweries for the year from 2010-2011 to 2014-2015

Years	2010-11	2011-12	2012-13	2013-14	2014-15	R	Calculate value of |t|
PI(000)	6343	6747	6381.54	4250.84	7205.96	4.137	2.657
UI	0.203	0.217	0.238	0.388	0.186	3.305	2.417
EI	1287.62	1464	151.9	1649.32	1340.30	3.321	2.422
ROCE	2.688	2.891	1.815	2.347	3.208	...	...

Source: Computed



The data presented in the table 9 reflects that there are positive associations between ROCE and PI, UI and EI for the company United Breweries during the period under study. Out of the three indicates of measuring the efficiency of working capital management. The value of correlation between ROCE and PI, and UI and EI for the Company of United Breweries.

Correlation Analysis of the Radico Khaitan

The following table 10 highlight the correlation Analysis and value of 't' test of the Radico khaitan during the period 2010-2011 to 2014-2015

Table 10, Correlation Analysis in Radico Khaitan for the year from 2010-2011 to 2014-2015

Years	2010-11	2011-12	2012-13	2013-14	2014-15	r	Calculate value of |t|
PI(000)	2685.72	1675.55	1972.32	2292.70	5338.63	7.211	3.409
UI	0.268	0.477	0.505	0.515	0.218	6.243	3.190
EI	706.34	799.23	996.02	1180.74	1164	8.476	0.920
ROCE	1.448	1.091	1.048	1.131	1.278	...	...

Source: Computed

The data presented in the table 10 reflects that there are positive associations between ROCE and PI, UI and EI for the company Radico Khaitan during the period under study. Out of the three indicates of measuring the efficiency of working capital management. The value of correlation between ROCE and PI, and UI and EI for the company Radico Khaitan

Correlation Analysis of the Tilaknagar Industries

The following table 11 highlight the correlation Analysis and value of 't' test of the Tilaknagar Industries during the period 2010-2011 to 2014-2015

Table 11, Correlation Analysis in Tilaknagar Industrie for the year from 2010-2011 to 2014- 2015

Years	2010-11	2011-12	2012-13	2013-14	2014-15	r	Calculate value of |t|
PI(000)	717.23	623.84	1050.58	2112.56	2020.34	4.559	2.771
UI	0.405	0.449	0.442	0.317	0.302	1.247	1.766
EI	290.47	230.10	464.35	669.68	610.14	4.283	2.697
ROCE	0.561	0.631	0.619	0.960	0.875	...	...

Source: Computed

The data presented in the table 11 reflects that there are positive associations between ROCE and PI, UI and EI for the company Tilaknagar Industries during the period under study. Out of the three indicates of measuring the efficiency of working capital management. The value of correlation between ROCE and PI, and UI and EI for the company Tilaknagar Industries

Correlation Analysis of the Jagatjit Industries

The following table 12 highlight the correlation Analysis and value of 't' test of the Jagatjit industries during the period 2010-2011 to 2014-2015

Table 12, Correlation Analysis in Jagatjit Industries for the year from 2010-2011 to 2014-2015

Years	2010-11	2011-12	2012-13	2013-14	2014-15	r	Calculate value of |t|
PI(000)	1041.72	1111.53	1060.16	1115	1053	4.225	2.681
UI	0.27	0.29	0.30	0.29	0.37	3.045	2.337
EI	281.26	322.34	318.04	323.36	389.61	3.148	2.369
ROCE	1.779	1.936	1.489	1.645	1.565	...	...

Source: Computed

The data presented in the table 12 reflects that there are positive associations between ROCE and PI, UI and EI for the company Jagatjit Industries during the period under study. Out of the three indicates of measuring the efficiency of working capital management. The value of correlation between ROCE and PI, and UI and EI for the company Jagatjit Industries.



Correlation Analysis of the Globus Spirits

The following table 13 highlight the correlation Analysis and value of 't' test of the Globus Spirits during the period 2010-2011 to 2014-2015.

Table 13, Correlation Analysis in Globus Spirits for the year from 2010-2011 to 2014-2015

Years	2010-11	2011-12	2012-13	2013-14	2014-15	r	Calculate value of |t|
PI(000)	506.20	607.88	787.68	555.71	674.25	4.100	2.646
UI	0.154	0.153	0.193	0.149	0.107	3.281	2.410
EI	77.95	93.00	152.02	82.80	72.14	4.095	2.658
ROCE	2.681	2.627	2.214	2.105	2.583	...	...

Source: Computed

The data presented in the table 4.7.6 reflects that there are positive associations between ROCE and PI, UI and EI for the company Globus Spirits during the period under study. Out of the three indicates of measuring the efficiency of working capital management. The value of correlation between ROCE and PI, and UI and EI for the company Globus Spirits

Note: (i) Tabulated value of 't' with (n-2) d. f. i. e., both at 5% and 1 % level of significance for both tailed tests are 2.57 and 4.03 respectively.

(ii) Since, the calculated value of |t| correlation between UI and ROCE for the selected liquor companies is higher than the tabulated value of 't' at 5% level. So the value of correlation coefficient between these companies are significant at 5% level, except this in all other cases, the calculated values of |t| are less than the tabulated values of 't' with d. f., so the correlation coefficients are statistically insignificant both at 5% and 1% levels of significance.

$$r \times (n-2)$$

(iii) Formula used for calculating |t| = with (n-2) d. f. (1-r²)
(1-r²)

Conclusion

The liquor industry is growing at a rate of 30% per year. The total value of alcoholic drinks consumed in India is projected to be Rs.1.5 lakh crore in 2017. Interestingly studies have revealed that majority of the alcohol consuming population of India are males. According to data from World Health Organization (WHO) 2010, 90 percentages of the lifetime abstainers of alcohol are females. Liquor business is the fastest growing Indian Made Foreign Liquor (IMFL) segment in India. It has growth is rapidly increasing due to increase in pubs, hotels, restaurants, evolving nightlife and consumer preferences. Wine industry in India is just in its birth stage mainly in cities like Mumbai, Delhi and Bangalore have the maximum share of wine consumers. Imported wines consumption is expected to grow in near future. Most of the International Wine imports are from South Korea, China and France Indian alcoholic beverages market is one of the fastest growing industries in the world with several yet to be explored segments. With compelling business potential and economies of scale poised by the market, it is expected that several international players will expand their operations into the Indian alcoholic drinks market in the coming year. Country Liquor is the second most consumed alcoholic beverage in India and has a commanding presence in the northern states of India. The Working Capital Efficiency of selected Liquor companies was satisfactory position over the study periods

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