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AN EMPIRICAL STUDY ON THE LIQUIDITY POSITION OF SELECTED PETROLEUM REFINERIES

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ABSTRACT

Liquidity is the capacity of an asset to be sold in business, economics, or investment without substantially changing the price and with little loss of value. The most liquid asset is money, or cash in hand, which may be utilized right away to carry out economic transactions including purchasing, selling, paying debts, and addressing urgent desires and requirements. The foundation of any company is liquidity. For every corporate concern, a comprehensive assessment of liquidity is essential since it aids in behavior predictions. The current study examines the liquidity status of a few chosen petroleum businesses between 2016–17 and 2021–22 using liquidity ratios. At a 5% level of significance, the analysis of variance and t-test is used to explain the significance of the difference between actual and estimated values. Additionally, it offers useful and pertinent enhancement suggestions.

KEYWORDS

The current ratio, Quick ratio, Inventory Turnover Ratio, and Cash Ratio

INTRODUCTION

Working Capital is the most significant component of the firm since it is crucial in determining how to handle finances. Both high and low working capital levels are hazardous for any corporate organization. For efficient operation and a strong inflow of earnings, a finance manager should maintain an ideal level of working capital. The capacity to pay for all obligations when they become due is referred to as liquidity. The most important responsibility of a finance manager is to effectively manage liquidity since it assures the stability and appropriate operation of a company's finances. Before the advent of the contemporary financial system, liquidity was primarily determined by the ability to take deposits and approve loans to the general population. In the past, managing liquidity risk depended on collecting deposits and authorizing loans to the general

public, but in the current period, thanks to the development of the global financial system, the scope of managing liquidity risk have expanded. Some of the fundamental causes of liquidity risk include investments in hazardous assets, a lack of universality, and inappropriate liquidity management implementation. As a result, liquidity management is becoming more and more important throughout the global economy. The goal of company owners and managers is to develop a plan that will enable them to efficiently manage their daily operations, boost profitability, and grow shareholder value. Because of the high costs associated with raw material extraction, higher operating costs, and high research and development costs in the petroleum industry, managing profitability becomes essential for finance managers, particularly when we talk about the level of profit that satisfies the long-term interests of the company. On the one hand, there is intense rivalry between petroleum refineries, while on the other, there are rigorous rules. Because of this, it is quite challenging for a finance manager to maintain sufficient liquidity situations for the refineries. The net working capital idea is the foundation of the current investigation. Excessive working capital causes inventory to build up unnecessarily and idle monies to sit around earning nothing. On the other side, a lack of working capital also causes operational inefficiencies, which hurts a company's ability to develop since they lower its goodwill. Therefore, it is crucial to establish the right level of working capital to preserve the company's proper liquidity position.

REVIEW OF LITERATURE

Elayabharathi, Praveena, and Rathika (2019) regarded money as the life of the company, which is essential. The study's goal was to assess the TNSC APEX Co-Operative bank's financial performance. They discovered that the company's current assets had been reduced. They advised the bank to act to fulfill the short-term commitments. Finally, they concluded that it would be better to address the matter by increasing current assets and liabilities to satisfy short-term commitments.

Pathma Priya (2019), The researcher examined HDFC Limited's financial results in the study. She made extensive use of ratios in the exchange, including those measuring profitability, solvency, and liquidity. It was determined that HDFC Limited's financial performance was adequate.

Madhulatha Karri, Sheeba.V. Thomas, and Omkar Venkata Chinnam Naidu Murru (2018), Financial analysis was useful in determining a company's profitability and financial standing, and the research included information on how BHEL's performed financially in comparison to its competitors BEML, L&T, PUNJLLYOD, and THERMAX. The analysts' analysis revealed that THERMAX & BEML's liquidity situation was strong. Both BHEL and PUNJLLYOD have an acceptable solvency situation. THERMAX has excellent operational efficiency. L&T was in a decent financial situation. Finally, based on earnings, they concluded that L&T's total financial performance was sound.

STATEMENT OF PROBLEM

According to several studies, the success of every company organization is heavily dependent on working capital. A finance manager's main goal should be to continuously monitor the management of liquidity to optimize profitability. The main cause of insufficient profitability is insufficiently effective liquidity management. Refineries are coming up with various measures to strengthen their liquidity position, typically ignored during good economic times. The primary significance of liquidity and liquidity management in any firm has been taken into consideration when conducting the current study.

RESEARCH SAMPLE DESIGN

The current study was conducted by selecting a sample from each of the three largest Indian petroleum firms: Bharat Petroleum Corporation Limited (BPCL), Indian Oil Corporation Limited (IOCL), and Hindustan Petroleum Corporation Limited (HPCL). The pertinent information was mostly acquired from these petroleum refineries' publicly available annual reports and accounts.

RESEARCH METHODOLOGY

The study emphasizes the analysis of the liquidity position of three major petroleum refineries. In this study mean, standard deviation, t-test, and Analysis of Variance tools have been applied. The liquidity and Turnover ratios methodology have been adopted to withdraw results regarding the liquidity position of three petroleum refineries. Four liquidity ratios such as the Current ratio, Quick ratio, and Cash ratio have been calculated and analyzed to examine the liquidity position of petroleum refineries. This research study is an attempt to draw a meaningful conclusion on the liquidity positions of the five petroleum refineries by using statistical tools. The study covers the period of five years from 2016–17 to 2021–22.

OBJECTIVES OF THE STUDY:

This study has the following extensive objectives

- To study the overall proportion of liquidity maintained by the selected petroleum refineries.
- To explore the liquidity management of these three refineries with the help of the ratio analysis technique.

RESEARCH HYPOTHESIS AND TESTING:

We begin the process of testing the hypotheses by making a hypothesis about a population mean. An estimation used as a foundation for reasoning is known as a hypothesis. A decision-maker is better equipped to form conclusions by using hypothesis testing. Without objective evidence, it is impossible to correctly make any conclusions in the modern world. Hypothesis testing is used to determine if a claim is true or incorrect to assess its validity. A decision maker can make more accurate judgments thanks to hypothesis testing.

H_0: There is no significant difference between the liquidity ratios of the selected petroleum refineries.

H_1: There is a significant difference between the liquidity ratios of the selected petroleum refineries.

DATA ANALYSIS AND INTERPRETATION:

It is a ratio that indicates a person's capacity to repay the debt when it becomes due. To put it another way, this ratio indicates how quickly a company can turn its current assets into cash so that it can promptly pay off its liabilities. Short-term solvency and liquidity are typically used together. Liquidity ratios are the following financial ratios:

1. Current ratio
2. Quick ratio
3. Cash Ratio

1. CURRENT RATIO

The ratio of current assets to current liabilities can be used to describe it. A current ratio of 2:1 is the best ratio in accounting theory. The better the ratio, the easier it will be for the company to pay its present commitments. An extremely high ratio of 2:1, however, can point to management's inadequate liquidity management. On the other hand, it implies a lack of liquidity and a lack of working capital if the current ratio is lower than the optimal ratio.

Table 1 Current Ratio of the Selected Petroleum Refineries under Study from 2016-17 to 2020-21

	CURRENT RATIO		
YEARS	**BPCL**	**HPCL**	**IOCL**
2016-17	0.80	0.95	0.86
2017-18	0.89	0.78	0.76
2018-19	0.92	0.76	0.81
2019-20	0.72	0.66	0.68
2020-21	0.91	0.71	0.72
Minimum	**0.72**	**0.66**	**0.68**
Maximum	**0.92**	**0.95**	**0.86**
Mean	**0.85**	**0.77**	**0.76**
S.D.	**0.09**	**0.11**	**0.07**

Table 1 is showing the current ratio of BPCL, HPCL, and IOCL during the study period. The current ratio is showing fluctuating trend during the study period. The standard Deviation is highest for HPCL 0.11, followed by BPCL 0.09 and IOCL 0.07. The mean highest BPCL is 0.85 followed by HPCL is 0.77 and IOCL at 0.76. The ratio of BPCL ratio varied between 0.72 to 0.92, the HPCL ratio varied between 0.66 to 0.95, and the IOCL ratio varied between 0.68 to 0.86. It is less than 2:1 in all the three petroleum companies selected for the study. So, the researcher can conclude that the liquidity position of all three petroleum refineries is not up to the mark. They must maintain a higher level of liquidity.

Table 2 ANOVA of Current Ratio

ANOVA						
Source of Variation	***SS***	***df***	***MS***	***F***	***P-value***	***F crit***
Between Groups	0.021197	2	0.010598	1.300806	0.308093	3.885294
Within Groups	0.09777	12	0.008147			
Total	0.118966	14				

The above Table 2 shows the result of the ANOVA test. Consider the ANOVA testing identifying that the F-value is 1.300806 with a p-value of 0.308093. As the p-value is more than 0.05, the null hypothesis is accepted at a 5% level of significance, hence the calculated value is less than the table value of the f-ratio. So, the null hypothesis is accepted and the alternate hypothesis is not accepted.

Here, the researcher concluded that there is no significant difference in the current ratio between selected petroleum refineries.

2. QUICK RATIO

It is typically used to assess a company's capacity to repay short-term debt. The acid test ratio, quick ratio, and liquid ratio are all other names for it. This ratio shows how much cash is available to pay very short-term or immediate bills. This ratio only considers current liabilities and liquid assets. The company should always have an equal amount of liquid funds available for every rupee of current liability, which is known as an ideal quick ratio. A company's liquidity position is considered contingent if its liquid ratio falls below 1:1. In general, a company's liquid position improves when its liquid ratio is higher, and the company is better able to quickly meet current claims.

Table 3 Quick Ratio of the Selected Petroleum Refineries under Study from 2016-17 to 2020-21

	QUICK RATIO		
YEARS	**BPCL**	**HPCL**	**IOCL**
2016-17	0.35	0.42	0.27
2017-18	0.39	0.39	0.25
2018-19	0.49	0.40	0.33
2019-20	0.35	0.32	0.27
2020-21	0.44	0.25	0.20
Minimum	**0.35**	**0.25**	**0.20**
Maximum	**0.49**	**0.42**	**0.33**
Mean	**0.41**	**0.36**	**0.26**
S.D.	**0.06**	**0.07**	**0.05**

Table 3 is showing the quick ratio of BPCL, HPCL, and IOCL during the study period. The quick ratio is showing a shifting g trend during the study period. The standard Deviation is highest for HPCL 0.07, followed by BPCL 0.06 and IOCL 0.05. The mean highest BPCL is 0.41 followed by HPCL is 0.36 and IOCL at 0.26. The ratio of BPCL ratio varied between 0.35 to 0.49, the HPCL ratio varied between 0.25 to 0.42, and the IOCL ratio varied between 0.20 to 0.33. It is less than 1:1 in all the three petroleum companies

selected for the study. So, the researcher can conclude that the liquidity position of all three petroleum refineries is not up to the mark. They must maintain a higher level of liquidity.

Table 4 ANOVA of Quick Ratio

ANOVA						
Source of Variation	***SS***	***df***	***MS***	***F***	***P-value***	***F crit***
Between Groups	0.050841	2	0.02542	7.22015	0.00874	3.885294
Within Groups	0.042249	12	0.003521			
Total	0.09309	14				

The above Table 4 shows the result of the ANOVA test. Consider the ANOVA testing identifying that the F-value is 7.22015 with a p-value of 0.00874. As the p-value is lesser than 0.05, the null hypothesis is not accepted at a 5% level of significance, hence the calculated value is less than the table value of the f-ratio. So, the null hypothesis is not accepted and the alternate hypothesis is accepted.

Here, the researcher concluded that there is no significant difference in the quick ratio between selected petroleum refineries.

3. CASH RATIO

A company's liquidity is measured by its cash ratio, which is the ratio of its total assets and cash equivalents to its current liabilities. The metric looks at a company's ability to pay back its short-term debt with cash or resources that are close to cash, like easily marketable securities. When investors decide how much money they are willing to lend a company, if any, this information is helpful.

Table 5 Cash Ratio of the Selected Petroleum Refineries under Study from 2016-17 to 2020-21

	CASH RATIO		
YEARS	**BPCL**	**HPCL**	**IOCL**
2016-17	0.29	0.22	0.09
2017-18	0.15	0.11	0.05
2018-19	0.14	0.13	0.06
2019-20	0.11	0.09	0.06
2020-21	0.11	0.10	0.07
Minimum	**0.11**	**0.09**	**0.05**
Maximum	**0.29**	**0.22**	**0.09**
Mean	**0.16**	**0.13**	**0.07**
S.D.	**0.08**	**0.05**	**0.01**

Table 5 is showing the cash ratio of BPCL, HPCL, and IOCL during the study period. The cash ratio is showing changing trend during the study period. The standard Deviation is highest for BPCL 0.08, followed by HPCL 0.05 and IOCL 0.01. The mean highest BPCL is 0.16 followed by HPCL is 0.13 and IOCL at 0.07. The ratio of BPCL ratio diverse between 0.11 to 0.29, the HPCL ratio varied between 0.09 to 0.22, and the

IOCL ratio speckled between 0.05 to 0.09. So, the researcher can conclude that the liquidity position of all three petroleum refineries is not up to the mark. They must maintain an advanced level of liquidity.

Table 6 ANOVA of Quick Ratio

ANOVA						
Source of Variation	***SS***	***df***	***MS***	***F***	***P-value***	***F crit***
Between Groups	0.023488	2	0.011744	3.896823	0.049652	3.885294
Within Groups	0.036164	12	0.003014			
Total	0.059652	14				

The above Table 6 shows the result of the ANOVA test. Consider the ANOVA testing identifying that the F-value is 3.896823 with a p-value of 0.049652. As the p-value is lower than 0.05, the null hypothesis is not accepted at a 5% level of significance, hence the calculated value is less than the table value of the f-ratio. So, the null hypothesis is not accepted and the alternate hypothesis is accepted.

Here, the researcher concluded that there is no significant difference in the cash ratio between selected petroleum refineries.

CONCLUSION AND SUGGESTIONS:

The study period was difficult for both the Indian economy and the petroleum sector. At both the national and international levels, the economy was in a state of depression. It was exceedingly difficult for all firms to operate efficiently during this trying time. The goal of the study was to evaluate the three petroleum companies, IOCL, BPCL, and HPCL, in terms of their liquidity situation. The time frame of five years, from 2016–17 to 2020–21, had been selected. To get accurate and de-duplicated findings of the liquidity positions of all three sample organizations, the liquidity ratio analysis, statistical techniques mean, standard deviation, and ANOVA test have been employed. Data variation is quantified by standard deviation. The fluctuation would be greater the larger the standard deviation, and the results would be more consistent the smaller the deviation. The ratio study makes clear that the current, quick, and cash ratios of these three petroleum refineries are below their optimum ratios, which indicates that their liquidity situation is subpar, or that there is a lack of working capital. Conclusion: Of the three businesses chosen for this analysis, IOCL's liquidity condition was somewhat better. To enhance their liquidity positions, it is advised that refineries boost their investment in current assets, working capital, etc.

According to the analysis of the study, BPCL's turnover ratio is the highest, except for average collection time, creditors turnover ratio, and net working capital turnover ratio. This indicates that BPCL can effectively manage current assets, utilize current assets effectively, generate higher levels of profits, generate more sales, and swiftly convert cash into investments. Therefore, it is advised that businesses strengthen their liquidity situations by giving creditors cushions, giving creditors an acceptable margin of safety, maximizing resource utilization, lowering production costs by fairways, and increasing short-term investments. All these procedures should be handled very carefully, especially in the case of IOCL since it has the lowest ratios, indicating that the firm did not effectively employ existing assets.

The ANOVA test is used to show clear variations in liquidity management methods across the research period within or among the sample firms. We can say that sample firms manage their liquidity situation in a very different way depending on their comfort after analyzing the test and finding that there are considerable disparities in liquidity management strategies (among or within enterprises).

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