Linkage between Corporate Liquidity and Profitability - An Empirical Analysis

DR.A.VIJAYAKUMAR, P.TAMIZHSELVAN

It is stressed on inverse relationship between liquidity and profitability. This is not forever, rather up to a certain level of liquidity, this theory holds good; beyond that level decline in liquidity will cause decline in profitability. Hence, it is felt that there is a need to study the impact of liquidity in profit generating process. The study concluded that no established relationship between liquidity and profitability exists for selected companies in the Private Sector Sugar Industry operated in South India.
Key Words: Liquidity and Profitability

Introduction

Liquidity and profitability are two important aspects of corporate business life. Liquidity measures the ability of a company to honour all the maturing obligations. No firm can endure without liquidity. Profitability is the rate of return on company's investment. An unwarranted high investment in current assets would reduce this rate of return. Working capital management has thus, because a basic and broad aspect of adjudicating the performance of a corporate entity. It is, therefore, essential to maintain an adequate degree of liquidity for smooth running of the business operations. The liquidity should be neither excessive nor inadequate. Excessive liquidity indicates accumulation of idle funds which do not earn any profit for the firm and inadequate liquidity not only adversely affects the credit worthiness of the firm but also disrupts the production process and impedes its earning capacity to great extent.

Conventionally, almost all the textbooks pertaining to the financial management and working capital management apparently stress on inverse relationship between liquidity and profitability. The most common measure of liquidity is current ratio and of profitability is return on capital employed. A high current ratio indicates a larger investment in current assets which means a low rate of return on investment for the firm, as excess investment in current asset will not gross enough return. A low current ratio indicates a smaller investment in current assets which means a high rate of return on investment for the firm, as no idle investment is tied up in current assets. However, a low current ratio could also mean interrupted production and sales, because of frequent stock out and inability to pay to creditors in time due to restrictive policy.

Thus, it can be said that the inverse relationship between profitability and liquidity is not forever, rather up to a certain level of liquidity, this theory holds good; beyond that level decline in liquidity will cause decline in profitability. A very poor liquidity position in a firm shall create problems in smooth running of business, thereby obstructing the course of business and causing a decline in profitability. Hence, one should strike a balance between liquidity and profitability. It is felt that there is a need to study the impact of liquidity in profit generating process.

Therefore, in this article an effort has also been made

*Associate Professor in Commerce, Erode Arts and Science College, Erode
**Ph.D Research Scholar, Department of Commerce, Erode Arts and Science College, Erode.

to make an empirical study of South Indian private sector Sugar Industry for assessing the impact of liquidity on profitability during the period of study. The impact of liquidity on profitability has been examined by computing co-efficient of correlation and regression analysis of liquidity ratio and profitability ratio. The objective of this attempt is to measure the extent of relationship between liquidity and profitability by using simple correlation co-efficient and also to test the significance of such correlation co-efficient. Further, to study the impact of liquidity on profitability, regression analysis was done individually for all the companies under study.

Review of Literature

The review of the earlier studies relating to the liquidity and profitability are presented in this section

Authors	Objectives	Time period/ Sample size/ Country	Variables studied	Statistical techniques	Important findings
Vijayakumar et. al. (1994)	To study the working capital and its impact on profitability	National co-operative Sugar Mills Ltd, Tamilnadu.	Working capital, profitability and financial position.	Regression	Impact of working capital on profitability showed a mixed trend indicating both positive and negative trends.
Vijayakumar and Venkatachalam (1995)	To study the impact of working capital on profitability in sugar industry of Tamil Nadu	1982 – 83 to 1991 – 92 13 companies	Working capital and profitability ratios	Simple correlation and multiple regression	Liquid ratio, inventory turnover ratio, receivables turnover ratio and cash turnover ratio had influenced the profitability of sugar industry in Tamil Nadu
Vijayakumar (1996)	Assessment of corporate liquidity-A discriminant analysis	28 sugar factories	Growth rate of sales, leverage, current ratio and operating expenses.	Discriminant analysis	According o the 'Z' scores the cost are ranked in the order of liquidity
Amit K. Mallick and Debasish Sur (1999)	To study the working capital and profitability relationship	1987 to 1996 Hindustan Lever Limited	Working capital current ratio, quick ratio, Current assets to total assets inventory turnover and debtors turnover ratio	correlation, rank correlation, Multiple correlation, t test and Chi-Square	The working capital of the company was significantly associated with its sales. There was a very high degree of positive relationship between liquidity and profitability

Dabasish Sur, et.al. (2001)	The study of liquidity management in Indian private sector enterprises	1989-90 to 1996-97	Liquidity and profitability	Correlation	Overall performance regarding liquidity management at INDAL was better. HINDAL Co was unable to do so. Positive correlation was noticed between liquidity and profitability in both companies.
Yucel, et.al. (2002)	To study the relationship of cash conversion cycle with profitability, liquidity and debt structure.		Liquidity ratios, cash conversion cycle and debt equity ratio	Regression	Cash conversion cycle was positively related to liquidity ratios and negatively related to return on assets and return on equity. No significant relationship between cash conversion ratio and period was noticed but different on the basis of sector and firm size.
Sathyanarayana Chary and Venkateshwarlu (2003)	To study the impact of working capital on profitability	1996-97 to 2001-02 Sri Venkata Narasimha Solvent Oils Limited	Working capital and profitability ratios.	Regression	Impact of the working capital and profitability ratios showed completely positive impact.
Santony Kumar Ghosh and Santi Gopal Maji (2003)	To study the utilization of current assets and operating profitability	1992-1993 to 2001-02 Cement and Tea Industries	Current assets and profitability	Regression	The degree of current assets was positively associated with profitability of the firm.
Narware (2004)	To study the impact of working capital on profitability	1991 to 2000 National Fertilizer Limited	Working capital, profitability and return on investment	Regression	Working capital and profitability had both the negative and positive association

Sanjay J. Bhayani (2004)	To study the impact of working capital on profitability	1993– 94 to 2002-03 Gujarat Ambuja Cements Limited	Working capital leverage and profitability	Regression	There may be a negative relationship between working capital and profitability
Eljelly (2004)	To study the relationship between liquidity and profitability	Saudi Arabia	Current ratio, liquidity and profitability	Correlation and Regression	The cash conversion cycle was of more importance as a measure of liquidity than the current ratio that affects profitability
Bardia (2004)	To study the relationship between liquidity and profitability	1991-92 to 2001-02 SAIL, India	Profitability and liquidity	Regression and Correlation	There was a positive relationship between liquidity and profitability
Amit K. Mallick, et.al. (2005)	To study the relationship between working capital and profitability	1990-91 to 2001-02 Indian Pharmaceutical Industry	Working capital, liquidity, Profitability and Inventory management	Regression	The joint influences of the liquidity, inventory management and credit management on the profitability were very significant in the selected companies for the study.
Santimoy Patra (2005)	To study the impact of liquidity on profitability	1990-91 to 1999- 2000 TISCO Ltd	Liquidity ratios, profitability and ROI	Correlation and regression	The impact of liquidity ratios on profitability showed both negative and positive association. Profitability of the company was influenced by its liquidity
Shanmugam (2006)	To study the relationship between liquidity and profitability	1991-2000	Liquidity, profitability, Sales and working capital	Correlation and Regression	The inter relationship between sales and working capital accounts are found to be

					found to be significant for the industry aggregate data and profitability was associated with the liquidity
Ioannis Lazaridis, Dimitrios Tryfonidis (2006)	To study the relationship of corporate profitability and working capital management	2001-2004 131 companies	Profitability and cash conversion cycle	Regression	There was a statistical significant between profitability through gross operating profit and cash conversion cycle.
Abdul Raheman and Mohamed Nasr (2007)	To study the working capital management and profitability	1999-2004 94 Firms Pakistan	Profitability and working capital	Correlation and Regression	There was a positive relationship between size of the firm and its profitability. There was also a significant negative relationship between debt used by the firm and its profitability
Sam Luther (2007)	To study the relationship between liquidity, risk and profitability	1997-98 to 2004-05 Madras Cements Ltd. (MCL)	Working capital ratios and profitability ratios	Correlation	The high degree of aggressive policy adopted by MCL made negative impact on its profitability
Adolphus J. Toby (2008)	To study the liquidity performance relationship	1990-2002 87 quoted manufacturing company, Nigeria	Profitability, efficiency and leverage	Multiple regression models	Statistically significant relationship between liquidity and profitability efficiency
Koushik Chakraborthy (2008)	To study the relationship between working capital and profitability	1996-97 to 2007-08 25 Indian pharmaceutical ndustries	Working capital and Profitability	Regression	No definite relationship between liquidity and profitability. Higher liquidity position was associated with higher profitability

Sample Design

Keeping in view of the scope of the study, the private sector sugar companies operated in South India (in the state of Tamilnadu, Kerala, Karnataka, Andhra Pradhesh, Maharashtra and Union Territories viz., Pondicherry and Goa) were considered for the study. It is decided to include all the companies working under private sector in the South India working before or from the year 1991-92. But owing to several constraints such as non-availability of financial statements or non-working of the company in particular year etc., it is compelled to restrict the number of sample companies to fifteen. Therefore, this study is exposed facto-based on survey method making a survey of 15 private sector sugar companies operated in South India.

There are 324 sugar companies operating in the South India. Out of which seven companies are under public sector, 95 under private sector and 222 companies under co-operative sector. Since majority of the companies under public sector and co-operative sector were in-operative and sick and also due to non-availability of data, it is decided to include only private sector sugar companies in the sample. The Capitaline and CMIE database published key financial data of Indian corporate sector systematically. Hence Capitaline and CMIE databases proved to be complimentary to finalize the sample for the study. The exhaustive list of private sector sugar companies from Capitaline is cross checked with CMIE database to short out companies to make up the sample for the study. The comprehensive list of companies prepared from the database was modified by deleting the firms -

- Which were not in operation for any year during the period under study.
- which were in operation but for which financial data were not available for any of the 15-year period under study.
- which were described as sick unit for any year during the period under study.

For the purpose of the study the selected sugar companies were classified as large-sized, medium-sized and small-sized companies based on crushing capacity. The companies having a crushing capacity of 5000 MT (per day) or more have been considered as large-sized, 2501 to 5000 MT (per day) as medium-sized and up to 2500 MT (per day) as small-sized sugar companies. Out of the 95 private sector sugar companies operated in south India, only for 30 companies data are available in the databases. Out of 30 companies, only 15 companies have been included in the study because financial statements for the last 15 continuous years could be obtained for these companies only. The period 1995-96 to 2008-09 is selected for this study of South Indian private sector Sugar Industry. This 14-year period is chosen in order to have a fairly long, cyclically well balanced period, for which reasonably homogeneous, reliable and up-to-date financial data would be available.

Source of Data

The study is mainly based on secondary data. The data analysed and interpreted in this study related to all those companies selected are collected from "Capitaline" and "PROWESS" databases, which are the most reliable on the empowered corporate database of Bombay Stock Exchange and Centre for Monitoring Indian Economy (CMIE) respectively. Beside Capitaline and PROWESS databases, relevant secondary data have also been collected from BSE Stock Exchange Official Directory, CMIE Publications, Annual Survey of Industry, Business newspapers, Reports on Currency and Finance, Libraries of various Research Institutions, through Internet etc.

Liquidity and Profitability - Empirical result

The correlations co-efficient of current ratio and return on capital employed ratios of fifteen companies under study are mentioned in Table 1. It is evident from the result that there was a positive correlation between profitability and liquidity in the South Indian private sector Sugar Industry during the study period. The correlation co-efficient between current ratio and return on capital employed is 0.634 and it is statistically significant at 5 per cent level. Similarly, the correlation co-efficient of large-sized industry and small-sized industry have shown positive correlation between profitability and liquidity and its statistical significance is one per cent and five per cent respectively. Further, the medium-sized sugar industry also showed positive correlation between profitability and liquidity but it was not statistically significant.

Among the large-sized industry group, however, five companies depicted negative correlation between current ratio and return on capital employed. These companies are Bannari Amman Sugars Ltd, EID Parry Ltd, Jeypore Sugars & Chemicals Ltd, Sakthi Sugars Ltd and Ugar Sugar Works Ltd. The two companies' viz., Rajshree Sugars & Chemicals Ltd and Thiru Arooran Sugars Ltd showed positive correlation co-efficient between their liquidity and profitability. Among the medium-sized industry, out of four companies two companies viz., Sri Chamundeswari Sugars Ltd and Sri Sarvaraya Sugars Ltd showed negative correlation co-efficient between current ratio and return on capital employed. However, the two companies' viz., Kothari Sugars & Chemicals Ltd and Kakatiya Cements Sugar & Industries Ltd showed positive correlation co-efficient between their liquidity and profitability. Among the four companies under small-sized groups except Ponni Sugars Ltd, the remaining three companies' viz., Dharani Sugars & Chemicals Ltd, Empee Sugars & Chemicals Ltd and India Sugars and Refineries Ltd showed positive correlation co-efficient between their liquidity and profitability. Except Jeypore Sugars & Chemicals Ltd and Kakatiya Cements Sugar & Companies Ltd none of the industry's correlation co-efficient was found to be statistically significant.

The correlation analysis between liquidity and profitability position of the fifteen companies under study indicated a mix of positive and negative correlation co-efficient. However, eight out of fifteen companies revealed negative correlation and seven out of fifteen companies' depicted positive correlation. However, only two companies (Jeypore Sugars & Chemicals Ltd and Kakatiya Cements Sugar & Companies Ltd) out of fifteen companies depicted significant correlation.

Liquidity and profitability - Regression analysis

For performing regression analysis current ratio has been taken as independent variable and return on capital employed as dependent variable. The simple regression has been performed to assess the effect of current ratio on return on capital employed. In this regard the following research hypothesis is tested.

H0 - There is a significantly negative relationship between liquidity and profitability of South Indian private sector Sugar Industry.

The regression equation to be estimated is:

$$\mathbf{ROCE = a + bCR + e}$$

Where,

ROCE stands for Return on Capital Employed
'a' denotes intercept of regression equation
'b' denotes co-efficient of independent variable
'CR' stands for current ratio
'e' denotes error term

In Table 1 regression co-efficient for fifteen companies under study are given along with their co-efficient of determination (R2). The analysis of data in the Table 1 indicates that there was a positive relationship between liquidity and profitability in the selected South Indian private sector Sugar Industry. The regression equation of selected South Indian private sector Sugar Industry as a whole indicates that an increase of one per cent in current ratio will cause an increase of 24.68 per cent in return on capital employed. Similarly, large-sized industry and small-sized industry showed positive and statistically significant relationship between liquidity and profitability at one per cent and five per cent level respectively.

Out of fifteen companies, eight companies indicate negative relationships between liquidity and profitability. However, out of the eight industry only one industry viz., Jeypore Sugars & Chemicals Ltd's co-efficient was found to be statistically significant at 10 per cent level. The remaining companies showed positive relationship between liquidity and profitability. Of these seven companies, none of the companies' co-efficient depicted statistically significant relationship between liquidity and profitability. Generally, the theories have revealed that there is inverse relationship between liquidity and profitability. But, on the whole, it may be concluded that no established relationship between liquidity and profitability exists for this industry: the various forms of the companies depicted different type of relationship (both negative and positive) between liquidity and profitability during the study period.

Conclusion

The relationship between liquidity and profitability has been examined through correlation and regression analysis. It is evident from the results that there is positive correlation between profitability and liquidity in all the three sectors and whole industry during the study period. But, the correlation analysis between liquidity and profitability position of the fifteen companies under study indicated a mix of positive and negative correlation. Eight out of fifteen companies reveal negative correlation and the remaining companies' depicted positive correlation. The regression analysis also showed that there is a positive relationship between liquidity and profitability in all the three sectors and whole industry.

References

Vijayakumar, A, Sivasubramanian, K. and Venkatachalam, A. (1994). "Working finance in National Co- operative Sugar Mills Ltd,Tamilnadu- A case study", Management and Labour studies , 19(2), pp. 132-143.

Vijayakumar, A. and Venkatachalam, A. (1995). "Working capital profitability-An Empirical Analysis", The Management Accountant. Vol. 15, pp. 748-750.

Vijayakumar, A. (1996). "Assessment of Corporate Liquidity-A Discriminant Analysis approach", The Management Accountant, 31(8), pp. 589-591.

Amit K. Mallick and Debasish Sur (1999). "Working capital management: A case study of Hindustan Level Ltd", Finance India, XIII (3), pp. 857-871.

Debasish Sur, Joydeep Biswas and Prasenjit Ganguly (2001). "Liquidity Management in Indian Private Sector Enterprises- A case study of Indian Primary Aluminium Industry", Indian Journal of Accounting, Vol. XXXII, pp. 8-14.

Yucel, Tulay, Kurt and Guluzar (2002). "Cash conversion cycle, cash management and profitability : An empirical study on the ISE traded companies", Istambul Stock exchange review, 6(2), pp. 1-15.

Sathyanarayana Chary and Venkateshwarlu (2003). "Working capital analysis: A cash study of Sri Venkata Narasimha Solvent Oils Ltd", Udyog Pragati, 27 (3), pp. 38-50.

Santany Kumar Ghosh and Santi Gopal Maji (2003). "Utilization of current assets and operating profitability: An Empirical study on Cement and Tea industries in India", Indian Journal of Accounting, Vol. XXXIV, pp. 52-60.

Narware, P.C. (2004). "Working capital and profitability- An empirical analysis", The Management Accountant, pp. 491-495.

Sanjay J. Bhayani (2004). "Working capital and profitability relationship", SCMS Journal of Indian Management, 1(2), pp. 98-107.

Eljelly, A. (2004). "Liquidity-Profitability Trade off: An empirical investigation in an emerging market", International Journal of Commerce and Management, 14(2), pp. 48-61.

Bardia, S.C. (2004). "Liquidity Management: A case study of Steel Authority of India Ltd", The Management Accountant, pp. 463-67.

Amit K. Mallick, Debasish Sur and Debdas Rakshit (2005). "Working capital and profitability, A study on their relationship with reference to selected companies in Indian Pharmaceutical Industry", GITAM Journal of Management, 3(2), pp. 51-62.

Santimoy Patra (2005). "Liquidity Vs profitability", Indian Journal of Accounting, XXXV(2), pp. 39-43.

Shanmugam, R. (2006). "Liquidity - Profitability interrelationship- A sectoral analysis", Udyog Pragati, pp. 38-43.

Ioannis Lazaridis and Dimitrios Tryfonidis (2006). "Relationship between working capital management and profitability of listed companies in the Athens Stock Exchange", Journal of Financial Management and Analysis, 19(1), pp 263-270.

Abdul Raheman and Mohamad Nasr (2007). "Working Capital Management and profitability in case of Pakistani firms", International Review of Business Research papars, 3(1), pp. 1016-1028.

Sam Luther, C.T. (2007). "Liquidity, Risk and Profitability analysis - A case study of Madras Cements Ltd.," The Management Accountant, 42(10), pp.784-789.

Adolphus J. Toby (2008). "Liquidity performance relationship in Nigerian manufacturing companies", Finance India, Indian Institute of Finance. Vol. XXII. pp. 117-131.

Koushik Chakraborthy, G. (2008). "Working capital and profitability. An Empirical analysis of their relationship with reference to selected companies in the Indian Pharmaceutical Industry", The ICFAI University Press, pp. 41-59.