Impact of Liquidity Management on Profitability of Pakistani Firms: A Case of KSE-100 Index

Rizwan Ismail

Department of Business and Management Sciences,
Mirpur University of Science and Technology (MUST),
P.O. Box: 10250, Mirpur AJK, Pakistan

ABSTRACT: The global financial crisis of 2007-08 has reverted the mounting importance of liquidity and profitability as a key concern in today's competitive business environment to generate funds internally. This study has examined the impact of the liquidity management on the performance of the 64 Pakistani non-financial companies constituting Karachi Stock Exchange (KSE) 100 Index for the period of 2006-2011. To derive the results of the study; descriptive statistical analysis, correlation analysis and multivariate regression tools of analysis were applied. According to the results of analyses, it is found that liquidity variables current ratio and the cash conversion cycle have significant positive impact on profitability (ROA). Further, results indicate that high current ratio and longer cash conversion cycle lead firms towards better performance. This study suggested firms to relax their credit sales policies, and devise inventory & collection turnover system in a wise manner to be more accessible to a large number of customers.

KEYWORDS: Liquidity, Profitability, Karachi Stock Exchange (KSE) 100 Index.

1   INTRODUCTION

The global financial crisis has changed the environment of capital market. This changed environment has made it difficult to easily achieve the required level of funds from the capital market; those are most suitable to absorb the losses of firms as a going concern or to meet obligations. The incapability of banks to raise fresh capital from capital market indicates the persistent need to focus on liquid assets and internally generated funds (Culp & Lexecon, 2009). Liquidity is the ability of cash, cash equivalent and other current assets to respond the current obligations of the business. Zygmunt (2013) said that liquidity is pivotal for survival of the business because of its influence on the sales dynamics, financial growth and level of risks. Strong liquidity helps small firms to generate funds internally and the large firms avoid insolvency (Padachi, 2006). Priya and Nimalathasan (2013) emphasized the planning and controlling of current assets and current liabilities in such a manner that reduces the danger of default and chances of excessive investment in the current assets. The marginal benefits of liquidity become less and disturbs the operations of the business when firms hold excessive cash amounts (Uremadu, Egbide & Enyi, 2012). Only an optimal level of cash holding is useful and worth much. An optimal level means the proficiency of the firm to utilize the additional current assets to generate profits without disturbing the ability to respond future needs (Ajao & Small, 2012).

Bolek and Wolski (2012) argued that the liquidity management policy of business is affected by long-term decision-making process. Receivables, inventories, and payables management sections may not make synchronized decisions about their policies that will eventually influence liquidity of the business. Further, the liquidity management policy varies with the varying nature of businesses, sizes, policies and legal systems of the countries. However, an efficient liquidity management policy ensures a level of current assets that certainly pay short-term liabilities without weakening the profitability (Manyo and Ogakwul, 2013).

Corresponding Author: Rizwan Ismail

Management of liquidity is not as simple as it seems. It involves different important aspects that require to minutely consider the costs and benefits. There are some theories emphasize the evaluation of the costs and benefits of different liquidity levels. Trade-off theory advocates that firms' management emphasis favorable liquidity level to balance the costs and benefits of cash holdings. The cost of cash holdings is the low yield of these liquid assets because of liquidity premium and tax disadvantages (Ajao & Small, 2012). Businesses must keep liquidity risk premium in consideration to secure a competitive position in market while using external resources to maintain liquid assets. Frank and Goyal (2005) stated that in all the theories of trade-off, there is an evaluation of the cost and benefits of alternative capital structure plans. The notion of cost and benefit raises the importance of funds have least cost, reasonable benefits and readily available; the liquid assets. Ferreira and Vilela (2004) reported that the pecking order and trade-off theories guide the cash holding decisions of the firm. The cash holding approach shrinks the chances of financial problems; reduces the cost of external financing and permits to formulate an investment plan by meeting financial limitations. Further, cash holdings help to respond different opportunities without entirely depending capital (Abushammala & Sulaiman, 2014).

The pecking order theory describes the need of cash holdings to enhance performance. This theory was presented by Myers and Majluf (1984) that helps to understand the importance of internally maintained liquid assets. Theory holds the concept that firm prefers finance sources in order of the easiest to obtain first. According to the theory, firms first prefer retained earnings (available liquid assets) as a source of finance for investments, next the debt, and finally the equity financing (Copeland, Weston & Shastri, 2005). The focus of this theory is on the use of internal resources or least expensive resources of the firm. Servaes and Tufano (2006) said that firms primarily use cash holdings in case, if they sense high requirements of investment and inadequate profits. If this source fails to meet their requirements, then the debt will be, consider as a source of funds for business. There are definite reasons for taking among different financing options and their associated costs. Ross, Westerfield and Jordan (2008) argued that selling securities to raise cash can be expensive, so it gives logic to avoid external financing if possible. If a firm is enough profitable to finance its business needs, then there will be no or less level of external financing.

While management of different extents of business (including liquidity) the focus of all activities spins around the profits. Profit earning is the primary purpose of business, but not the sole one. Businesses should avoid decisions solely centering the profits without considering the other consequences. Profits are generated by the use of available business resources to maximize firm's value. Profit growth depends upon the efficiency of firms to manage the costs, production process and sales (Uchenna, Mary & Okelue). Samuelson and Nordhaus (2010) mentioned two types of profits: accounting profits and economic profits. Accounting profits are the residual earnings excluding implicit costs (opportunity costs) whereas; economic profits are the residual earnings after excluding opportunity and money costs. Profit and profitability are two components to measure performance and operational efficiency of any firm. Rehman (2011) stated in his study that profit is an absolute measure, whereas the profitability is a relative measure of operational efficiency of the firm. Kaur and Silky (2013) stated that profitability shows the efficiency of the management to make profits by using the resources available in the market. Profitability ratios are helpful to gauge management ability to generate earnings from sales, face financial downturn, and withstand the competition (Ajanthan, 2013).

Nimer, Warrad and Omari (2013) reported that owners of the company are attentive to the firm's ability to make, sustain and improve profits. Improvement in profit, results in increased shares' prices. Schumpeter (1947) presented a theory that grasps the concept of innovation as a dynamic force for economic growth and profitability. This theory stated that competitive environment drive firms learn and incorporate innovative methods to do business. McCraw (2007) mentioned some supplement lines to bring the unique and innovative impacts. His study mentioned that the only adaptive reaction is not enough to bring some major impacts; rather adaptability with a sense of creativity will distinguish the firm from the competitors' reaction. Fles (1939) reported in his study that setting up new production facilities, launching new commodities, ownership of new firms such as mergers, and accessing new markets are the activities enclosed under the concept of innovation in a capitalist economy. In this situation profits are the premiums generated by successful innovations in the capitalist economy. Investment in productive activities will reduce the wastages and maximize the profit margins. Schumpeter (1947) argued that adaptive and creative responses make it easy to produce and sell goods at cheap prices. This is possible only through innovation in tools, commodity and expertise. Basically, all the discussion of the theory emphasizes the same thought that how to manage resources among innovative ideas, tools and equipment to earn high profits. Both liquidity and profitability have same importance and vital role to smoothly run business without compromising opportunities.

Priya and Nimalathasan (2013) cited a negative relationship between liquidity and profitability. This negative relationship requires sensible management and a balance between these two most important strategic areas (Makori & Jagongo, 2013). Egbide, Uwuigbe and Uwalomwa (2013) reported that the excessive level of current assets in case of stable market risk results an ineffective utilization of resources and ultimately disturb profitability. Continuing the tradeoff Bolek and Wolski (2012) mentioned a positive relationship between liquidity and profitability up to a limit, but after that, it will become

negative and any increase in liquidity may lead to insolvency. It holds the same concept as discussed in cost-benefit theory that unnecessarily investment in cash holdings will diminish marginal benefits.

The concepts of liquidity and profitability have several variables. These variables extend their services to identify the current management situation and suggest remedies to overcome weaknesses. Liquidity variables, current ratio indicate a firm's aptitude to meet its current liabilities with its current assets and the quick ratio emphasizes on the ability of quick assets (current assets less inventories and prepayments) to pay current liabilities (Horne & Wachowicz, 2008). Whereas the cash ratio is the instant and readily liquidness of a firm in order to pay its current debts. Reasonably, cash ratio is a helpful liquidity measurement indicator where the inventories and receivables are naturally slow moving (Gibson, 2010). Cash cycle reveals a management perspective in making financial and operating decisions. It tells the time duration of cash realization from operations. Whereas profitability variable return on assets measures the efficiency of the firm to generate profits by utilizing assets (Horne & Wachowicz, 2008). It indicates either assets are in proper utilization or not.

1.1 PURPOSE OF STUDY

The purpose of this study is to analyze the impact of liquidity management on the performance of firms. The liquidity position of business is essential for day-to-day operations and survival of any business in today's competitive business environment to generate funds internally. Strong liquidity position helps firms to pay its current obligations without compromising profitability. It reduces short term as well as current obligations of long-term debts. It also helps to better utilize all available resources and generate profits (performance) without any risk.

1.2 RESEARCH QUESTION

- What is the impact of liquidity management on the performance of the Pakistani Companies?

1.3 OBJECTIVES

The main objective of this study is:

- To check the impact of liquidity management on the performance of the Pakistani Companies.

1.4 SIGNIFICANCE OF STUDY

The nature of the relationship exists between liquidity and performance may vary from sector to sector, but the existence of a relationship cannot be ignored. Managerial perspective is very important for better profitability and efficient management of liquidity. The favorable liquidity and performance growth are helpful indicators to drive stakeholders' behaviors (Manyo & Ogakwu, 2013). A diminishing movement of profitability indicates a poor strategy of the liquidity management. This study will attempt to identify the nature of the relationship between liquidity and profitability variables. This identification will help to carefully devise trade policies. Further, this study will help management to know the most important factors to be in focus minutely to make sound decisions for better management of liquidity and profitability matters.

2 LITERATURE REVIEW

Previously, many research studies conducted to discover the nature of the relationship between liquidity and profitability. All the studies in this area were completed with some similarities and differences to fill the research gaps. However, the nature of the relationship between liquidity and profitability yet need to be resolved, as contrary results exist. The importance of this study is more worthy in the developing countries of the world where the overall business environment is more uncertain.

Tradeoff and pecking order theories center the importance of the thought of liquid assets. Tradeoff advocates an inverse relationship between liquidity and profitability that center the cost and benefit of every decision. Whereas, pecking order advocate the positive relationship between liquid assets and performance. Priya and Nimalathasan (2013) studied ten Sri-Lankan manufacturing companies listed on Colombo Stock exchange (CSE) and Zygmunt (2013) studied Polish IT companies continuously listed on Warsaw Stock Exchange. The aim of the investigations was to find out the impact of the liquidity on the profitability. Both studies indicated that there is a negative relationship between liquidity and profitability. Zainudin (2006) researched small and medium manufacturing enterprises of Malaysia to explore the correlation between liquidity and

profitability. For this purpose, study has investigated 145 small and medium enterprises for the period of 1999-2003. The study founded a positive relationship between liquidity (CRR) and profitability (ROA).

Ahmed (2013); Ajanthan (2013); Alavinasab and Davoudi (2013); Bolek (2013); Manyo and Ogakwu (2013); Ajao and Small (2012); Azam and Haider (2011); Haq, Sohail, Zaman and Alam (2011); and Rahman (2011) in their studies examined the influence of liquidity on return on assets. The results of studies revealed a significant positive relationship between current ratio and return on assets. Results of study inferred that companies with strong liquidity ratios tend to face lower risk and better performance. The revealed nature of the relationship is contrary to trade-off relationship between liquidity and profitability as both are conflicting goals.

Bhunia, Khan and Mukhuti (2011) observed a mixed impact of liquidity on profitability during the investigation of the top four Steel companies in India. Results showed that current ratio of Tata Steel Ltd is positively associated with profitability, current ratio of Lloyds Steel Ltd is negatively associated with profitability, current ratio of Kalyani Steels Ltd is negatively associated with profitability and the current ratio of JSW Steel Ltd is positively associated with profitability. Kaur and Silky (2013) studied all the companies listed on the National Stock Exchange of India to analyze the impact of working capital management in terms of liquidity management on profitability. The revealed result is consistent with the trade-off theory that there is a negative relationship between current ratio and return on assets. Agha (2014) and Afeef (2011) founded that there is no significant relationship exist between current ratio and profitability (ROA).

Kaur and Silky (2013) and Malik and Ahmed (2013) founded that there is a negative association between quick ratio and return on assets. The study supports the trade-off theory of liquidity and profitability. Any increase in liquidity will cause a diminishing trend in asset utilization capability of the firm. Ajanthan (2013); Egbide et al. (2013); Nimer et al. (2013); Haq et al. (2011) and Rahman (2011) in their studies founded that there is a significant positive relationship between quick ratio and return on assets. Bhunia et al. (2011) reported that the quick ratio of Tata Steel Ltd is negatively associated with profitability, quick ratio of Lloyds Steel Ltd is positively associated with profitability, quick ratio of Kalyani Steels Ltd is negatively associated with profitability and quick ratio of JSW Steel Ltd is negatively associated with profitability.

Ajanthan (2013); Egbide et al. (2013) and Saleem and Rehman (2011) studied the relationship between liquidity and profitability. The studies revealed that there is a positive relationship between cash ratio and profitability. Bhunia et al. (2011) founded that cash ratio of Tata Steel Ltd is positively associated with profitability, cash ratio of Lloyds Steel Ltd is positively associated with profitability, cash ratio of Kalyani Steels Ltd is positively associated with profitability and cash ratio of JSW Steel Ltd is negatively associated with profitability.

Alavinasab and Davoudi (2013); Anser and Malik (2013); Bolek (2013); Egbide et al. (2013); Makori and Jagongo (2013); Manyo (2013); Ajao and Small (2012); Ogundipe, Idowu and Ogundipe (2012); Uremadu et al. (2012); Azam and Haider (2011); Saghir, Hashmi and Hussain (2011); Vijayakumar (2011); Karaduman, Akbas, Ozsozgun and Durer (2010) and Padachi (2006) founded that cash conversion cycle has a negative relationship with return on assets. A short period of cash conversion cycle can increase performance and quickly realize cash to utilize for different productive purposes. In short growth of the payment period, collection period, and inventory period will help to increase profitability of companies.

Zygmunt (2013) reported that increase in the growth of the cash conversion cycle will increase the profitability of Polish IT companies. The study has revealed a positive relationship between ROA and growth of the inventory sale period, collection period & account payables period. Uchenna et al. in his study examined world's top four brewery companies listed on different Stock Exchanges across the world for the period of 2000-2011. The purpose of the study was to explore the effect of different working capital measures on the profitability of companies. The analytical results of the study emphasized the importance of CCC growth to manage working capital as a growth dynamic of profitability.

Afeef (2011) investigated the impact of working capital management on the profitability of the firms. The study covered 40 small and medium enterprises listed on Karachi Stock Exchange over the period of six years from 2003-2008. The study founded an insignificant relationship between cash conversion cycle and ROA. Bagchi, Chakrabart and Roy (2012) studied the influence of working capital variables on the profitability of 10 Fast Moving Consumer Goods companies in India for the period of 2000-01 to 2009-10. The results of Pearson's analysis indicated a negative relationship between cash conversion cycle and return on assets. Whereas contrary to the traditional results, Spearman's correlation coefficient and regression analysis indicated a positive relationship between cash conversion cycle and return on assets.

Results and practical limitations of earlier studies have a vacuum that compels to do more improved, clear, extensive and comprehensive research studies in the same area. This study has tried to fill some gaps observed in earlier studies by sampling KSE-100 Index companies listed on Karachi Stock Exchange.

2.1 HYPOTHESES

After reviewing the literature following hypotheses are developed:

H$_1$: Current Ratio is positively associated with the firm performance.
H$_2$: Quick Ratio is positively associated with the firm performance.
H$_3$: Cash Ratio is positively associated with the firm performance.
H$_4$: Longer cash conversion cycle is negatively associated with the firm performance.

3 METHODOLOGY

The purpose of this study is to analyze the impact of the liquidity management on the performance of the Pakistani Firms constituting KSE 100 Index. Data sources of the study are audited annual reports of companies, and balance sheet analysis (2006-2011) by State Bank of Pakistan. In this study entire population (KSE-100 Index) is sampled for the period from 2006 to 2011. Next consistent with the study of Abushammala and Sulaiman (2014), this study dropped companies with incomplete data and financial companies due to their dissimilar nature. Finally, 64 non-financial companies are considered for the period of investigation 2006-2011. To derive the results of the study; descriptive statistical analysis, correlation analysis and multiple regression; tools of analysis are applied. E-views8 is used for analysis.

Following quantitative model is used for multiple regression analysis.

$$ROA = \beta_0 + \beta_1 CRR + \beta_2 QUR + \beta_3 CR + \beta_4 CCC + U_t$$

Where **ROA** is return on assets, **CRR** is current ratio, **QUR** is quick ratio, **CR** is cash ratio and **CCC** is cash conversion cycle. U_t is the error term. The liquidity (independent) indicators of the study are current ratio, quick ratio, cash ratio, and the cash conversion cycle, whereas profitability (dependent) indicator is return on assets. Table 5 shows the calculations of liquidity and profitability variables.

$$Profitability = f(Liquidity)$$

Profitability = f (Current Ratio, Quick Ratio, Cash Ratio, Cash Conversion Cycle)

Return on Assets = f (Current Ratio, Quick Ratio, Cash Ratio, Cash Conversion Cycle)

The current ratio compares assets that will convert into cash within one year with the obligations due for outflows, in the same period (Wood & Sangster, 2010). Quick ratio shows a firm's ability to meet the current liabilities with its quick (liquid) assets (Horne & Wachowicz, 2008). The cash ratio is the instant and readily liquidity of a firm in order to pay its current debts (Gibson, 2010). Horne and Wachowicz (2008) stated that the cash conversion cycle is the duration of time from the outflow of cash for purchases until the collection of receivables resulting from the sale of goods or services. Return on assets measures the efficiency of the firm to generate profits by assets utilization (*See Table 5*).

3.1 CONCEPTUAL FRAMEWORK
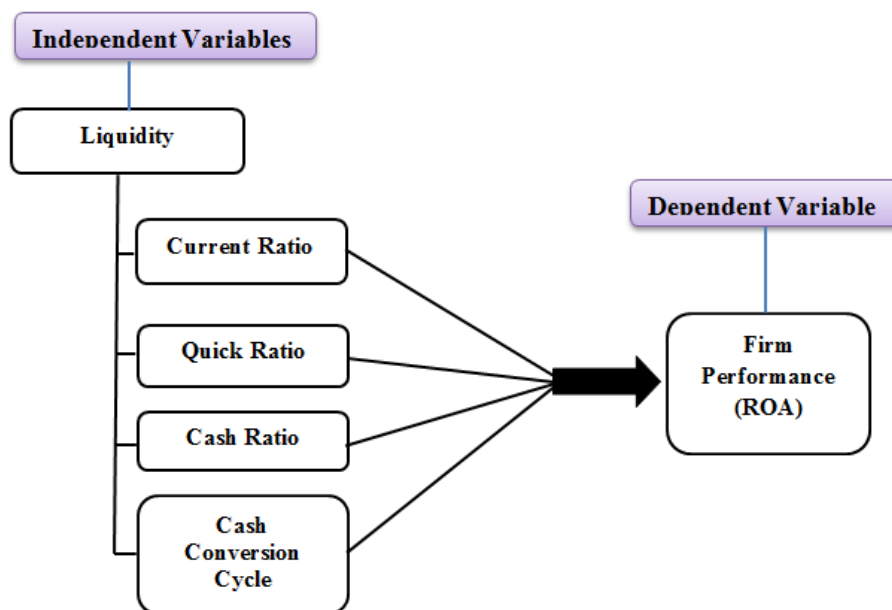
4 RESULTS DISCUSSION

The data of 64 non-financial companies observed in Eviews8 to remove outliers and reach the results. The descriptive analysis shows the maximum 381 days length of the cash cycle that indicate a delayed cash conversion process of some companies. On the other side -6 days of CCC indicate the behavior of some firms to delay the payments and speed up collection of cash from customers. The average days of cash conversion are 56.251 and majority of CCC facts is crowded at a positive side. The mean cash ratio is 0.454 that is short from the ideal cash ratio of 0.50. This mean value tells about the average behavior of sampled firms in maintaining cash reserves to meet their current obligations. The tail of values is representing a tendency towards the positive side as the majority of values lies on the positive side of the mean value. Current and quick ratios mean values indicate that both are below the standard proportion 2:1 and 1:1 respectively. The mean value of return on assets is 8.918 and the majority of the values are clustered at a positive side but close to the mean value. (*See Table 1*).

The correlation result for CCC and ROA 0.128 indicate a weak positive correlation between two variables. For CR, CRR and QUR correlation with ROA lies between 0.30-0.50 indicate a medium positive correlation (*See Table 2*).

The results of regression analysis have been discovered in Table 3. Regression analysis statistically helps to estimate relationship among independent and dependent variables. In this study, ordinary least square (OLS) parametric regression is applied. R square explains 25.50% variation in the dependent variable as a result of changes in independent variables used in this study. F-Stat is 30.869; Durbin-Watson Stat is 2.121 which indicate that there is no problem of autocorrelation in the modeled equation's variables. Probability of F-Stat <0.05 indicates the model good fit. Further, the results of regression analysis show that there is a significant positive relationship exists between cash cycle and return on assets that is contrary to the hypothesis of the study. This result is consistent with the result of the study of Bagchi et al. (2012) based on Spearman's correlation coefficient and regression analysis. The p-value for CCC and ROA relationship is 0.0481 with a coefficient of 0.0180, which is significant. A significant positive relationship between CCC and ROA tells that delayed cash conversion process will result in an increase in sales and profits. The longer cash cycle makes the firm prospective for large number of customers to approach; which in turn increases the volume of revenue generated during the period. Further, it indicates the relaxed policy to receive the debts from customers (*See Table 3*).

Cash ratio and quick ratio indicate insignificant relationship with return on assets. The results indicate that current ratio has a significant positive association with return on assets. The p-value <0.05 with a coefficient of 4.4627 indicates a significant positive relationship between CRR and ROA. This result is consistent with the studies of Ahmed (2013); Bolek (2013); Alavinasab and Davoudi (2013); Ajanthan (2013); Manyo and Ogakwu (2013); Ajao and Small (2012); Azam and Haider (2011); Haq et al. (2011); Rahman (2011) and Zainudin (2006). This regression result supports our hypothetical framework about the relationship between current ratio and return on assets (*See Table 3*).

The significant positive association between CCC and ROA & between CRR and ROA (*See Table 3*) indicates that longer CCC may block cash in the cycle and make it essential for Pakistani firms to maintain more current assets in order to keep smooth day-to-day operations. Longer CCC focus on delayed collections from debtors, but quick payments to the creditors. This measure of quicker payment will give a positive message to business creditors and will ultimately improve firms' credit rating. In this particular scenario, it will not be a difficult task for firms to finance their current assets need by capitalizing retained earnings or external debt source.

From the findings of the analyses, the following results are established regarding hypotheses of the study. H_1 is accepted as the result shows that the current ratio is positively associated with return on assets. Study results rejected the H_2 and H_3 as there is no positive association between quick ratio and ROA, and between cash ratio and ROA. Further, the study has rejected H_4 and found a significant positive relationship between CCC and ROA. This positive relationship is contrary to the established hypothetical relationship (*See Table 4*).

5 CONCLUSION

This study has examined the impact of the liquidity management on the performance of the Pakistani Firms constituting KSE 100 Index. The results of regression analysis have been discovered in Table 3. The regression analysis results indicate that high current ratio and longer CCC lead firms towards better performance in terms of return on assets. The study found that current ratio has a significant positive impact on ROA of the sampled firms. This result is consistent with the studies of Ahmed (2013); Bolek (2013); Alavinasab and Davoudi (2013); Ajanthan (2013); Manyo and Ogakwu (2013); Ajao and Small (2012); Azam and Haider (2011); Haq et al. (2011); Rahman (2011) and Zainudin (2006). Current assets are useful for firms to withstand and survive in a financial distress situation. Additionally, business expansion programs require enough cash assets to maintain day-to-day operations alongside the long-term external financing.

Cash and quick ratios show insignificant association with the performance of sampled firms. Further, the results of a regression show that there is a significant positive relationship exists between cash cycle and return on assets. The result of study is consistent with the study Bagchi et al. (2012) based on Spearman's correlation coefficient and regression analysis. A significant positive relationship between CCC and ROA tells that a longer cash conversion process will result an increase in sales and profits. The longer cash cycle can make the firms approachable for a large number of customers; which can in turn increase the volume of revenue generated during the period. This study suggests sampled firms to relax their credit sales policies, and devise inventory & collection turnover system in a wise manner to be more accessible to a large number of customers. This study also suggests managers to pay business' obligations in a reasonable period to ensure smooth functions and credit benefits. This measure will enhance their performance and revenues in the future. The availability of historical data was an issue to extend the study area. It is a recommendation for further research to consider an increased number of the companies listed on Karachi Stock Exchange with some different variables of liquidity and profitability and recent statistics of companies.

REFERENCES

[1] Abushammala, S. N., & Sulaiman, J. (2014, Sep). Cash Holdings and Corporate Profitability: Some Evidences form Jordan. *International Journal of Innovation and Applied Studies,* 8(3), 898-907.
[2] Afeef, M. (2011). Analyzing the Impact of Working Capital Management on the Profitability of SME's in Pakistan. *International Journal of Business and Social Science,* 2(22), 173-183.
[3] Agha, H. (2014). Impact Of Working Capital Management On Profitability. *European Scientific Journal,* 10(1), 374-381.
[4] Ajanthan, A. (2013). A Nexus Between Liquidity and Profitability: A Study Of Trading Companies In Sri Lanka. *European Journal of Business and Management,* 5(7), 221-237.
[5] Ajao, O. S., & Small, O. S. (2012). Liquidity Management and Corporate Profitability: Case Study of Selected Manufacturing Companies Listed on the Nigerian Stock Exchange. *Business Management Dynamics,* 2(2), 10-25.
[6] Alavinasab, S. M., & Davoudi, E. (2013). Studying the relationship between working capital management and profitability of listed companies in Tehran stock exchange. *Business Management Dynamics,* 2(7), 1-8.
[7] Anser, R., & Malik, Q. A. (2013). Cash Conversion Cycle and Firms' Profitability – A Study of Listed Manufacturing Companies of Pakistan. *IOSR Journal of Business and Management,* 8(2), 83-87.
[8] Azam, M., & Haider, I. (2011). Impact of Working Capital Management on Firms' Performance: Evidence from Non-Financial Institutions of KSE-30 Index. *Interdisciplinary Journal of Contemporary Research in Business,* 3(5), 481-492.
[9] Bagchi, B., Chakrabarti, J., & Roy, P. B. (2012). Influence of Working Capital Management on Profitability: A Study on Indian FMCG Companies. *International Journal of Business and Management,* 7(22), 1-10.

[10] Bhunia, A., Khan, I., & Mukhuti, S. (2011). A Study of Managing Liquidity. *Journal of Management Research,* 3(2), 1-22.

[11] Bolek, M. (2013). Profitability As A Liquidity And Risk Function Basing On The New Connect Market In Poland. *European Scientific Journal,* 9(28), 1-15.

[12] Bolek, M., & Wolski, R. (2012). Profitability or Liquidity: Influencing the Market Value The Case of Poland. *International Journal of Economics and Finance,* 4(9), 182-190.

[13] Copeland, T. E., Weston, J. F., & Shastri, K. (2005). *Financial Theory and Corporate Policy* (Fourth ed.). New York, America: Addison Wesley.

[14] Culp, C. L., & Lexecon, C. (2009). Contingent Capital Vs Contingent Reverse Convertibles for the Banks and Insurance Companies. *Journal of Applied Corporate Finance, 21*(4), 17-27

[15] Egbide, B. C., Uwuigbe, O., & Uwalomwa, U. (2013). Liquidity Management and Profitability of Manufacturing Companies in Nigeria. *IOSR Journal of Business and Management,* 9(1), 13-21.

[16] Fels, R. (1939). *Joseph Schumpeter, Business Cycles: A Theoretical, Historical and Statistical Analysis of the Capitalist Process.* New York, America: McGraw-Hill Book Company.

[17] Ferreira, M. A., & Vilela, A. S. (2004). Why Do Firms Hold Cash? Evidence from EMU Countries. *European Financial Management,* 10(2), 295-319.

[18] Frank, M. Z., & Goyal, V. K. (2005). *Trade-off and Pecking Order Theories of Debt.* Center of Corporate Governance.

[19] Gibson, C. H. (2010). *Financial Reporting & Analysis: Using Financial Accounting* (Twelfth Edition ed.).

[20] Haq, I. U., Sohail, M., Zaman, K., & Alam, Z. (2011). The Relationship between Working Capital Management and Profitability: A Case Study of Cement Industry in Pakistan. *Mediterranean Journal of Social Sciences,* 2(2), 365-372.

[21] Horne, J. C., & Wachowicz, J. M. (2008). *Fundamentals of Financial Management* (Thirteenth ed.). New York: Prentice Hall Inc.

[22] Karaduman, H. A., Akbas, H. E., Ozsozgun, A., & Durer, S. (2010). Effects Of Working Capital Management On Profitability: The Case For Selected Companies In The Istanbul Stock Exchange (2005-2008). *International Journal Of Economics And Finance Studies,* 2(2), 47-54.

[23] Kaur, S. S., & Silky, J. (2013). A Study on Liquidity and Profitability of Selected Indian Cement Companies: A Regression Modeling Approcah. *International Journal of Economics, Commerce and Management,* 1(1), 1-24.

[24] Makori, D. M., & Jagongo, A. (2013). Working Capital Management and Firm Profitability: Empirical Evidence from Manufacturing and Construction Firms Listed on Nairobi Securities Exchange, Kenya. *International Journal of Accounting and Taxation,* 1(1), 1-14.

[25] Malik, Q. A., & Ahmed, S. F. (2013). Idiosyncratic Effect of Liquidity Management Strategies on Corporate Performance Valuation-A Study of Chemical Industry. *World Applied Sciences Journal,* 28(1), 114-119.

[26] Manyo, T. S. (2013). Does Cash Conversion Cycle Have Impact on Return on Assets of Nigerian Firms? *Research Journal of Finance and Accounting,* 4(14), 34-43.

[27] Manyo, T. S., & Ogakwu, V. N. (2013). Impact of Liquidity on Return on Assets of Firms: Evidence from Nigeria. *International Journal of Management & Information Technology,* 6(3), 885-894.

[28] McCraw, T. K. (2007). *Prophet of Innovation: Joseph Schumpeter and Creative Destruction.* United States of America: The Belknap Press of Harvard University Press.

[29] Nimer, M. A., Warrad, L., & Omari, R. A. (2013). The Impact of Liquidity on Jordanian Banks Profitability Through Return on Assets. *Interdisciplinary Journal of Contemporary Research in Business,* 5(7), 70-76.

[30] Ogundipe, S. E., Idowu, A., & Ogundipe, L. O. (2012). Working Capital Management, Firms' Performance and Market Valuation in Nigeria. *International Journal of Social, Human Science and Engineering,* 6(1), 19-23.

[31] Padachi, K. (2006). Trends in Working Capital Management and its Impact on Firms' Performance: An Analysis of Mauritian Small Manufacturing Firms. *International Review of Business Research Papers,* 2(2), 45-58.

[32] Priya, K., & Nimalathasam, B. (2013). Liquidity Management and Profitability: A Case Study of Listed Manufacturing Companies in Sri Lanka. *International Journal of Technological Exploration and Learning,* 2(4), 161-165.

[33] Rehman, M. M. (2011). Working Capital Management and Profitability: A Study on Textiles Industry. *ASA University Review,* 5(1), 115-132.

[34] Ross, S. A., Westerfield, R. W., & Jordan, B. D. (2008). *Fundamentals of Corporate Finance* (Eigth ed.). New York, America: McGraw-Hill Irwin.

[35] Saghir, A., Hashmi, F. M., & Hussain, M. N. (2011). Working Capital Management And Profitability: Evidence From Pakistan Firms. *Interdisciplinary Journal Of Contemporary Research In Business,* 3(8), 1092-1105.

[36] Saleem, Q., & Rehman, R. U. (2011). Impacts of liquidity ratios on profitability (Case of oil and gas companies of Pakistan). *Interdisciplinary Journal of Research in Business,* 1(7), 95-98.

[37] Samuelson, P. A., & Nordhaus, W. D. (2010). *Economics* (Nineth ed.). New York: McGraw-Hill Companies Inc.

[38] Schumpeter, J. A. (1947). The Creative Response in Economic History. *The Journal of Economic History,* 7(2), 149-159.

[39] Servaes, H., & Tufano, P. (2006). The Theory and Practice of Corporate Liquidity Policy. *Deutsche Bank hosted conference*, 1-53.

[40] Uchenna, A. W., Mary, O. I., & Okelue, U. D. (n.d.). Effects Of Working Capital Management On Profitability: Evidence From The Topfive Beer Brewery Firms In The World. *Asian Economic and Financial Review,* 2(8), 966-982.

[41] Uremadu, S. O., Egbide, B. C., & Enyi, P. E. (2012). Working Capital Management, Liquidity and Corporate Profitability among quoted Firms in Nigeria Evidence from the Productive Sector. *International Journal of Academic Research in Accounting, Finance and Management Sciences,* 2(1), 80-97.

[42] Vijayakumar, A. (2011). Management of Corporate Liquidity and Profitability: An Empirical study. *International Journal of Marketing and Technology,* 1(6), 156-175.

[43] Wood, F., & Sangster, A. (2010). *Business Accounting* (Eleventh ed.). Noida, U.P, India: Dorling Kindersley (India) Pvt.

[44] Zainudin, N. (2006). Liquidity-Profitability Trade-off: Is It Evident Among Malaysian SMEs? *International Journal of Management Studies,* 13(2), 107-118.

[45] Zygmunt, J. (2013). Does liquidity impact on profitability? A case of polish IT companies. *Conference of Informatics and Management Sciences*, 247-251.

APPENDIX

Table 1. Descriptive analysis of liquidity and profitability variables

	CCC	CR	CRR	QUR	ROA
Mean	56.251	0.454	1.494	0.746	8.918
Median	39.468	0.223	1.240	0.610	7.433
Std. Dev.	52.780	0.547	0.837	0.648	10.477
Maximum	381.390	2.762	3.910	3.130	38.481
Minimum	-6.390	0.000	0.190	0.000	-22.739
Skewness	1.631	1.635	1.008	1.373	0.199

Note. Cash conversion cycle (CCC), Cash ratio (CR), Current ratio (CRR), and Quick ratio (QUR) are liquidity variables, whereas Return on assets (ROA) is profitability variable.

Table 2. Correlation matrix between liquidity and profitability variables

	CCC	CR	CRR	QUR	ROA
CCC	1				
CR	0.055	1			
CRR	0.070	0.661	1		
QUR	0.117	0.826	0.770	1	
ROA	0.128	0.404	0.482	0.437	1

Note. Cash conversion cycle (CCC), Cash ratio (CR), Current ratio (CRR), and Quick ratio (QUR) are liquidity variables, whereas Return on assets (ROA) is profitability variable.

Table 3. Multivariate regression analysis

Variable	Coefficient	Std. Error	t-Stat	Probability
C	-0.4379	1.0953	-0.3998	0.6895
CCC	0.0180	0.0091	1.9832	0.0481*
CR	2.3195	2.0993	1.1049	0.2699
CRR	4.4627	1.2238	3.6467	0.0003*
QUR	0.8332	1.8301	0.4553	0.6492

R-squared	0.255		
R-squared	0.255		
Adjusted R-squared	0.247		
F-statistic	30.869	**Durbin-Watson stat**	2.121
Prob. (F-statistic)	0.0000		

*Note. Cash conversion cycle (CCC), Cash ratio (CR), Current ratio (CRR), and Quick ratio (QUR) are independent variables, whereas Return on assets (ROA) is a dependent variable. **(Note. * P<0.05)***

Table 4. Hypothesis test

Hypotheses	Analysis Tool	Result
H1: Current Ratio is positively associated with the firm performance.	Regression	Accepted
H2: Quick Ratio is positively associated with the firm performance.	Regression	Rejected
H3: Cash Ratio is positively associated with the firm performance.	Regression	Rejected
H4: Longer cash conversion cycle is negatively associated with the firm performance.	Regression	Rejected

Table 5. Calculations of liquidity and profitability ratios

	Variables	Calculations
	Liquidity Variables	
1	Current Ratio	$\text{Current Ratio} = \dfrac{\text{Current Assets}}{\text{Current Liabilities}}$
2	Quick Ratio	$\text{Quick Ratio} = \dfrac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}}$
3	Cash Ratio	$\text{Cash Ratio} = \dfrac{\text{Cash Equivalents} + \text{Marketable Securities}}{\text{Current Liabilities}}$
4	Cash Cycle	$\text{Cash Cycle} = \text{Inventory Turnover in days} + \text{Receivable turnover in days} - \text{Payable turnover in days}$
	Profitability Variable	
1	Return on assets	$\text{Return on assets} = \dfrac{\text{Net Profit after taxes}}{\text{Total Assets}} \times 100$