

# The Impact of Liquidity Management on Firm Profitability, an Empirical Analysis of Pakistani Cement Companies Listed On Karachi Stock Exchange in Pakistan

Qismat Ullah Khan

Abdul Wali Khan University Mardan, Pakistan

## Abstract

In this study investigate the impact of liquidity management on firm profitability, an empirical analysis of Pakistani cement companies listed on Karachi Stock Exchange Pakistan for the period of six years 2006-2011. The nature of the data is secondary and selected 18 companies form the cement sectors of Karachi stock exchange. This paper was set out to explore the seemingly controversial profitability / liquidity trade off theory. From literature, the controversy as regard the relationship and impact of liquidity on profitability is yet to be resolve as divergent finding exist. Our empirical investigation using both the correlation and regression analysis reveal that liquidity ratios measure by current ratio, Quick ratio and cash ratio sales growth and firm size have a positive and significant relation with ROA while Debt ratio has negative relationship with ROA. Regression analysis reveals that current ratio, Quick ratio, cash ratio and firm size have a minute insignificant impact on ROA. The implication of liquidity has low degree of influence on the profitability of cement companies in Pakistan. This only goes to indorse inefficiency and ineffectiveness in the management of liquid assets.

**Keywords:** - Liquidity Management, Firm Profitability and Pakistani Cement Companies.

## Background of the study

The Liquidity management importance that it affects profitability of corporations in today's era should not be over emphasized. The crucial part in managing working capital is required maintaining its liquidity in day-to-day operation to ensure its smooth running and meets its obligation (Eljelly, 2004). In the success of non-financial firms liquidity plays an important role. For fulfilling short term obligation a company should ensure that it does not suffer excess or lack of liquidity. The liquidity study has a great importance for both external and internal analysts because it has a very close relation with a business day today operation (Bhunia, Khan and Mukhuti, 2011). To achieve desired balance among liquidity and profitability is a dilemma in liquidity management (Nasr and Raheman, 2007).the need for liquidity of a firm depends on a specific nature of the firm and there are no particular rules for liquidity that a company should maintain in such a way that it place a positive effect on company's profitability. Business owners and managers from the whole world has a concern to make a plan to manage their day today activities in order to fulfil their liabilities when they face a situation when they have to pay and to increase shareholder wealth and profitability of company .liquidity management is considered from the viewpoint of working capital management as most of ratios used for determining company profitability are a purpose of the constituents of working capital.

Liquidity and liquidity management are considered to a prodigious level the profitability and development of cement companies. Because imbalance liquidity less or exceed are danger to the smooth operation of the firm (Janglani and Sandhar, 2013).Non-financial companies are no exemption to this problem of extra liquidity or scarce liquidity and they have to keep an optimum level of liquidity as they chase their objective of profitability.

In corporate finance working capital management is very important component because it sprightly effects a company liquidity and profitability.it compacts with current liabilities and current assets. (Nasr and Raheman, 2007). Financial profitability and liquidity have equally important and main companies activities may not properly work if we ignore liquidity and profitability (Ajanthan, 2013). The growing of a business financial liquidity may inversely affect profitability of a company. If a firm have too much liquidity so it will inversely effect profitability of that company.to run a business in such a way that there should be smooth flow in its activities should have a proper working capital which can be define as current assets less current liabilities. Working capital management has liquidity and profitability implications (Bhunia et al., 2011).a company main objective is to maximize shareholder wealth and increase profitability. While performing day to day activities there is a need of balance between liquidity and profitability to ensure smooth running and to fulfill the obligations of the company (Eljelly, 2004). Liquidity entails meeting obligations as they fall due and striking a balance between the current assets and current liabilities. For a match between short term assets and liabilities, proper working capital management practices require to be embraced through shortening of the cash conversion cycle. This will ensure sufficient liquidity level which guards an enterprise from external funding which comes at a cost (Oduol, 2011). A company having liquidity takes benefits of investments available to the company. It

can also enjoy cash discount and lower interest's charges on borrowings.

Jensen (1986) has observed that companies are stressed when they have low liquidity and have negative working capital. Corporations discover themselves in a situation when on due date they are unable to pay their obligations. Cement companies must insure that that they have a balance level of liquidity even a regulator have not imposed a regulation to maintain a specific level of liquidity. The final and eventual objective of the firm is to increase profit level but keeping liquidity is also an important objective. The main issue is that maximizing profit at the charge of liquidity can bring to the firm serious problems therefore there must be a balance between liquidity and profitability of the firms. One objective should not be at the charge of other because both having impotence. If we ignore profit we cannot live alive in the market for more but if we do not caution about the liquidity we cannot pay our obligation which leads to insolvency and bankruptcy. Therefore cement firms liquidity management should be given a proper attention and will finally effect profitability of company. Eichengreen and Gibson (2001) studied that low level of funds invested in liquid investment will result maximum profitability. So finally liquidity is considered an important cause of profitability for cement companies.

### **Liquidity**

Dalgaard (2009) describes Liquidity as the degree to which an asset or security can be bought or sold in the market without affecting the asset's price. He further explains that a liquid asset is characterized by a high level of trading activity and plays a vital role in the functioning of financial markets. Markets are liquid when those who have assets holdings can sell them at prices that do not involve considerable losses so as to gain the finance they need to fulfill other commitments (Amihud, 2002).

According to Mahavidyalaya, Niranjana and Suvaran (2010) the term liquidity refers to the capability of a firm to meet short term financial obligations [that is Current Liabilities (CL) by converting the short term assets (that is Current Assets (CA)) into cash without suffering any loss. The liquidity of a firm actually depends on the effective management of the composition of CA vis-a-vis CL. A business enterprise making no profit may be considered as sick but one having no liquidity will die soon. As a matter of fact, liquidity is a necessary condition (or a pre-requisite) for the very survival of a nonfinancial company. The liquidity position of a firm is generally analyzed with the help of some important ratios computed on the basis of different constituents of working capital either in isolation or in aggregate or both. The ratios reflecting the liquidity position of a company as identified by Mahavidyalaya et al. (2010) includes the Current Ratios (CR): It is the ratio of current assets to current liabilities; Quick Ratio (QR) / Acid Test Ratio: It is the ratio of quick assets to Current liabilities; Absolute Liquid Ratio/ cash ratio: Cash and near cash is the most liquid asset. Absolute liquid ratio is more accurate test of liquidity than current ratio and liquid ratio (Bhunia et al., 2011) and the Cash Conversion Cycle (CCC). The cash conversion cycle is used as a comprehensive measure of working capital management (WCM). The cash conversion cycle is simply (number of days accounts receivable + number of days inventory - number of days accounts payable). Number of days accounts receivable is calculated as (accounts receivable x 365) / sales. Number of days inventories is (inventories x 365) / cost of sales. Number of days accounts payable is (accounts payable x 365) / purchases. Naser, Nuseibeh and Hadeya (2013) in the study of factors influencing corporate working capital management concluded that short CCC is expected to result in positive operating cash flows; this gives indication about working capital management, companies with short CCC tend to have more cash flows than companies with long CCC implying that companies reporting high operating cash flows have high net liquid balance. The management of working capital affects the liquidity and the profitability of the corporate firm and consequently its net worth (Smith, 1980). Working capital management therefore aims at maintaining a balance between liquidity and profitability while conducting the day to day operations of business concern. Inefficient working capital management not only reduces the profitability of business but also ultimately lead to financial crisis (Chowdhury and Amin, 2007). A company's ability to sustain its short-term debt-paying ability is important to all users of financial statements. If the company cannot keep a long-term debt-paying ability, nor will it be able to satisfy its stockholders. Even a very profitable company will find itself bankrupt if it fails to meet its obligations to short-term creditors. The ability to pay current obligations when they fall due is also related to the cash-generating ability of the company. Analyzing the short-term debt-paying ability of the company, reveal a close relationship between the current assets and the current liabilities. Generally, the current liabilities will be paid with cash generated from the current assets. The profitability of the firm does not determine the short-term debt-paying ability. In other words, using accrual accounting, the company may report very high profits but may not have the ability to pay its current bills because it lacks available funds. If the entity reports a loss, it may still be able to pay short-term obligations (Nimer, Warrand and Omari, 2013). The aim of this study is to establish whether there is any relationship between a company liquidity and profitability of the nonfinancial companies listed in the Nairobi securities exchange.

### Profitability

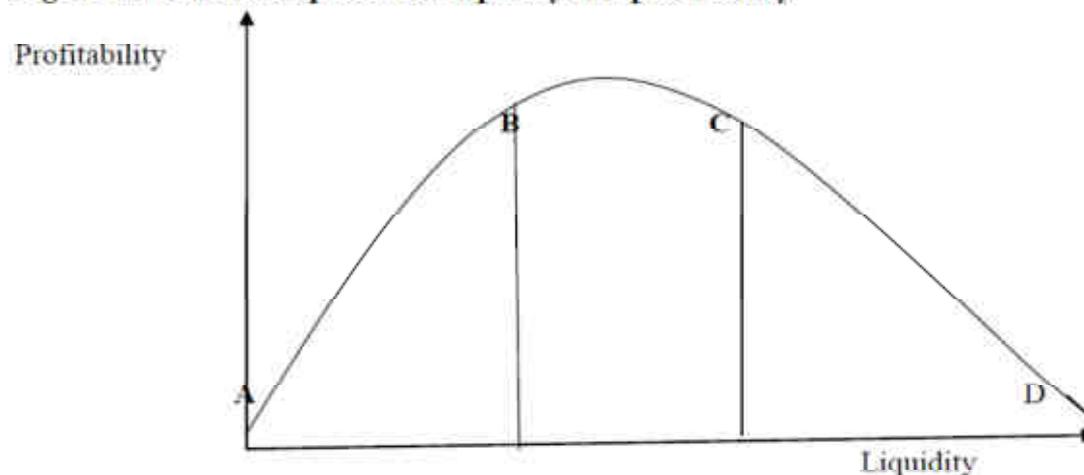
Every business is most concerned with its profitability. Profitability is the ability to make profit from all the business activities of an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market. One of the most frequently used tools of measuring profitability is profitability ratios. Profitability ratios show a company's overall efficiency and effectiveness. Profitability is related to the goal of shareholders of wealth maximization, and investment in current assets is made only if an acceptable return is obtained. While liquidity is needed for a company to continue business, a company may choose to hold more cash than needed for operational or transactional needs or for precautionary or speculative reasons. If there will be an unjustifiable over investment in current assets then this would negatively affect the rate of return on assets (vishnani and shah, 2007). Managers of nonfinancial companies must ensure maximum return from the investments of their principal and therefore must ensure they invest resources in high yielding ventures other than holding excess investments in current assets. Janglani and Sandhar (2013) identified the following Measures of corporate profitability; two major types of profitability ratios are computed: profitability in relation to sales and profitability in relation to investment. Gross profit margins (GPM), net operating margin (NOM), return on assets (ROA), return on equity (ROE), and return on capital employed (ROCE) are the main measures of profitability. Therefore, profit is an absolute measure and profitability is a relative measure of efficiency of the operations of an enterprise. Nonfinancial companies must earn profit to survive and grow over a long period of time. Profits are essential, but all management decision should not be profit centered at the expense of the concerns for customers, employees, suppliers or social consequences. The profitability ratios are calculated to measure the operating efficiency of the company.

According to Janglani and Sandhar (2013) Return on Assets (ROA) expresses the net income earned by a company as a percentage of the total assets available for use by that company. ROA measures management's ability to earn a return on the firm's resources (assets). The income amount used in this computation is income before the deduction of finance costs, since finance cost is the return to creditors for the resources that they provide to the company. The resulting adjusted income amount is thereby the income before any distribution to those who provided funds to the company. ROA is also computed on a pretax basis using EBIT as the return measure. This results in a ROA measure that is unaffected by differences in a firm's tax position as well as financing policy, ROA is computed by dividing earnings before interest and tax by total asset.

### Liquidity and Profitability Relationship

A company must preserve adequate amount of liquidity to meet its daily obligations but liquidity in excess of what is adequately required by the company to finance its operations may be counter-productive. The liquidity requirement of firms differs depending on the circumstances of the company (Pandy, 2005). Theoretically a company requires preserving a liquidity level that is not detrimental to its profitability. Empirical evidence shows a negative correlation between liquidity and profitability but a company cannot operate with zero liquidity in order to maximize its profits. This relationship is depicted using figure 1.1; liquidity increase leads to increase in profitability (point A to B) up to a certain point where any further increase in liquidity; profitability remains constant (point B to C) beyond this point any further increase in liquidity will lead to decrease in profitability (point C to D).

Figure 1.1 Relationship between liquidity and profitability



Source: Mahavidyalaya et al. (2010)

### **Research question**

Liquidity and profitability have a high degree of relationship with each other. Allot of research work is available about this relationship but the selected sector i.e. cement sector has not been given much consideration before this in Pakistan. So literature about this sector is less in Pakistani context. Liquidity management is very crucial part of business activities of any company. For the cement sector liquidity management is also very important .So the question of this research is

- Does liquidity have any impact on profitability of cement sector firms of Pakistan?
- What kind of relation liquidity and profitability have?

### **Research Objectives**

- To find the relationship among liquidity and profitability.
- To analyze the effect of liquidity on profitability.

### **Significance of the study**

The purpose of the study is to identify the impact of liquidity on profitability and their relationship of the nonfinancial cement companies listed in the Karachi Stock exchange. In business cash is an important thing, without cash company cannot survive and to take advantage of business opportunities, it's necessary to maintain liquidity position to overcome the difficulties. The working capital management plays an important role for success or failure of firm because of its effect on firm's profitability as well as on liquidity. The study will enable the managers to establish optimal liquidity levels and adopt better working capital management policies. The research will enable the policy makers to devise standards in establishing an appropriate level of liquidity for firms and come up with more effective methods of managing liquidity levels of a company. The study will also enable the investors to know the kind of information to be disclosed by firms on the financial statements as relates to liquidity and profitability. Finally, the study will be of importance to academics and scholars. The study will add to the existing body of knowledge on the liquidity and how liquidity impact on profitability. This study makes recommendations that will be of significance to those who may wish to carry out further studies in the area. The study also provides a base for further research especially in the areas of liquidity. The study is also of importance to the management of companies as they will be able to use the information as a base for making decisions, understand its importance and observe the trend of the impact of liquidity on profitability.

### **Limitation of the study**

- This study faces the following limitations:
- The primary limitation to the current study is the lack of time.
- Due to lack of time only 18 non-financial cement companies of the 20-non financial cement sectors listed at Karachi stock exchange are being analyzed.
- Liquidity has been based on three variables so there are some other factors that affect profitability

### **Review of Literature**

The Literature Review is actually a Research Journey-which means an evaluation of the body of a Research that addresses a Research Question and the aim of the Literature Review is to identify that what is known regarding the Area of the Research. And remember! That Literature Review is an Iterative process-which is based on 3-key points like: Refine, Rethink and Rework. As well as the Literature Review is comprised on 5-stages like: 1) Research Question framing, 2) Searching the relevant Literature, 3) Managing the Search results-which means three tasks are includes like: Collecting, Organizing, and Citing, 4) Synthesizing-which means to combine two or more elements to make a new Whole where the Elements means Findings and New whole means Conclusions the key aim is to draw the Conclusions regarding the Findings in the Literature. 5) Write which is actually an evaluation of the Literature the purpose is to link the Conclusions regarding how the Literature addresses the Research Question. And ultimately a well-written Literature Review reflects a Scholarly Accomplishment.

### **Introduction**

This section provides information from studies on topics related to the research problem. It examines what various scholars and authors have said about the relationship between liquidity and company's profitability. The chapter is divided into four main areas: theoretical review, determinants of profitability, empirical review and summary of literature review.

### **Theoretical Review**

Theories are analytical tools for understanding, explaining, and making predictions about a given subject matter. There are various theories with regard to liquidity management and profitability as discussed below.

### ***Keynesian Theory of Money***

Keynes (1936) in his study “The general Theory of employment, interest and money” identified three reasons why liquidity is important, the speculative motive, the precautions motive and the transaction motive. The speculative motive is the need to hold cash to be able to take advantage of, for example, bargain purchase, and favorable exchange rate fluctuations in the case of international firms. For most firms, reserve borrowing ability and marketable securities can be used to satisfy speculative motives. Precautionary motive is the need for a safety supply to act as a financial reserve. Once again, there is probably a precautionary motive for liquidity. However, given that the value of money market instruments is relatively certain and that instruments such as Treasury bills are extremely liquid; there is no real need to hold substantial amount of cash for precautionary purpose. The transaction motive is the need to have cash on hand to pay bills. Transactions related needs come from collection activities of the firm. The disbursement of cash includes the payment of wages and salaries, trade debts, taxes and dividends. Therefore there is need for a firm to be liquid in order to meet the three needs. The implication of this theory is that a company needs to maintain a level of liquidity which may have impact on its profitability.

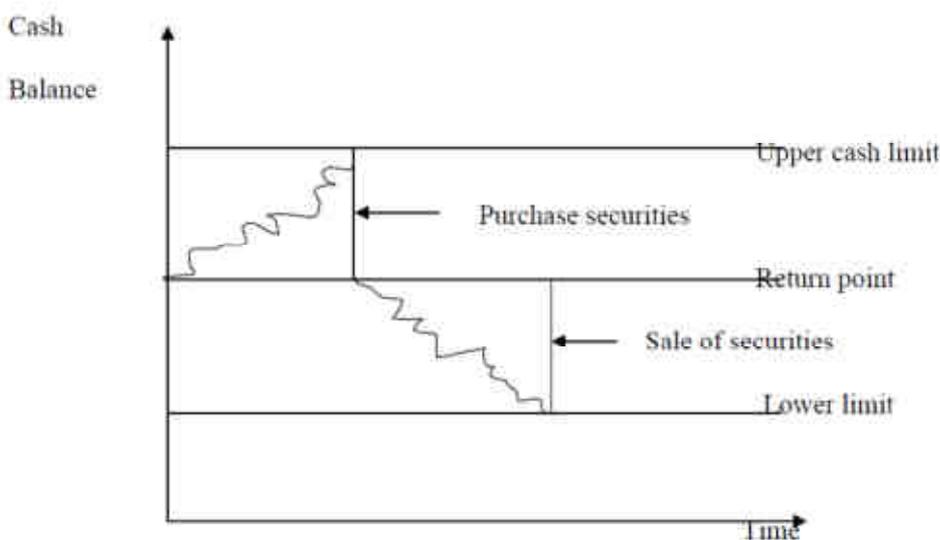
### ***Trade off Theory of Liquidity***

Under perfect capital market assumptions holding cash neither creates nor destroys value. The firm can always raise funds from capital markets when funds are needed, there are no transaction costs in raising these funds, and the funds can always be raised at a fair price because the capital markets are assumed to be fully informed about the prospects of the firm. The trade-off theory suggests that firms target an optimal level of liquidity to balance the benefit and cost of holding cash. The cost of holding cash includes low rate of return of these assets because of liquidity premium and possibly tax disadvantage. The benefits of holding cash are in twofold: First the firms save transaction costs to raise funds and do not need to liquidate assets to make payments. Secondly the firm can use liquid assets to finance its activities and investment if other sources of funding are not available or are extremely expensive. As theory, the use of trade off model cannot be ignored, as it explains that, firms with high leverage attracts high cost of servicing the debt thereby affecting its profitability and it becomes difficult for them to raise funds through other sources (Jensen, 1986).

### ***Miller and Orr’s Cash Management Model***

Miller and Orr (1966) came up with another model of cash management. As per the Miller and Orr’s model of cash Management the companies let their cash balance move within two limits the upper limit and the lower limit. The companies buy and sell the marketable securities only if the cash balance is equal to any one of these. The model rectified some of the deficiencies of the Baumol model by accommodating a fluctuating cash flow situation stream that can either be inflow or outflow. The Miller-Orr’s model has an upper limit and lower limit as shown in the figure 2.1 below:

**Figure 2.1 Miller and Orr’s Cash Management Model**



**Source: Waweru (2011)**

### ***The Modern Quantity Theory***

Friedman (1956) restated the quantity theory of money, a theory of demand for money and this “modern quantity theory” has become the basis of news put forward by monetarists. In this theory, money is seen as just one of a number of ways in which wealth can be held, along with all kinds of financial asset, consumer durables, property and human wealth. According to Friedman, money has a convenience yield in the sense that its holding saves time and effort in carrying transactions. Holding wealth in terms of excess cash does not increase shareholders wealth rather it erodes because it loses purchasing power thereby impacting on profitability negatively.

### ***Baumol Inventory Model***

Baumol (1952) developed the inventory model to determine the amount of cash an entity should hold. The Baumol model is based on the Economic Order Quantity (EOQ). The objective is to determine the optimal target cash balance. Baumol made the following assumptions in his model; The firm is able to forecast its cash requirements with certainty and receive a specific amount at regular intervals; The firm’s cash payments occur uniformly over a period of time that is; a steady rate of cash outflows; the opportunity cost of holding cash is known and does not change over time; cash holdings incur an opportunity cost in the form of opportunity foregone; the firm will incur the same transaction cost whenever it converts securities to cash. The limitations of the Baumol model are as follows; assumes a constant disbursement rate; in reality cash outflows occur at different times, different due dates; assumes no cash receipts during the projected period, obviously cash is coming in and out on a frequent basis; no safety stock is allowed for, reason being it only takes a short amount of time to sell marketable securities. This theory therefore requires a target cash balance to be maintained by the company; this may impact negatively on the company’s profitability because of holding idle cash.

### ***Determinants of Profitability***

Profit is the most important financial measure to most businesses. In order to survive and succeed in a competitive market firms must focus on maximizing profit, or they will eventually be driven out of business (Dutta and Radner, 1999). Jovanovic (1982) supports this claim by saying that only efficient firms stay in the market, and that less productive firms will eventually exit the market. Many companies are thus very understandably interested in what factors influence profits. The existing literature on firm profits point to several key determinants of profits as discussed below.

### ***Liquidity***

Mahavidyalaya et al. (2010) observed that firm’s profitability is highly influenced by different liquidity ratios taken as the explanatory variables. Different components of working capital influence profitability differently. Therefore the change of composition of working capital should be analyzed to get a clear picture about the corresponding change in the profitability of a firm. Bolek (2013) argues that connected to the liquidity - working capital is a very important element of a company financial management since it affects the profitability linked to a level of risk. Moreover it can be assumed that the more the liquid the company is, the lower risk is associated with such an entity and moreover the more liquid the company, the less profitable it is. This suggests that profitability decreases with increase in liquidity. There is need to balance working capital position of the business enterprise in order to maintain adequate liquidity, minimize risks and raise profitability (Janglani and Sandhar, 2013).

### ***Productivity***

Stierwald (2010) documented that productivity is measured as the degree of cost-efficiency in the production process. There are a number of reasons why some firms operate more cost-efficiently than others. Potential factors are lower average costs of production, better quality of products and services or higher output quantities produced with fewer inputs. Higher productivity levels can also be the result of strategic management or due to employing state-of-the-art technologies or a highly skilled workforce. Stierwald (2010) further argues that there is another way of interpreting the positive link between productivity and profitability. It could be that the level of productivity is the result of firms’ innovative activity. The rationale behind it is that investments into research and development (R&D) raise the probabilities of introducing product, process or organizational innovation which, if successful, lead to increases in profitability.

### ***Firm Size***

Stierwald (2010) found positive and significant parameter estimate for firm size. The study shows that bigger firms are more profitable than smaller firms. The size of a firm significantly enhances its performance. Stierwald (2010) suggested a possible reason is that large firms exploit scale economies and benefit from economies of scope. An alternative interpretation is that large firms can access capital at lower costs than small firms.

### ***Leverage***

The results of the study by Bothwell, Cooley and Hall (1984) indicate that higher leveraged firms (with relatively high liabilities) are more profitable. Evidently, the more extensively firms use debts as the source of financing the higher its profits. An explanation can be that more profitable firms have had easier access to debt financing and do not need to rely exclusively on equity capital. Alternatively, it could be argued that higher leveraged firms bear greater risks of bankruptcy and need to compensate stakeholders with higher profits.

### ***Empirical Review***

This section gives evidence of what other researchers have observed and the findings in their study relating to the relationship between liquidity and profitability. Empirical evidence is the record of one's direct observations or experiences which has been analyzed quantitatively or qualitatively.

Liquidity management is a very important source of profitability of a company. Many researchers has studied allot on this topic and concluded that efficient management of working capital lead to a firm profitability. Some of them has worked on the relationship of liquidity and firm profitability and showed that these factors have negative relation while some of them say that the relationship is positive in long and medium run.

Profitability and liquidity relationship nature may be differ a lot of study have been conducted and most of studies conclude that there is negative relationship between liquidity and profitability. These results have been tested by (DeLoop 2003 ) for the impact of liquidity on profitability he has used cash conversion cycle (Samiloglu and Demirgunes 2008) has also found negative relationship by using inventory conversion period ,cash conversion period and employed account receivable conversion period.

(Chatterjee Saswata Chatterjee) explained fixed asset and current assets impact on organization effectiveness. He found direct relationship between liquidity and profitability. There are also findings in the businesses that with increase of profit margin suffer losses due to shrinks in the number of working capital in relation with net sales. When the companies' liquidity becomes high with improvement, then working capital will increase. Firm should decrease its sales volume then the profitability will change as a result. He selected 30 UK firms listed in London Stock Exchange. Data from 2006 to 2008 was taken. Influence of working capital on profitability was studied. He used acid test ratio, current ratio, cash conversion cycle, payments in days, turnover of inventory, and collection period on total operating income of UK firms.

Smith (1980) argued from his study conducted profitability and liquidity relationship and suggest that working capital management has a positive effect on company's profitability and on risk and from the study it can be achieved that financial strength can be boosts by using effective working capital management.

Soenen (1993) performed an analytical study on US firms and analyzed working capital management and its relation with firm performance and suggested that if net trade cycle length increases so it negatively affects the return on investment.

Marques and Braga (1995) investigate the liquidity and profitability relationship by taking a sample of food companies .Blatt (2001) also found in his study that a negative relationship exists between liquidity and profitability he used a dynamic model and profitability.

Chandra (2001)say in his paper that a high level of liquidity is a sign of financial strength but other researchers like AssafNeto (2003) explore that high liquidity are also non-desirable just kike low liquidity because usually current assets are less beneficial as compare to fixed assets simply meaning that money that have been invested in fixed assets generate high profit other than current assets and this represent opportunity cost .the amount employed in current assets make maintenance cost additionally and this reduce company profitability

A study of Abuzar and Eljelly (2004) conducted on the companies listed on KSA stock exchange shows the relationship between liquidity and profitability by using different ratios that there is a highly negative relationship between a company liquidity and profitability .the association is more obvious companies with high current ratios and cash conversion cycle for long run. And on the level of industry the study shows that cash gap or cash conversion cycle is having much importance to measure the firm liquidity than current ratio which influences profitability

Filbeck and Krueger (2005) has explored the importance of working capital management by studding and analyzing the working capital policies of 32 non-financial US companies, in their result the significant differences exist between these firms in working capital practices and among these industries these capital practices significantly varies.

Lazaridis and Tryfonidis (2006) studied the working capital management and profitability relationship of companies registered on Athens stock exchange. In result they showed that there is a significant relation between these two. They measured profitability by cash conversion cycle and gross operating profit. And further more managers can make profit by handling the components of working capital at optimal level.

Vishnani and Shah (2007) they studied the relationship between liquidity and profitability .the study was based on Indian consumer electronic industry .from the study they concluded that profitability had no relationship with overall industry liquidity but most of the companies related to this industry showed positive relationship for both

liquidity and profitability.

Chakraborty (2008) studied the association between profitability and working capital of Indian pharmaceutical companies. About this issue there were two different schools of thinking, according to one of them that working capital and profitability has a negative relationship and working capital is not a key factor which can improve the profitability. The other argues that working capital investment improves the firm profitability and low level of investment in working capital reduces output and sale. In actual fact, the insufficiency of working capital would keep fixed asset out of action.

Singh (2008) extracted from his study that the volume and size of inventory straight influence working capital and its management. He further say that inventory is a key factor of working capital and should be controlled properly and accordingly.

Sing and Pandey (2008) pointed out from his study conducted on hind-Alco Industry Ltd India that working capital management is very crucial because it keeps direct effect on profitability of this company.

It was analyzed by (Dong 2010) that that working capital has an effect on firm liquidity and on potential profits. The data was taken from Vietnam stock exchange for the period 2006 to 2008. His key variables were cash conversion, profitability other elements related to these and its mutual relationship. In his findings it is stated that the relation between them is strong negative. It means that profits decreases when increase in cash conversion cycle occurs. It is also in his findings that decline in the days of account receivables and inventory will increase profitability by that extent.

BintiMohamad and MohdSaad (2010) conducted study on 172 companies of Malaysia. They assess different working capital component influence on a firm's market value and profitability. The study was conducted on the base of five years data between 2003 and 2007. different working capital components like debt ratio (DR) Cash Conversion Cycle (CCC) current liabilities to total asset ratio (CLTAR) current asset total asset ratio (CATAR) current ratio (CR). TO find the effect on financial performance by these working capital components they used ratios like return on capital (ROIC) Tobin's Q (TQ) and return on asset. After doing this they extract the result by using correlations and multiple regression analysis and argued that there is a negative relationship among components of working capital and company's performance.

Ajanthan (2013) studied the liquidity and profitability relationship of Sarilinka trading companies the study was about eight listed companies in sarilinka stock exchange and the duration was five years between 2008 and 2012. he used regression and co relational and descriptive statistical analysis in his study and found that that among profitability and liquidity has a significant relationship.

## **Research Methodology**

*All research work has its individual methodologies; so we give in details the methodologies of our investigation work in this part of research. This section describes the research methodology to be followed for data collection and after that analyzing it through different statistical tools. Includes the topics of this study, Research Design, sources of data, data collection method, sample size of research, Hypothesis Development, Conceptualization Model, Specification of Variables and proxies for Measurement, Regression Model, Test of Significance and , measurement of variables, and analysis techniques.*

### **Research Design**

Research design is the process for assemblage and examination of data in a way that targets to pool consequence of the research purpose with economy during research process. The study embraced a descriptive research design. A descriptive research design enables the researcher to meaningfully describe a distribution of scores or measurements using various statistics (Mugenda and Mugenda, 2003). Descriptive design provides the general overview giving some valuable pointers as to what variables are worth testing quantitatively. This was appropriate since it offered the researcher double chances of detecting and analyzing the past data without prejudice (Waweru, 2011).

### **Sources of Data**

The current study uses the Panel data-which actually allows us for Multiple-variables and multiple time-horizons for the purpose of to draw a right picture between Response and Explanatory Variables. And for the current study uses a time-horizon from (2006-2011) which is Longitudinal in nature and is collected in the form of Excel version which is issued on the SBP-site on the name of (Financial Statement Analysis of KSE-listed Non-financial firms) as well as the other data relevant to the current Research topic is collected from the other sources like: kse.com, breccorder.com, pkfinance.info, pakstocks.com, edynamics.com informit.com and Economy Watch.Com.

### ***Data collection Method***

The current Research is focuses on Quantitative analysis that's why there are two conditions for conducting quantitative data analysis like Scale of Measurement and Format of the data to input to the Analysis software is necessary. And here for the current study the Scale of Measurement is (Secondary data) like in a Numerical form which means easily Measurable and format of the data is (Million Rupees).

The total research bases on secondary data. The data has taken from the sample company's financial statements, such as balance sheet, income statement and cash flow statements .The source of data is balance sheet analysis of non-financial firms published by State Bank of Pakistan on his official website.

### ***Sample selection***

The sample for this study is consists of listed cement companies of Pakistani cement sector of Karachi stock exchange (KSE) for the period of 2006 to 2011.The study cover overall sector of cement in Pakistan listed in Karachi stock exchange in which total companies are 20 and two companies are dropped from analysis because data were not available for some years.

### ***Hypothesis Development***

- **H<sub>1A</sub>** There is positive relationship between liquidity and profitability
- **H<sub>0A</sub>** There is no positive relationship between liquidity and profitability
- **H<sub>1B</sub>** There is negative relationship between liquidity and profitability
- **H<sub>0B</sub>** There is no negative relationship between liquidity and profitability
- **H<sub>1C</sub>** Liquidity has significant impact on profitability
- **H<sub>0C</sub>** Liquidity has no significant impact on profitability
- **H<sub>1D</sub>** Liquidity has insignificant impact on profitability
- **H<sub>0D</sub>** Liquidity has no insignificant impact on profitability

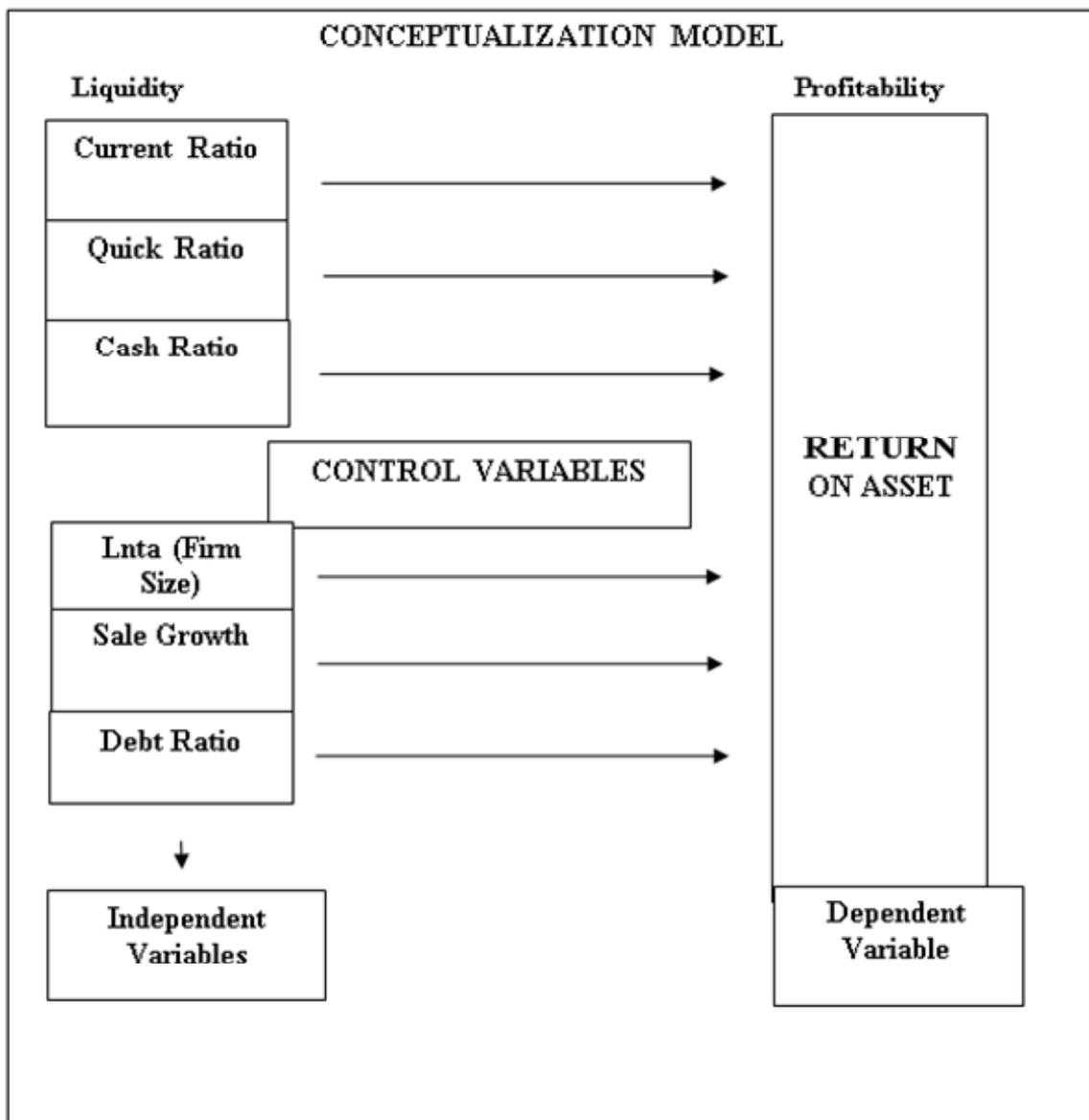
Like for the Accepting and Rejecting the Hypothesis as per the condition of Significance testing (which means that either the relationship is positive, negative or there is no relationship exist), in this case if the p-value (which is used to determine the significance of the Results) of  $\beta > 0.05$  (which is the significance level) it means (the relationship is Insignificant and the intercept value is zero which means there is no fixed effects exist) in this situation the H<sub>1</sub> is to be accepted and H<sub>0</sub> will be rejected. And if the if the p-value of  $\beta < 0.05$  it means (the relationship is significant and the intercept value is not zero which means there are some fixed effects exist) in this situation the H<sub>1</sub> is to be rejected and H<sub>0</sub> will be accepted.

### ***Conceptualization Model***

The current study follows the following Research framework because of a strong, relevant, valid and a consistent Conceptualization Model always contributes positive towards the systematic-conceptualization of any problem. The Independent variable is Liquidity as measure by Current ratio, Quick ratio, Cash ratio. Firm size, Sale growth and Debt ratio are control variables and a Response Variable as Profitability as measure by Return on asset (ROA)

### ***Specification of Variables and proxies for Measurement***

Mugenda and Mugenda (2003) define a variable as a measurable characteristic that assumes different values among the subjects. The dependent variable was defined as the profitability of the firms. The independent variable was interpreted as the commonly used liquidity ratios. The ratios used are chosen from those utilized by Bhunia et al. (2011), Ajanthan (2013) and Janglani & sandhar (2013). The dependent variable that was used is ROA. The researcher considered ROA as the best measure of profitability since it measures the return on all assets utilized in generating the profit for the period. ROA is computed by dividing the profit before interest and tax by the book value of total assets multiplied by 100. The independent variables used in the study included are current ratio (CR) obtained by dividing current assets by current liabilities; acid test ratio or quick ratio (QR) obtained by dividing current assets net of inventories by current liabilities and the cash ratio (CSHR) obtained by dividing cash plus short term investments by current liabilities. The control independent variables identified by the researcher in the study of the relationship between liquidity and profitability of nonfinancial companies listed in the KSE included the following; Firm size, sales growth and the debt ratio. Control variables are those variables that are likely to influence the research results (Mugenda and Mugenda, 2003). The control independent variables were calculated as follows: firm size was the natural logarithm of total assets (LnTA); sales growth (SG) = [(this year's sales - previous year's sales)/previous year's sales] multiplied by 100 and the debt ratio (DR) was determined by dividing the total liabilities by the total asset multiplied by 100.



**Regression Model**

A multiple linear regression was used to analyze the relationship between the liquidity and the profitability of the nonfinancial companies listed at the Karachi Stock Exchange.

The study used the following conceptual model:

$$ROA = f (CR, QR, LR, SG, FIRM SIZE, DR)$$

The model was modified from Waithaka (2012) who studied the Relationship between Working Capital Management Practices and Financial Performance of Agricultural Companies Listed at the Nairobi Securities Exchange so as to include liquidity and profitability control variables. Other studies that have used similar model includes the studies carried out by Ajanthan (2013), Arshad and Gondal (2013), Bhunia (2011), Deloof (2003) and Mwangi et al (2014).

The empirical model is thus:

$$ROA_{it} = \beta_0 + \beta_1 (CR) + \beta_2 (QR) + \beta_3 (LR) + \beta_4 (LnTA) + \beta_5 (SG) + \beta_6 (DR) + \epsilon_{it}$$

Where;

ROA<sub>it</sub> = Return on assets of a company

Bo = the intercepts of equation (the constant);

$\beta_i$  = Coefficients of independent variables of company  $i$  which measures the change in ROA for a unit change in independent variable;

$t$  = Time in years; 1, 2... 5 years;

$i = 1 \dots n$ , where  $n$  is the total number of companies;  $n = 18$ ;

CR = Current Ratio;

QR = Quick Ratio;

CSHR = Cash / Liquid Ratio;

LnTA = Natural Logarithm of Total Assets;

SG = Sales Growth;

DR = Debt Ratio;

$\varepsilon$  = the error term (residual).

### Test of Significance

The study is conducted for the purpose to find out the impact of liquidity on profitability of cement firm listed on Karachi stock exchange and also the relationship for these variables so regression and correlation analysis has been made. Correlation has used for finding the relationship between liquidity and profitability of cement sector of Pakistan and regression analysis has been used for the casual affect detection liquidity upon profitability. Significance of coefficient values at 5% and 1% levels of significance was tested using the R<sup>2</sup>, Analysis of Variances (ANOVA, the  $t$  and the  $F$  statistics. R<sup>2</sup> was used to measures the amount of variation in the dependent variable (ROA) which is explained by the variation in the independent variables.  $F$  Statistic is a statistic which essentially compares Sum of Square due to Regression to Sum Square due to Error. It enabled a hypothesis test to be carried out on the significance of the regression model. The  $t$  statistic was used to measure how well a particular independent variable predicts the dependent variable if all other predictors are not included or are assumed constant.

## Results and Discussion

### Introduction

This section presents data analysis, interpretation and discussion of the research findings. The findings are divided into two types: Descriptive results and those obtained from correlation and regression analysis. The statistical package for social sciences SPSS version 17 was used for both types of analysis. The findings were presented using tables. Data from this study was collected from the 18 listed Cement companies on the KSE for the period 2006 to 2011. The total number of companies listed on the KSE as at 31st December 2011 was 20 companies. The study only included 18 companies. The two companies were excluded from the study because some year's data was missed and comparison was not true.

### Descriptive Analysis

Table 4.1 shows the descriptive statistics presenting the mean, standard deviation, maximum values and minimum values of the different variables used in the study.

	N	Minimum	Maximum	Mean	Std. Deviation
CR	108	.20	3.00	.8083	.57796
QR	108	.15	2.99	.7101	.54719
CSHR	108	.00	2.76	.2338	.47056
SG	108	-1.00	60.30	.8000	5.89207
DR	108	.24	1.26	.5963	.18193
LnTA	108	14.49	17.77	16.0425	.93901
ROA	108	-28.21	61.45	1.2445	13.19419
Valid N (list wise)	108				

Table 4.1 above shows the mean, standard deviation, minimum values and maximum values for 18 companies listed on Karachi Stock Exchange for years 2006 to 2011. The descriptive statistics show that over the period under study, profitability as measured by return on assets has a minimum -28.21% with a maximum of 61.045% and an average ROA of 1.244% with a standard deviation of 13.19%. Furthermore, the minimum current ratio

was 0.20 and a maximum of .80. The minimum quick ratio is 0.15 and a maximum of 2.99 and the minimum cash ratio is 0.00 with a maximum of 2.76. The mean values of current ratio are .80 with a standard deviation of .75. The analysis also shows that the value of mean for quick ratio (.71) and for current ratio (.80) are below the standard rules. Conventionally they are 2:1 and 1:1 respectively. This reveals that the Pakistani cement companies are facing problems to fulfill their short term obligations. It can therefore be concluded that the Cement companies listed on the KSE have unhealthy liquidity position and therefore they are in a position that they cannot pay short term obligations.

**Quantitative Analysis**

Pearson's correlation coefficients' has been tested for these variables in order to show the relationship strength between these mentioned variables and the result are shown in the below table 4.2. Correlation analysis was used to determine the strength and direction of the linear relationship between the variables under consideration (Table 4.2). The results indicate that all the predictor variables namely: current ratio (CR), quick ratio (QR), cash ratio (CSHR) sales growth (SG) and Firm size (LnTA) has a positive relation with profitability as measured by Return on Asset (ROA). In which correlation coefficients of CR, QR and CSHR with ROA is .44, .42, and .38 respectively are found to be statistically significant at 1% level of significance with ROA. SG and LnTA are also positively correlated with ROA but this relation is insignificant because correlation coefficient are .01 and .08 respectively. ROA is negatively correlated with the firm's leverage value of correlation coefficient with ROA is .559 this is statistically significant at 1% level of significance. This means that the firm's profitability will decrease as the firm's leverage increases. This may be the case due to increased finance costs.

**Table 4.2: Pearson's Correlation Coefficients Analysis**

		CR	QR	CSHR	SG	DR	LnTA	ROA
QR	<b>Pearson Correlation</b>	.989**	1					
	<b>Sig. (2-tailed)</b>	.000						
CSHR	<b>Pearson Correlation</b>	.806**	.833**	1				
	<b>Sig. (2-tailed)</b>	.000	.000					
SG	<b>Pearson Correlation</b>	-.094	.092	-.035	1			
	<b>Sig. (2-tailed)</b>	.333	.342	.717				
DR	<b>Pearson Correlation</b>	-.485**	.443**	-.375**	.122	1		
	<b>Sig. (2-tailed)</b>	.000	.000	.000	.209			
LnTA	<b>Pearson Correlation</b>	.098	.132	.276**	-.120	-.144	1	
	<b>Sig. (2-tailed)</b>	.315	.174	.004	.216	.136		
ROA	<b>Pearson Correlation</b>	.448**	.422**	.383**	.016	-.559**	.082	1
	<b>Sig. (2-tailed)</b>	.000	.000	.000	.000	.000	.000	.000
*. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

**Regression Analysis**

Furthermore multiple regression analysis has been used for the investigation of predictive ability of our independent variables on the criterion variable. The model used for the regression analysis is stated in the common form as follows;

$$ROA_{it} = \beta_0 + \beta_1 (CR) + \beta_2 (QR) + \beta_3 (LR) + \beta_4 (LnTA) + \beta_5 (SG) + \beta_6 (DR) + \varepsilon$$

**Table 4.3: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.606 <sup>a</sup>	.367	.330	10.80290

Predictors: (Constant), LnTA, CR, SG, DR, CSHR, QR

The regression result shown in the above table 4. 3 of the model summary. The adjusted R square values of .367 show that about 36.7% change in ROA is explained by independent variable Included in our model.

**Table**

**4.4**

**Table 4.4: Analysis of Variances (ANOVA)**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	6840.307	6	1140.051	9.769	.000 <sup>a</sup>
Residual	11786.965	101	116.703		
Total	18627.272	107			

a. Predictors: (Constant), LnTA, CR, SG, DR, CSHR, QR

b. Dependent Variable: ROA

In the above table 4.4 show the sum of squares due to regression is 6840.307 and the sum of squares due to error (residual) is 11786.965. This shows that the differences that are expounded by the independent variables are greatly less than the variations explained by other factors not taken in the model. The impenetrable variations forms the foundation of advance studies to show that what are the other main factors that affect the profitability of Pakistani cement sector.

**Table 4.5: Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	16.710	21.487		.439
	CR	13.015	13.922	.570	.352
	QR	-10.230	15.188	-.424	.502
	CSHR	3.264	4.306	.116	.450
	SG	.196	.181	.087	.282
	DR	-31.775	7.020	-.438	.000
LnTA	-.043	1.223	-.003	-.035	.972

a. Dependent Variable: ROA

In table 4.5 the standard beta coefficient of the variables show that all independent variables make contribution to the changes in dependent variable but at different proportion of significance. Like for example CR makes a higher contribution to the prediction of ROA with a B-coefficient of .57, while LNTA makes lower contribution to the prediction of ROA with B-coefficient of -.003. The data further investigate that from t-value and sig-value it is shown that DR generate significant negative impact on ROA at 5% of significance. The contribution to ROA of other variables namely CR, QR, CCSHR, SG and LNTA are not significant at 5% level of significance. QR and LNTA are negatively insignificant with ROA. Only DR is negatively significant with ROA.

### Hypotheses Testing

Correlation results shows the relationship between liquidity and profitability so from the correlation analysis referencing to table 4.2 that CR, QR and CSHR which represent the liquidity and ROA representing profitability of cement sector of Pakistan has a positive relation with ROA so this accept alternate hypothesis  $H_{1A}$  because  $p$  value for all is 0.00 which is statistically significant and reject  $H_{0A}$ . The CR, QR and CSHR values in table 4.2 (.48, .42 and .38) are positive so this reject  $H_{1B}$  which states that liquidity has a negative relation with profitability and accept  $H_{0B}$ . The values CR, QR and CSHR of beta coefficient table 4.5 are (.57, -.42 and .11) are having insignificant impact because  $p$  value is greater than 0.05 so due to this result accept  $H_{1D}$ . Which states that liquidity has insignificant impact on profitability .and reject  $H_{0D}$ ?

### Conclusion and Recommendation

The cardinality of liquidity management in any organization cannot be over stressed. This is because either insufficient liquidity or surplus liquidity may be harmful to the plane operations of the organization. This paper was set out to explore the seemingly controversial profitability/liquidity trade off theory. From literature, the controversy as regard the relationship and impact of liquidity on profitability is yet to be resolve as divergent finding exist. Our empirical investigation using both the correlation and regression analysis reveal that liquidity ratios measure by current ratio (CR), Quick ratio (QR) and cash ratio (CSHR) sales growth (SG) and firm size (LNTA) have a positive and significant relation with ROA while Debt ratio (DR) has negative relationship with ROA. Regression analysis reveals that CR, QR, CSHR, and LNTA have a minute insignificant impact on ROA. The implication of the above is that liquidity has low degree of influence on the profitability of cement companies in Pakistan This only goes to indorse inefficiency and ineffectiveness in the management of liquid assets.

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