# The Impact of Working Capital Management on Profitability of Cement Industry in Pakistan

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## Abstract

*The study examines the impact of working capital in the cement industry of Pakistan. Moreover, the study outlines the main determinants of working capital in the cement industry of Pakistan. The determinants of working capital are related to the factors associated with Current ratio, Quick ratio, Inventory Turnover ratio, Account Receivable Turnover ratio, Debt Equity Ratio. The data to be taken for analysis consist of accounts of 2005-2012, policies and procedures of the company and methods used by the company. We are Studying the impact of working capital management over profitability of cement industry of Pakistan. For this purpose we have used five independent variables namely CR, QR, ART, ITR and DE for measuring working capital and two dependent variables ROA, ROE for measuring profitability.  Secondary data of 18 cement companies listed in KSE have been used and regression and correlation analysis has been run through E-viwes and following results are reported. In model 1Out of the five ratios selected for the study three ratios, namely CR, QR, D/E, and IRT registered positive correlation with the selected profitability ratio, ROA. ART has negative correlation with ROA and CR, QR, ART and ITR have insignificant relationship with ROA. Only DE ratio has significant relationship with ROA. In Model 2 five ratios selected for the study and all five ratios CR, QR, D/E, ITR and IRT registered positive correlation with the selected profitability ratio, ROE. But ART, ITR and QR have significant positive relationship with ROE and CR, and DE has insignificant relationship with ROE. It means when ART, ITR and QR are increased it*

*will put significant positive impact on profitability ratio (ROE). Hence, the study of the impact of working capital ratios on profitability viewed both negative and positive impacts. The study of the relationship between the profitability and working capital, ratios confirm with accepted rule that larger the turnover increases the profitability of the company.*

***Keywords:*** Working Capital; Current Ratio; Quick Ratio; Debt to equity Ratio; Account Receivable; Inventory Turnover Ratio; Profitability

## Introduction

Working capital management is a very essential component of corporate finance because it directly influences the profitability of the company. When we are talking about the company's working capital is what makes it profitable or not profitable. The more working capital a company has the better that company is doing, financially. Many potential investors and others in the public field will scrutinize a balance sheet to find the working capital calculation of a company. Working capital usually consists of current assets less current liabilities. Positive working capital means that the company is able to pay off its short-term liabilities. Negative working capital means that a company currently is unable to meet its short-term liabilities with its current assets. Determination of appropriate level of investment in current assets is the first and foremost responsibility of working capital manager.

Working capital refers to the cash a business requires for day-to-day operations, or, more specifically, for financing the conversion of raw materials into finished goods, which the company sells for payment. Among the most important items of working capital are levels of inventory, accounts receivable, and accounts payable. Analysts look at these items for

signs of a company's efficiency and financial strength. Working capital is used by lenders to help gauge the ability for a company to weather difficult financial periods. Working capital is calculated by subtracting current liabilities from current assets. Due to differences in businesses and the fact that working capital is not a ratio but an absolute amount, it is difficult to predict what the ideal amount of working capital would be for the business.

The determination of appropriate level of working capital can be effect upon the profitability working efficacy and strength of the business. Working capital is the parameter of capital budgeting that predicts and indicates the short terms assets and liabilities. Positive working capital is the strength of the business that can enhance the profitability of the business project and negative working capital is the bed prediction for the business and future outcome. When we are taking about business philosophy, theory and design than that means the working capital is the substantial dimension of the business. It must be positive and moderate level at any cost in the business. Than it must be consider the all characteristic of the capital budgeting or investment appraisal is planning process used to determine whether the organization is long term and short term both the dimension of the investment. Long term investment means such as new machinery new plant and new products research and development projects are worth perusing. It is budget for major capital or investment expenditure. The above mentioned long term investment strongly correlated with working capital management or operationalization of the business. How much capital is required to meet day to day expenditure or operationalization of the project?

Working capital is the major function of finance. There are three types of decision in finance

1. Investment decision

2. Financing decision

3. Dividend decision

> The decision with regards to long term assets is called capital budgeting. The decision with regards to short term or current assets is called working capital management.

The capital required for the business can be classified under two main categories

1. Fixed Capital

2. Working capital

The term working capital refers to current assets which may be defined as (i) those which are convertible into cash or equivalents within a period of one year, and (ii) those which are required to meet day to day operations. The fixed assets as well as the current assets, both require investment of funds.

So, the management of working capital and of fixed assets, apparently, seem to involve same type of considerations but it is not so.

The management of working capital involves different concepts and methodology than the techniques used in fixed assets management. The very basics of fixed assets decision process (i.e., the capital budgeting) and the working capital decision process are different. The fixed assets involve long period perspective and therefore, the concept of time value of money is applied in order to discount the future cash flows; whereas in working capital the time horizon is limited, in general, to one year only and the time value of money concept is not considered. The fixed assets affect the long term profitability of the firm while the current assets affect the short term liquidity position. The fixed assets decisions are irreversible and affect the growth of the firm, whereas the working capital decisions can be changed and modified without many implications.

Managing current assets may require more attention than managing fixed assets. The financial manager cannot simply decide the level of the current assets and stop there. The level of investment in each of the current assets varies from day to day, and the financial manager must therefore, continuously monitor these assets to ensure that the desired levels are being maintained. Too large an investment in current assets means tying up funds that can be productively used elsewhere (or it means added interest cost if the firm has borrowed funds to finance the investment in current assets). Excess investment may also expose the firm to undue risk e.g., in case, the inventory cannot be sold or the receivables cannot be collected.

On the other hand, too little investment also can be expensive. For example, insufficient inventory may mean that sales are lost as the goods which a customer wants are not available. The result is that the financial managers spend a large chunk of their time managing the current assets because level of these assets changes quickly and a lack of attention paid to them may result in appreciably lower profits for the firm. So, in the working capital management, a financial manager is faced with a decision involving some of the considerations as follows:

1. What should be the total investment in working capital of the firm?

2. What should be the level of individual current assets?

3. What should be the relative proportion of different sources to finance the working capital requirements?

Thus, the working capital management may be defined as the management of firm's sources and uses of working capital in order in maximize the wealth of the shareholders. The proper working capital management requires both the medium term planning (say up to three years) and also the immediate adaptations to changes arising due to fluctuations in operating level of the firm.

The term working capital may be used in two different ways.

i) Gross Working Capital (or Total Working Capital): The gross working capital refers to the firm's investment in all the current assets taken together. The total of investments in all the individual current assets is the gross working capital. For example, if a firm has a cash balance of Rs. 50,000, debtors of Rs. 70,000 and inventory of raw material and finished goods has been assessed at Rs. 1,00,000, then the gross working capital of the firm is Rs. 2,20,000 (i.e. Rs.50,000 + Rs.70,000 + Rs.1,00,000).

ii) Net Working Capital: The term net working capital may be defined as the excess of total current assets over total current liabilities. It may be noted that the current liabilities refer to those liabilities which are payable within a period of 1 year. The extent, to which the payments to these current liabilities are delayed, the firm gets the availability of funds for that period. So, a part of the funds required to maintain current assets is provided by the current liabilities and the firm will be required to invest the funds in only those current assets which are not financed by the current liabilities. The net working capital may either be positive or negative. If the total current assets are more than total current liabilities, then the difference is known as positive net working capital, otherwise the difference is known as negative net working capital. The net working capital measures the firm's liquidity. The greater the margin (i.e., net working capital) by which the firm's current assets cover its current liabilities, the better will it be. Although the firm's current assets may not be converted into cash precisely when they are needed, still greater net working capital assures that in all

likelihood some current assets will be converted into cash to pay the current liabilities.

The distinction between gross working capital and net working capital does not in any way undermine the relevance of the concepts of either gross or net working capital. A financial manager must consider both of them because they provide different interpretations. The gross working capital denotes the total working capital or the total investment in current assets. A firm should maintain an optimum level of gross working capital. This will help avoiding (i) the unnecessarily stoppage of work or chance of liquidation due to insufficient working capital, and (ii) effect on profitability (because over flowing working capital implies cost). Therefore, a firm should have just adequate level of total current assets. The gross working capital also gives an idea of total funds required for maintaining current assets.

On the other hand, net working capital refers to the amount of funds that must be invested by the firm, more or less, regularly in current assets. The remaining portion of current assets is being financed by the current liabilities. The net working capital also denotes the net liquidity being maintained by the firm. This also gives an idea of buffer available to the current liabilities.

Thus, both concepts of working capital i.e., the gross working capital and the net working capital have their own relevance and a financial manager should give due attention to both of these. Some time, If creditors demands their money from company, at this time company's high working capital saves company from this situation. You know that selling of current assets are easy in small period of time but Company cannot sell their fixed assets with in small period of time. So, If Company have sufficient working capital, Company can easily pay off the

creditors and create his reputation in market. But if a company has zero working capital and then company can not pay creditors in emergency time and either company becomes bankrupt or takes loan at higher rate of Interest. In both condition, it is very dangerous and always Company's Account Manager tries to keep some amount of working capital for creating goodwill in market.

Positive working capital enables also to pay day to day expenses like wages, salaries, overheads and other operating expenses. Because sufficient working capital can not only pay maturity liabilities but also outstanding liabilities without any more delay.

One of the advantages of positive working capital is that company can do every risky work without any tension of self security.

**Objectives of the Study**

The present study fulfills the following objectives.

• To assess the impact of working capital on profitability.

• To examine the combine effect of the ratios relating to working capital management and profitability with the assistance of multiple correlation coefficient and multiple regression equation and to test the significance of the regression coefficients.

- To measure the appropriate level of working capital in the capital budgeting

- Working capital is the essential elements of the corporate finance.

- For the discovery of better results and outcomes that can be possible by the determination of the moderate level of working capital management.

## Literature Review

The negative relationship between accounts receivables and firms' profitability suggests that less profitable firms will pursue a decrease of their accounts receivables in an attempt to reduce their cash gap in the cash conversion cycle. Likewise the negative relationship between number of days in inventory and corporate profitability suggests that in the case of a sudden drop in sales accompanied with a mismanagement of inventory will lead to tying up excess capital at the expense of profitable operations (Lazaridis, 2000; & Tryfonids, 2000).

In one study it was suggested that a priori is impossible to predict the impact on the current ratio, quick ratio, cash conversion cycle, profits and leverage when a change in sales causes a change in working capital variables (Katerina, 2000; Lazaridis, j. 2000). Likewise, a managerial decision that changes components of working capital will cause an unpredictable change in the liquidity, profitability and leverage ratios. Overall, the cash conversion cycle was significantly positively related to the current and quick ratios, to the receivables and to the inventory conversion period.

Most of the Pakistani firms have large amounts of cash invested in working capital. It can therefore be expected that the way in which working capital is managed will have a significant impact on profitability of those firms.

We have found a significant negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of Pakistani firms listed on Karachi Stock Exchange. These results suggest that managers can create value for their shareholders by reducing the number of day's accounts receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability is

consistent with the view that less profitable firms wait longer to pay their bills. On basis of the above analysis we may further conclude that these results can be further strengthened if the firms manage their working capital in more efficient ways. Management of working capital means "management of current assets and current liabilities, and financing these current assets". If these firms properly manage their cash, accounts receivables and inventories in a proper way, this will ultimately increase profitability of these companies (Rehman, 2007; Nasr, 2007).

Working capital and liquidity of the company concluded, the increase in the profitability of the company was less than the proportion to decrease in working capital. Working capital management and profitability of the company disclosed both negative and positive association number of negative association only one positive association of ROI. (Raman, P., 2003)

Most firms have a large amount of cash invested in working capital. It can therefore be expected that the way in which working capital is managed will have a significant impact on the profitability of firms. In this paper a significant negative relation between gross operating income and the number of days accounts receivable, inventories and accounts payable of Belgian firms has been found. The negative relation between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills.

Deloof, (2003) proved that the degree of net working capital as a proportion of the overall financing required, the higher the net working capital the greater being the impact of inflation on capital spending.

(Geofrey, T., 1996) explained the impact of aggressive/conservative working capital investment and financing policies has been examined through cross-sectional regression models between working capital policies

and profitability as well as risk of the firms. We found a negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies. The firms yield negative returns if they follow an aggressive working capital policy.

Researchers (Talat, 2007; Nazir, 2007) further elaborated that the working capital needs of an organization change over time as does its internal cash generation rate. The study has shown that the paper and printing industry has been able to achieve high scores on the various components of working capital and this has positively impact on its profitability.

(Kesseven, 2006) further Analyzed, Analysis of working capital management efficiency was done on a sample of 349 telecommunication equipment companies. It is found that the working capital management efficiency is negatively associated to the profitability and liquidity. When the working capital management efficiency is improved by decreasing days of working capital, there is improvement in profitability of the firms in telecommunication firms in terms of profit margin. It is also found that the inventory management among the sample firms may not be efficient.

The statistical evidences indicate that the management of a company does not have much impact on the return on assets and profit margin. This is mainly due to heavy fixed assets requirements in telecommunication industry. There is also evidence that there is poor management of accounts receivable and accounts payable (Vedavinayan, G., 2007).

An empirical evidence of working capital management policies and practices of the private sector manufacturing companies in srilanka was provided by (Pandey, 1997; Parera, 1997). They found that most companies in srilanka have informal working capital policies and company size has an

influence on the overall working capital policy and approach. Moreover, company profitability has an influence on the methods of working capital planning and control. This article attempts to place working capital policy in perspective with other policies of the small business. Contrary to common usage, working capital policy should be expressed in terms of asset liquidity, deferability of current liabilities, predictability of sales, and composition of financing (particularly debt), rather than in terms of net working capital magnitude (CA minus CL). The distinction is critical for the small business because: (1) initial liquidity is generally poor; (2) postpone-ability of current liabilities is both an unknown and risky element; (3) sales predictability ––when attempted––is low; and (4) long-term capital is difficult to obtain. Those interested in maintaining and extending the small business sector should increase interest in this critical area (Brian, B., 1996).

When working capital is managed improperly, allocating more than enough of it will render management non-efficient and reduce the benefits of short term investments. On the other hand, if working capital is too low, the company may miss a lot of profitable investment opportunities or suffer short term liquidity crisis, leading to degradation of company credit, as it cannot respond effectively to temporary capital requirements (Nazir, 2008; Afza, 2008).

Working capital management is particularly important in the case of small and medium-sized companies. Most of these companies' assets are in the form of current assets. Also, current liabilities are one of their main sources of external finance. In this context, the objective of the current research has been to provide empirical evidence about the effects of working capital management on the profitability of a sample of small and medium-sized firms. To this end, a sample of Spanish firms was used to conduct a study

with panel data for SMEs. Data on a panel of 8,872 SMEs was collected, covering the period from 1996 to 2002. The results are similar to those found in previous studies that focused on large firms and the analyses carried out confirm the important role of working capital management in value generation in small and medium-sized firms. There is a significant negative relation between an SME's profitability and the number of day's accounts receivable and days of inventory. I cannot, however, confirm that the number of day's accounts payable affects an SME's return on assets (Pedro et al., 1996).

Regarding the influence of international sales levels on the use of the working capital management vehicles, the results show that international sales levels have little impact. As one would expect, the number of foreign banks and overseas demand deposit amounts are significantly related to international sales levels. The level at which working capital decisions are made is not dependent on international sales levels, perhaps an indication that corporate culture concerning decision-making plays a larger role than international sales levels (Ricci, C., 1996; Vito, D., 1996).

The inefficiency of a firm's working capital management is positively correlated with firm size and uncorrelated with its industry's concentration. I interpret these results as suggesting that firms are not using their market power at the margin to improve the efficiency of their working capital management practices. Instead, they tend to follow the practices of their industry (Robert et al., 2006).

Increases in the current ratio and debt ratios are negatively associated with profitability and risk adjusted return. Profitability is also significantly negatively related to the current ratio. In other words, liquidity and profitability are clearly inversely related (Shin, 1998; Soenen, 1998).

Working capital management relates to the source, and application of short-term capital. When working capital is managed improperly, allocating more than enough of it will render management non-efficient and reduce the benefits of short-term investment. On the other hand, if working capital is too low, the company may miss profitable investment opportunities or suffer short-term liquidity crises, leading to degradation of company credit, as it cannot respond effectively to temporary capital requirements.

Chiou and Cheng' (2006) the research presented here is based on the annual ratings of working capital management published in CFO magazine. Our findings indicate a consistency in how industries "stack up" against each other over time with respect to the working capital measures. However, the working capital measures themselves are not static, with our results indicting significant movements across our entire sample over time. Our findings are important because they provide insight to working capital performance across time, and shine light on working capital management across industries.

Filbeck & Krueger' (2003) this study looked at ten diverse industry groups to examine the relative relationship between their aggressive/conservative working capital policies. Regarding the degree of aggressive asset management, the industries had distinctive and significantly different policies. In addition, the relative nature of the asset policies between industries exhibited remarkable stability over the ten year study period. Industry policies concerning the relative degree of aggressive liability management also were significantly different, but not to the same extent or with the same stability. Interestingly, Weinraub and Visscher (1998) study also showed a high and significant negative correlation between industry asset and liability policies. In general, it appears that when relatively aggressive working capital asset policies are followed they are balanced by

relatively conservative working capital financial policies. It should be apparent that increased direct investment requires additional working capital.

Consequently, they surveyed executives of Japanese-owned companies to determine their working capital practices. In this survey, they discovered that the most important objective of working capital management by Japanese investors was to provide various current assets and short-term credit necessary to support anticipated sales. No other objective rated close to this one. In addition, the respondents reported that they obtained most of their short-term funds from Japanese sources, thus rising -the possibility that they participate in the keiretsu system (Suk et al., 1992).

Eljelly (2004) elucidated that efficient liquidity management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of inability to meet due short-term obligations and avoids excessive investment in these assets.

The relation between profitability and liquidity was examined, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia using correlation and regression analysis. The study found that the cash conversion cycle was of more importance as a measure of liquidity than the current ratio that affects profitability. The size variable was found to have significant effect on profitability at the industry level. The results were stable and had important implications for liquidity management in various Saudi companies. First, it was clear that there was a negative relationship between profitability and liquidity indicators such as current ratio and cash gap in the Saudi sample examined. Second, the study also revealed that there was great variation among industries with respect to the significant measure of liquidity.

Ghosh and Maji' (2003) study shows to examine the efficiency of working capital management of the Indian cement companies during 1992 – 1993 to 2001 – 2002. For measuring the efficiency of working capital management, performance, utilization, and overall efficiency indices were calculated instead of using some common working capital management ratios. Setting industry norms as target-efficiency levels of the individual firms, this paper also tested the speed of achieving that target level of efficiency by an individual firm during the period of study. Findings of the study indicated that the Indian Cement Industry as a whole did not perform remarkably well during this period.

It was examine the influence of a firm's industry on its working capital management (Hawawini et al., 1986). Using data on 1,181 U.S. firms over the period 1960 to 1979, they conclude that there is a substantial industry effect on firm working capital management practices that is stable over time. From these studies, I conclude that sales growth and industry practices are important factors influencing a firm's investment in working capital.

According to (Moyer *et al*., 1998), firms have two goals - liquidity and profitability. Many types of costs are related to the excesses and shortages of working capital levels of investment and financing. Managing these costs can increase the profitability of a firm's operations. Firms have to determine the individual and joint impact of the levels of short-term investment and financing on the dual objectives of working capital management. These goals imply that decisions that tend to maximize profitability tend not to maximize the chances of adequate liquidity. Conversely, focusing almost entirely on liquidity will tend to reduce the potential profitability of the firm.

Most business operations affect or are affected by working capital operations (purchase of materials for production, production of finished

goods and sales of finished goods to customers). Purchases of material result in increasing the investment, payment of cash, or increasing payables. Production results in increasing work in process inventory and finished goods inventory. Sales end-up in decreasing finished goods inventory, and increasing cash or receivables. The management of these activities is very time consuming and may even demand more time if the working capital investments and short-term financing are actively managed. It is therefore normal for managers to spend much of their time in activities directly or indirectly related to working capital investments and short-term debts (Scherr, 1989).

Raw material inventories are used to make production scheduling easier, to take advantage of price changes and quantity discounts, and to hedge against supply shortages. If raw material inventories were not held, purchases would have to be made continuously at the rate of production. This would not only mean high ordering costs and less quantity discounts, but also production interruptions when raw materials cannot be procured in time. Therefore, the firm has an interest in buying enough raw materials to provide an effective cushion between purchases and production (Horim, 1987).

Horne and Wachowicz' (1998) study shows us that On the basis of the stability of balances compared to changes in the volume of sales and production, current assets can also be divided into permanent and fluctuating. The balance of permanent current assets remains constant regardless of the change in sales volume or production capacity, while fluctuating current assets vary with a change in sales volume and production capacity. Permanent current assets include the safety stocks of cash and inventories. They are often used to meet the long-term minimum needs of

investment in current assets. Their balance is constant over a longer period of time and is therefore comparable with the firms fixed assets because investments in permanent current assets remain within the firm. The main difference between permanent current assets and fixed assets is that permanent current assets constantly change in physical terms, while fixed assets do not.

Due to the large size of inventories maintained, firms commit a considerable amount of funds to inventories. Therefore, in order to avoid unnecessary investments it is absolutely imperative to manage inventories efficiently. Neglecting the management of inventories will jeopardize a firm's short and long-term profitability. Inventories are the least liquid of all current assets; it should therefore provide the highest yield to justify investment (Block, 1992; Hirt, 1992). Overall, in line with that of cash there are three motives for holding inventories – the transactions motive, the precautionary motive and the speculative motive. The transaction motive emphasize on the need to maintain inventory in order to facilitate smooth production and sales operations. Inventory held for precautionary motive guards against the risk of unpredictable changes in inventory price, demand and supply factors. The speculative motive refers to carrying inventory in order to take advantage of unpredictable changes in inventory price. To be effective, management has to apply a system to keep track of inventory on hand and on order, knowledge of lead times and its variability, a reliable forecast of inventory demand and reasonable estimates of inventory holding, ordering and shortage costs (Stevenson, 1982).

Williamson (1985) pointed out cultural practices, believes and norms also determine practical management approaches. The study of working capital management has to be designed in such-away that it takes full consideration of the government regulations and cultural factors. Management in general

and that of working capital in particular, has become a two-edged sword - internal and external. Internally various working capital approaches are used to maximize the benefit and reduces the costs of working capital, Externally the firm-supplier-customer linkages are managed such that the business to business cooperation results in synergy effects on firm value. This is achieved by reducing inter-firm transaction costs and creates firm value in a win-win condition (Rubin, 1998; Alvarez, 1998).

(Yeager, 1989; Seitz, 1989) further elaborated when liquidity is maintained through borrowing, there will be a trade-off between the interest costs paid to creditors and the income earned from the investment in the assets financed from the borrowing. Therefore, both too much and too little liquidity have costs. (Fafchamps, 1997) the study indicates that the Firms would rather sell for cash than on credit, but competitive pressure forces most companies to offer trade credits. Unlike credit from financial institutions, trade credit does not rely on formal collateral but on trust and reputation. According to (Stickney, 1996), cash flow based valuation gives a better picture of a firm's operating efficiency. This is mainly because of two reasons. First, cash is the ultimate source of value, that is, when firms invest in resource they delay current consumption and it is the medium of exchange that will permit them to consume various goods and services in the future. He argues that a resource has value because of its ability to provide future cash flows. Second, cash serves as a common measuring unit of future benefits and to compare future benefits of alternative operating and investment opportunities.

**Hypotheses**

**Ha0***: Current Ratio does not have significant impact on profitability*
**Ha1***: Current Ratio has significant impact on profitability*

**Hb0***: Quick Ratio does not have significant impact on profitability*

**Hb2***: Quick Ratio has significant impact on profitability*

**Hc0***: Debt Equity does not have significant impact on profitability*

**Hc3***: Debt Equity has significant impact on profitability*

**Hd0***: Accounts Receivable Turnover does not have significant impact on profitability*

**Hd4***: Accounts Receivable Turnover have significant impact on profitability*

**He0***: Inventory Turnover does not have significant impact on profitability*

**He5***: Inventory Turnover have significant impact on profitability*

**Model 1**

$Y = b0 + b_1\, CR + b_2\, QR + b_3\, D/E + b_4\, ITR + b_5\, ART + \varepsilon$

**Theoretical Model 1**

**Independent Variables**          **Dependent Variable**

Current Ratio

Quick Ratio

Debt to Equity Ratio

Inventory Turnover

Accounts Receivable Turnover

Return on Assets
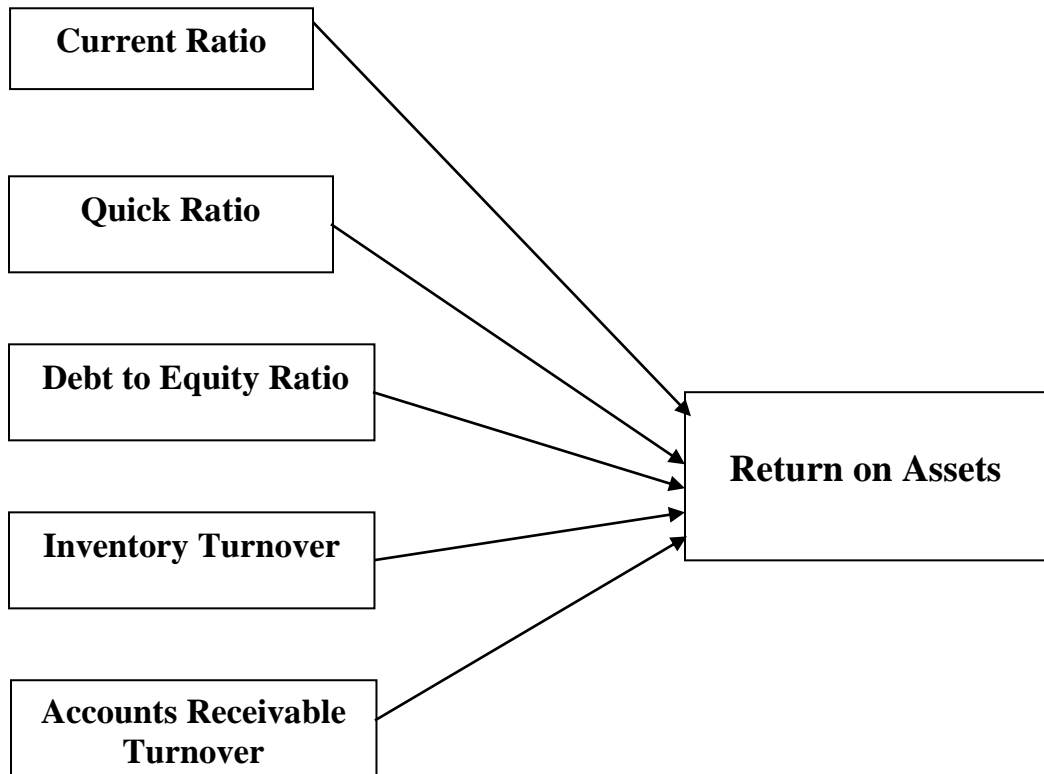
**(Lazaridis et al., 2000)**

**Model 2**

Y=b0 + b1 CR + b2 QR+ b3 D/E+b4 ITR +b5 ART+ ε

**Theoretical Model 2**

**Independent Variables**          **Dependent Variable**

| Current Ratio |

| Quick Ratio |

| Debt to Equity Ratio |

| Inventory Turnover |

| Accounts Receivable Turnover |

| Return on Equity |

**(Lazaridis et al., 2000)**
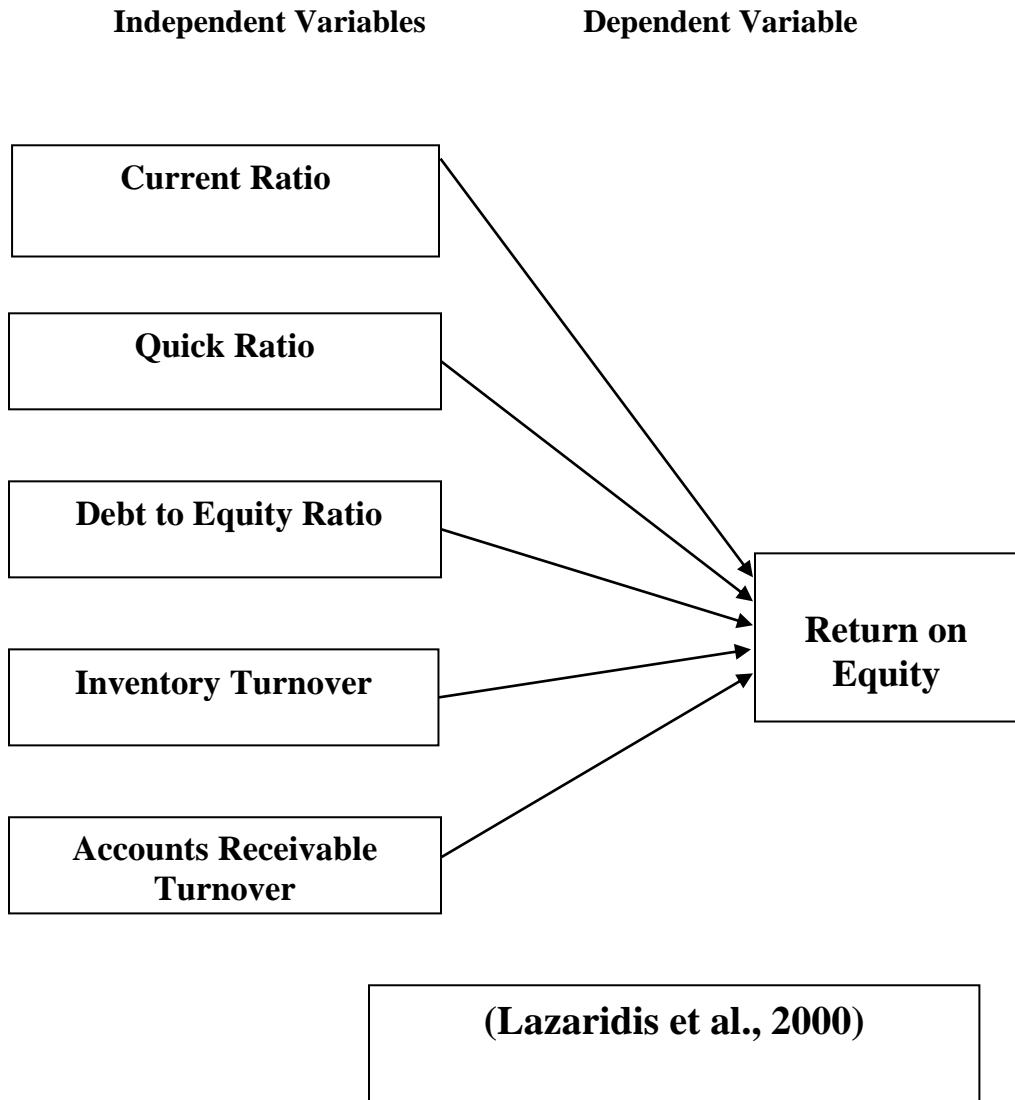
## Methodology

The study is designed to measure the relationship among the working capital and profitability.

## Population

The population for the current research work is cement industry of Pakistan.

## Sampling

Researcher have selected the all 18 listed companies of cement industry from KSE: Pioneer cement, Fauji cement, Cherat cement, D.G.Khan cement, Al-Abbas, Bestway, Dandot Cement, Dewan cement, Fecto cement, Attock Cement etc.

## Research Instruments and Data Collection

Annual reports, financial statements of the companies and published articles about the performance of cement sector of Pakistan have been used in the study. The data is taken by the State Bank website.

## Data Analysis Methods

The data of 18 firms in cement industry for the years 2005 to 2012 used in this study have been taken from mainly secondary sources. The necessary secondary data have been collected from the financial statements published in the Annual Reports of the cement companies. Editing, classification and tabulation of the financial data collection from the above-mentioned source have been done as per the requirements of the study. For assessing the performances of the financial data collected form the above-mentioned source have been done as per the requirements of the study. For analyzing data simple mathematical tools like ratios, percentage and various statistical tools have been used.

The ratios relating to working capital management which have been selected and computed for the study are:

The independent variables of the study are as follows:

(i) Current Ratio (CR)

(ii) Quick Ratio (QR)

(iii) Debt to Equity Ratio (D/E)

(iv) Accounts Receivable Turnover Ratio (ART)

 (v) Inventory Turnover Ratio (ITR)

Dependent variables of the study are as follows:

i) Return on Assets (ROA)

(ii) Return on Equity (ROE)

**Results, Discussion & Operationalization**

After collecting the data from SBP website as per our econometrics model we will calculated the
Variables as follow:

Return on Assets (ROA) =   Net Income
                                        Total Assets

Return on Equity (ROE) =   Net Income
                                        Total Assets

Current Ratio (CR) =        Current Asset
                                    Current Liabilities

Quick Ratio (QR) =        Current Asset_-Inventory
                                    Current Liabilities

Debt/ Equity Ratio (DE) = Total Liabilities
                                        Total Shareholder Equity

Inventory Turnover Ratio (ITR) =   Cost of Goods Sold
                                                Inventories

Account Receivable Turnover (ART) =     Sale on Credit
                                                                 Account Receivable

With the help of above formulas all variable are computed in the excel sheet than populated all variable in Eviews than with the help of plotting graph in Eviews to identify outliers and remove all abnormal outliers from the all variables data series which are also not justifiable by economics rational. So remove all outliers which are against economic theory than check heterokedasticty.

**Detecting Heterokedasticty**

Study used white hetroskedasticity test to test the presence and absence of hetroskedasticity in the given data.

**Detecting Autocorrelation**

After detecting the heterokedasticty than check is there is any auto correlation of times series with its lags values. For this first of all we will used the Breush Godfry seriel Correlation LM test. It is found that the autocorrelation of first degree exist in the data because p value of Resid (-1) is significant. When again run this test by putting no. of lags = 2 than p value of resid(-2)  become insignificant. Therefore first order auto correlation exists.  Autocorrelation is addressed by putting AR (1) term in the main equation due to which autocorrelation becomes insignificant.

**Descriptive Statistics**

Table 1 show the descriptive statistics result. ROA data series has means value of 1.103 and median of 0.70 and maximum point is 11.00 and minimum point of -7.30 and volatility in RoA is 5.16 and the data is positively skewed and the kurtosis is < 3 there the shape of curve is flatter. ROE data series has means value of 2.846 and median of 2.8 and maximum point is 28.8 and minimum point of -21.10 and volatility in RoE is 13.56 and the data is positively skewed and the kurtosis is < 3 there the shape of

curve is flatter. QR data series has means value of 51.39 and median of 49.6 and maximum point is 93.8 and minimum point of 16.1 and volatility in QR is 23.22 and the data is positively skewed and the kurtosis is < 3 there the shape of curve is flatter. The Volatility in CR, DE, ITR and ART is 27.24, 42.84, 8.20.217.12 respectively. The Coefficient of Skewness is positive in all data series therefore there is positively skewed distribution and the value of Kurtosis show that shape of curve is flatter except the ART data series which have picked curve because kurtosis is >3.

**Descriptive Statistics Table: 1**

|          | ROA   | ROE    | QR     | CR     | DE     | ITR   | ART    |
|----------|-------|--------|--------|--------|--------|-------|--------|
| Mean     | 1.103 | 2.846  | 51.395 | 59.93  | 116.37 | 15.17 | 138.53 |
| Median   | 0.700 | 2.800  | 49.600 | 59.50  | 107.50 | 14.44 | 66.67  |
| Maximum  | 11.00 | 28.80  | 93.800 | 106.60 | 206.10 | 30.93 | 1000.0 |
| Minimum  | -7.30 | -21.10 | 16.100 | 19.00  | 52.30  | 0.000 | 0.000  |
| Std. Dev.| 5.167 | 13.568 | 23.22  | 27.24  | 42.84  | 8.20  | 217.12 |
| Skewness | 0.338 | 0.075  | 0.152  | 0.129  | 0.360  | 0.029 | 2.94   |
| Kurtosis | 2.013 | 1.883  | 1.797  | 1.659  | 2.006  | 2.230 | 11.92  |

**Correlation Matrix**

**Table: 3**

| Variables | ROA   | ART | CR | DE | ITR | QR |
|-----------|-------|-----|----|----|-----|----|
| ROA       | 1.000 |     |    |    |     |    |

| ART | 0.297 | 1.000 | | | | |
| CR | 0.990 | 0.352 | 1.000 | | | |
| DE | 0.996 | 0.304 | 0.988 | 1.000 | | |
| ITR | 0.987 | 0.293 | 0.979 | 0.986 | 1.000 | |
| QR | 0.994 | 0.324 | 0.997 | 0.992 | 0.987 | 1.000 |

# Regression for Model 1

Dependent Variable: ROA

Method: Least Squares

Table : 2

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| C | -11.670 | 0.451 | -25.899 | 0.000 |
| ART | 0.000 | 0.000 | -1.423 | 0.160 |
| CR | 0.024 | 0.029 | 0.823 | 0.414 |
| DE | 0.068 | 0.014 | 4.896 | 0.000 |
| ITR | 0.042 | 0.047 | 0.874 | 0.386 |
| QR | 0.056 | 0.038 | 1.471 | 0.147 |

| R-squared | 0.995092 | Mean dependent var | 1.10308 |
|-----------|----------|--------------------|---------|
| Adjusted R-squared | 0.994676 | S.D. dependent var | 5.16751 |
| S.E. of regression | 0.377067 | Akaike info criterion | 0.97498 |

| Sum squared resid | 8.388606 | Schwarz criterion | 1.17569 |
| Log likelihood | -25.6868 | Hannan-Quinn criter. | 1.05417 |
| F-statistic | 2392.198 | Durbin-Watson stat | 0.79812 |
| Prob(F-statistic) | 0 | | |

## ROE Model

Dependent Variable: ROE
Method: Least Squares
Table : 2

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| C | -25.870 | 0.648 | -39.915 | 0.000 |
| ART | 0.001* | 0.001 | 2.530 | 0.014 |
| CR | 0.027 | 0.049 | 0.556 | 0.580 |
| DE | 0.006 | 0.021 | 0.306 | 0.761 |
| IRT | 0.494*** | 0.086 | 5.740 | 0.000 |
| QR | 0.364*** | 0.070 | 5.218 | 0.000 |

| R-squared | 0.997114 | Mean dependent var | 2.846 |
| Adjusted R-squared | 0.99687 | S.D. dependent var | 13.57 |
| S.E. of regression | 0.759152 | Akaike info criterion | 2.375 |
| Sum squared resid | 34.00244 | Schwarz criterion | 2.575 |
| Log likelihood | -71.1725 | Hannan-Quinn criter. | 2.454 |
| F-statistic | 4077.288 | Durbin-Watson stat | 1.067 |
| Prob(F-statistic) | 0 | | | |

## Correlation Matrix
### Table: 5

| Variables | ROE | ART | CR | DE | IRT | QR |
|-----------|------|------|------|------|------|------|
| ROE | 1.000 | 0.335 | 0.994 | 0.992 | 0.991 | 0.997 |
| ART | 0.335 | 1.000 | 0.352 | 0.304 | 0.293 | 0.325 |

| CR | 0.993 | 0.352 | 1.000 | 0.988 | 0.979 | 0.997 |
|-----|-------|-------|-------|-------|-------|-------|
| DE | 0.991 | 0.303 | 0.987 | 1.000 | 0.986 | 0.992 |
| IRT | 0.991 | 0.293 | 0.979 | 0.986 | 1.000 | 0.987 |
| QR | 0.997 | 0.324 | 0.997 | 0.992 | 0.987 | 1.000 |

**Results and Discussion**

**Model Summary of Return on Assets**

The Statically analysis model summary shows that the return on asset is the dependent variable up to R square 99 % variation is explained by explanatory variables. The explanatory variables Current Ratio Quick Ratio Debt to Equity Ratio Account Receivable Inventory Turnover.

**F Statistics**

The regressions run on this model which shows the high significance the result. Because the F statistics is has significant p value. Therefore the model is best fit. The regression line is the minimum variance line.

**Coefficients**

The coefficient of data analysis shows the following results.

Current Ratio: It indicates that there is direct relationship between the Current Ratio and Return on Assets. But the relationship is in significant. The movement of the slop is positive direction which is 0.024. The result is significant because p value is greater than 5%.

**Quick Ratio**

It indicates that there is direct relationship between the quick Ratio and Return on Assets. But the relationship is insignificant. The movement of the slop is positive direction which is 0.056. The result is is significant because p value is greater than 5%.

**Debt to Equity Ratio**

It indicates that there is direct relationship between the Debt Equity ratio and Return on Assets. But the relationship is significant. The movement of the slop is positive direction which is 0.056. The result is is significant because p value is less than 5%.

When the company is highly leveraged it means it has a positive impact on return on assets.

## Account Receivable Turnover (ART) Ratio

ART indicates that the slop of equation is the negative which is -.00046 that means there is a inverse relationship between the independent and dependent variables both are moving in the opposite direction. When there are increases in account receivable turnover it leads to increase on Return on Assets.  Although the results are not significant.

## Inventory Turnover Ratio

The results show that there is a direct relationship between the dependent and independent variables the slop is 0.0415 and the results are insignificant.

## Correlation Matrix (table 3)

Table 3 shows the correlation among the entire variable. There is significant correlation between ROA and ART, CR DE ITR and QR. Because the value of correlation coefficient is greater than 0.5 as shown in table 3 there is significant positive correlation in above mention all the variables. It means when there is one unit change in ROA than ART, CR DE ITR and QR are also change but in same direction. Because the above variables are showing direct relationships.

## Model 2 (Table 5)

### The impact of working capital ratio Over Return on Equity

With the help of above formulas all variable are computed in the excel sheet than populated all variable in Eviews than with the help of plotting graph in

Eviews to identify outliers and remove all abnormal outliers from the all variables data series which are also not justifiable by economics rational. So remove all outliers which are against economic theory than check heterokedasticty.

## Detecting Heteroskedasticity

There are following five methods will be used to check where given data series are homoscedasticity are having presence of Heteroskedasticity.

The Breusch pagan LM Test
The Glesjer LM Test
The Harvey-Godfrey LM Test
The park Test
The White Test
The above mentioned LM test are run in Eviews and the result of LM=No. of observation X R square

The p value is insignificant which is greater than 5%. So it is concluded that the given data series does not report heterokedasticty and data are homokadasticst.

## Detecting Autocorrelation

After detecting the heterokedasticty than check is there is any auto correlation of times series with its lags values. For this first of all we will used the Breush God fry serial Correlation LM test. It is found that the autocorrelation of first degree exist in the data because p value of Resid (-1) is significant. When again run this test by putting no. of lags = 2 than p value of resid (-2) become insignificant. Therefore first order auto correlation exists so Durbin Watson test is run for detecting autocorrelation. We regress the equation in Eviews as ROA as dependent variable and CR, QR, DE, IRT, ART as independent variables. Than observe the value of Durbin Watson state is 1.067. By using Durbin Watson State table to find out DL and DU.  That is DL= 1.44   DU =1.77 at k=5(independent variable

and n=65. Drawn the durbin Watson line our calculated value falls between 0 and 1.44. Therefore it concluded that positive autocorrelation is exist in the data and then method of HAC (neway-west) is used than the result that are free from autocorrelation are as follow as shown table 5 :

**Model Summary of Return on equity table 5**

The Statically analysis model summary shows that the return on equity is the dependent variable up to  R square 99 % variation is explained by explanatory variables. The explanatory variables Current Ratio Quick Ratio Debt to Equity Ratio Account Receivable Inventory Turnover.

**F Statistics**

Table 4 the regressions run on this model which shows the high significance the result. Because the F statistics is has significant p value. Therefore the model is best fit. The regression line is the minimum variance line.

**Coefficients**

The coefficient of data analysis shows the following results.

**Current Ratio:** It indicates that there is direct relationship between the Current Ratio and **Return on equity**. But the relationship is in significant. The movement of the slop is positive direction which is **0.027**. The result is insignificant because p value is greater than 5%.

**Quick Ratio**

It indicates that there is direct relationship between the quick Ratio and **Return on equity**. But the relationship is significant. The movement of the slop is positive direction which is **0.363**. The result is insignificant because p value is less than 5%.

**Debt to Equity Ratio**

It indicates that there is direct relationship between the Debt Equity ratio and **Return on Assets**. But the relationship is insignificant. The movement

of the slop is positive direction which is **0.0062**. The result is insignificant because p value is greater than 5%.

**Account Receivable Turnover (ART) Ratio**

**ART** indicates that the slop of equation is the positive which is **.0012** that means there is a direct relationship between the independent and dependent variables both are moving in the same direction. When there are increases in account receivable turnover it leads to increase on **Return on equity**. Results are significant because p value is less than 5%.

**Inventory Turnover Ratio**

The results show that there is a direct relationship between the dependent and independent variables the slop is **0.493** and results are significant because p value is less than 5%.

**Correlation Matrix (table 5)**

Table 3 shows the correlation among the entire variable. There is significant correlation between ROE and ART, CR DE ITR and QR. Because the value of correlation coefficient is greater than 0.5 as shown in table 3 there is significant positive correlation in above mention all the variables. It means when there is one unit change in ROE than ART, CR DE ITR and QR are also change but in same direction. Because above variables are showing direct relationships.

**Conclusions and Recommendations**

Working capital management and profitability of the company disclosed both negative and positive association. In Model 1 (Table 2) Out of the five ratios selected for the study three ratios, namely CR, QR, D/E, and IRT registered positive correlation with the selected profitability ratio, ROA. ART has negative correlation with ROA and CR, QR, ART and ITR have insignificant relationship with ROA. Only DE ratio has significant

relationship with ROA. It means when DE increased it will put significant positive impact on profitability ratio (ROA).

In Model 2 (Table 4) five ratios selected for the study and all five ratio CR, QR, D/E, ITR and IRT registered positive correlation with the selected profitability ratio, ROE. But ART, ITR and QR has significant positive relationship with ROE and CR, and DE have insignificant relationship with ROE. It means when ART , ITR and QR are increased it will put significant positive impact on profitability ratio (ROE).

This study was conducted to check the relationship between working capital management and profitability. All the five hypotheses are partially proved by the data. Although from the literature review it is proved that working capital management has a positive relationship with the profitability.

It is suggested that further research should be conducted in this area with some different aspects of working capital management such as payables, cash conversion cycle and receivables which also are an essential part of the working capital management.

The new thing in our research the idea is tested but we have studied on of richest manufacturing sector in Pakistan where there is high level of Working Capital is required to improve the business efficiency and profit margin also as well . In cement sector and other manufacturing sector there is the need of time to set all important parameters and must be determine the appropriate level of Working Capital is required

This study highlights the importance and effectiveness of the working capital practices in corporate sectors. Many studies have provided the solid documentary evidence that there is the position and negative significant relationship among the working capital and profitability of the company. We found the negative relationship between profitability measures of the

firm and degree of the aggressiveness of the working capital. Investment and financing policy. This study should be predicted applied in the corporate sector.

## References

Afza T and MS Nazir (2007). *Is it Better to be Aggressive or Conservative in Managing Working Capital? (Unpublished Dissertation).* Pakistan: COMSATS institute of information technology Islamabad

Afza T and MS Nazir (2007). Working Capital Management Policies of Firms: Empirical Evidence from Pakistan. Presented at 9th South Asian Management Forum (SAMF) on February 24-25, North South University, Dhaka, Bangladesh.

Anthony. Robert. N., Reece, James.S, "*Accounting Principles*", 2004, Edition 6th.A.I.T.B.S Publisher and distributors all India traveler bookseller, pp. 322-23.

Band, G.C. (1991), "Fifty years of UK Offshore oil & gas". The geographic journal, vol.157, no.2, pp.179-189.

Banker, R.D., Chang, H.H. & Majumdar, S.K. (1993), "Analyzing the underlying dimensions of firm profitability". Managerial and decision Economics, vol.14, no.1, pp.25-76.

Ben-Horim Moshe, (1987), Essentials of Corporate Finance, Allyn and Bacon, Inc., Boston.

Block S. B., Hirt G. A., (1992), Foundations of Financial Management, Richard D. Irwin Inc., Boston, Mass

Bodie. Zvi, Kane. Alex, Margus. Alan.J, "*Investment*", 1999, Edition 4th, Irwin Mc Graw_Hill, pp. 578-585.

Brain, B. WORKING CAPITAL POLICY AND LIQUIDITY IN THE SMALL BUSINESS. Theme article

Capon, N., Farley, J.U & Hoenig, S. (1990),"Determinants of financial performance: a meta-analysis". Management Sciences, vol.36, no.10, pp.1143-1159

Capron, L., Mitchell. W. & Swaminathan. A. (2001), "Asset divestiture following horizontal acquisitions: A dynamic view". Strategic Management Journal, vol.22, no.9, pp.817-844.

Cavanaugh, J.K. & Garen, J. (1997), "Asset Specificity, Unionization and the Firm's Use of Debt". Managerial and Decision Economics, vol.18, no.3, pp.255-269.

Chasteen. Lanny. G, Flaherty. Richard.E, "*Intermediate Accounting*", 1997 Edition 6th, Irwin Mc Graw_Hill, pp. 240-245, 228-247.

Chiou,J.R. and Cheng,L. 2006 "*The Determinants of Working Capital Management*" The Journal of American Academy of Business, Cambridge Vol. 10 Num. 1

Deloof, M. 2003. "*Does Working Capital Management Affects Profitability of Belgian*

Department of Management and Finance, Faculty of Economy and Business,

Eljelly, A. 2004. "*Liquidity-Profitability Tradeoff: An empirical Investigation in an Emerging Market*", International Journal of Commerce & Management, Vol 14 No 2 pp. 48 - 61)

Fafchamps, M. (1997), "Trade credit in Zimbabwian Manufacturing", World Bank development, vol. 25 no.5, pp 795-815.

Filbeck, G. and Krueger, T. An Analysis of Working Capital Management Results Across Industries

Firms?", Journal of Business Finance & Accounting, Vol 30 No 3 & 4 pp. 573 – 587

Ganesan, V (2007). "An analysis of working capital management efficiency in telecommunication equipment". The journal of financial and quantitative analysis, vol 3, no 2.

Ghosh, S. K. and Maji, S. G. 2003. "Working Capital Management Efficiency A study on the Indian Cement Industry". The Institute of Cost and Works Accountants of India.

Gondzio, J., & Berg, R. K. (2001), "High performance computing for asset-liability management". Operation research, vol.49, no.6, pp.879-891.

Griffin, J.M. (1988), "*A test of free cash flow hypothesis results from petroleum industry*". The review of economics and statistics, vol.70, no.1, pp.76-82.

Hawawini, G., C. Viallet, and A. Vora, 1986, "Industry Influence on Corporation

Hovakimian, A., Opler, T., Titman, S. (2001), "The Debt-Equity Choices". The journal of financial and quantitative analysis, vol.36, no.1, pp.1-24.

International Journal of Managerial Finance Vol. 3 No. 2, 2007 pp. 164-177

Kieschnick, R. LaPlante, M. Moussawi, R 2006 "Corporate working capital management: Determinants and Consequences"

Kim,S.H, Rowland,M. and Kim,S.H. 1996 "Working Capital Practices by Japanese Manufacturers in the U.S." Financial practice and education.

Kusy, M.I. & Ziemba, W.T. (1986), "A Bank asset and Liability Management Model". Operations Research, vol.34, no.3, pp.356-376.

Lazaridis Ioannis, K.Lyroudi (2000), "Short-term financial management of the business in Greece and in Cyprus, Business and Economics Society International

Lazaridis, i. & tryfonidis, d., (2006), "relationship between working capital management and profitability of listed companies in the Asian stock exchange" journal of financial management and analysis pp 26-35

Meigs. Robert.F, Williams. Jan.R, Haka. Susan.F,& Bettner.Mark.S, "*Accounting*", 1999, Edition 11$^{th}$ , pp. 608-673.

Mills,G.T. 1996 'The impact of inflation on capital budgeting and working capital', *Journal Of Financial And Strategic Decisions* Vol. 9 No. 1.

Missale, A.,Giavazzi, F. & Benigno, P. (2002), "*How Is the Debt Managed? Learning from Fiscal Stabilizations*". The Scandinavian Journal of Economics, vol.104, no.3, pp.443-469.

Moyer R. C., Mcguigan J. R., Kretlow W.J. (1995), Contemporary Financial

Naceur, S.B. & Goaid, M.(2002), "*The relationship between dividend policy, financial structure, profitability and firm value*". Applied financial economics, vol.12, no.12, pp. 843-849.

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 Vo.2 No. 2 Pp. 45 -58

Pan, y. & Chi, P.S.k. (1999), "*Financial Performance and Survival of Multinational Corporations in China*". Strategic Management Journal, vol.20, no.4, pp.359-374.

Pandey IM and KLW Parera (1997). *Determinants of Effective Working Capital Management - A Discriminant Analysis Approach.* IIMA Working Paper # 1349. Research and Publication Department Indian Institute of Management Ahmedabad India.

Pedro Juan Garcı´a-Teruel and Pedro Martı´nez-Solano

Rehman A (2006). *Working Capital Management and Profitability: Case of Pakistani Firms (Unpublished Dissertation)*. Pakistan: COMSATS Institute of Information Technology Islamabad.

RICCI,C. and Vito,N.D. 2000 "International working capital practices in the UK" European Financial Management, Vol. 6, No. 1, pp 69-84.

Roberts, P.W. & Dowling, G.R. (2002), "*Corporate reputation and sustained superior financial performance".* Strategic Management Journal, vol.23, no.12, pp.1077-1093.

Rubin R. E., Alvarez A., (1998), "Business LINC: Business to Business Relationship that Increases the Economic Competitiveness of Firms

Scherr, F. C., (1989), Modern Working Capital Management, Text and Cases, Prentice-Hall International Editions, Englewood Cliffs, New Jersey

Seshadri, s., Khanna, A., Harche, F. Wyle, R. (1999), "A method for strategic asset-liability management with an application to the federal home loan bank of newyork". Operations Research, vol.47, no.3, pp.345-360.

Shin, H.H and Soenen, L. 1998. *"Efficiency of Working Capital Management and Corporate Profitability"*, Financial Practice and Education, Vol 8 No 2, pp 37-45

Stevenson, William J., (1982), *Production / Operation Management, Irwin, Homewood, III.*

*Stickney C. P. (1996), Financial Reporting and Statement Analysis,* Third Ed., The Dryden Press, Forth Worth.

Szymanski, D. M., Bhardwaj, S. G., Varadarajan, P. R. (1993), "*An analysis of market share-profitability relationship".* Journal of marketing, vol.57, no.3, pp.1-18.

Thomadakis, S.B., (1977),"*A value-based test of profitability and market structure*". The review of economics and statistics, vol.59, no.2, pp.176-185.

University of Murcia, Murcia, Spain

Van Horne J. C., and Wachowicz J. M., (1998), Fundamentals of Financial

Watts. John, "*Accounting in business environment*", 1996, Edition 2nd, Pitman Publisher, pp. 451-500.

Weinraub HJ and S Visscher (1998). Industry Practice Relating To Aggressive Conservative Working Capital Policies. Journal of Financial and Strategic Decision 11(2): 11-18.

Williamson O. E., (1985), the Economic Institutions of Capitalism, Firms, Markets and Relational Contracting, Free Press, New York

Working Capital Decisions," Sloan Management Review 27, 15-24.

Yeager F. C. and Seitz N. E. (1989). Financial Institution Management, Text and Cases, Prentice hall, Englewood Cliffs, NJ