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Impact of Cash Conversion Cycle on Working Capital through Profitability: Evidence from Cement Industry of Pakistan

Afaq Ahmed Khan[1], Mohsin Ayaz[2], Raja Muhammad Waseem[3], Sardar Osama Bin Haseeb Abbasi[4], Moazzam Ijaz[5]

[1](*Lecturer, Management Sciences, Government College of Management Sciences, Abbottabad, Pakistan)*
[2,3,4,5](*Student, Management Sciences, Government College of Management Sciences, Abbottabad, Pakistan)*

Abstract: *The main motive of conducting the research is to find out that in real terms financial ratios effects the net performance of companies in the context of cement industry with in the territorial boundaries of Pakistan. The methodology adopted for research is adopted from secondary data, in which 19 cement companies are studied and their 6 years of data is studied from 2008-2013. Findings of this research paper are that there is negative relation or result between the variables. This research study is only limited to 19 cement industries registered with Karachi Stock Exchange. It can be conducted in other sectors as well. Every organization irrespective of its size and nature working capital is important for every organization to maintain the profitability and solvency of the business.*

Keywords: *Cash Conversion Cycle, Profitability, Working Capital management.*

I. Introduction

Working capital is important in its nature because of its effects on the profitability and its value (Smith, 1980). Final decisions that move towards the increase in the profitability also increase the risk, and decisions that mainly focused on the risk reduction will move towards the reduction in the profitability. Researchers do believe that the effective management of the working capital is very necessary for the companies during their developmental stages in economic periods (Lo, 2005), and can be managed to increase competition position and profitability others focused on the improvement of working capital is also important for companies to bear the impacts of economic turbulence (Reason, 2008). Every firm tries to keep a balanced level working capital for their value maximization (Howorth & Westhead, 2003; Deloof, 2003; Afza & Nazir, 2007). Working capital mostly means the management of current assets and current liabilities (Garcia-Teruel PJ & Martinez-Solano PM, 2007). While working capital is important for all firm size operations in both developed and underdeveloped countries. Working capital management is essence to the business firm working in developing markets; these businesses heavily rely on the financing, trade credits and inventory (Saccurato, 1994; Chittenden *et al.,* 1998). While studies have shown that inadequate working capital management and long term financing causes failure in business sector (Berryman, 1983; Dunn & Cheatham 1993; Lazardis & Tryfonidis, 2006). Due to lack of proper planning for working capital requirements firms mostly experiences excess of working capital or the shortage of working capital (Agarwal, 1983). Working capital is important because of its occurrence in the firm's profitability, risk and its value (Smith, 1980). Higher the investment in current assets lower will be the risk but it will also causes lowering in profitability with previous study provided evidences that there is no relationship between current assets and revenue risk (Carpenter & Johnson, 1983).

Pakistan stands among the top 20 cement producers in the world and among the top 5 exporters of cement. Strong public sector development funding and growing private sector construction present solid growth opportunities in the sector. During July-April 2014-15, cement industry dispatched 22.99 million tons in the local market, posting a growth of 7.97 percent as compared to the local dispatches during the same period last year. During July April 2014-15 total dispatched was 29 million tons as against 28 million tons during the same period last year owing to rising domestic demand. Cement dispatches to domestic markets during April 2015 increased by 4.57 percent to 2.65 million tons compared with 2.54 million tons during same month last year. Exports during April were 640,000 tons against 672,000 tons during April 2014, down by 4.72 percent. Total dispatches in April 2015were 3.29 million tons compared to 3.21 million tons during the same month last year, up by 2.62 percent. The cement industry is still operating at a little over 76 percent capacity which translates into idle capacity of 8.94 million tones.

In this research we selected the impact of government policies on the working capital management, evidences on the firm's performance and working capital management with reference to cement industry with in Pakistan. The importance of this research study is to find out the impact of cash conversion cycle on working capital management through profitability of the firms, this research study only focuses on 19 selected cement

companies listed in Karachi Stock Exchange. The study is carried out in Pakistan for a period of 6 years started from 2008-2013.

1.1 Research Objectives

- To identify the impact of cash conversion cycle on working capital management.
- To identify the impact of profitability on working capital management.

II. Literature Review

2.1 Account Payable, Gross Profit & Current Assets

Most of the cement companies make purchases from other companies on credit recording the debit as account payable (Block & Hirt, 2000). Account payable can further be look into as trade creditor. Teruel and Solano (2007) suggested that firm should delay in making the payments for effective performance. Companies can enhance their profitability by decreasing their length of cash conversion cycle through decreasing the receivables collection period, decreasing the inventory selling period and increasing the credit payment period. Eljelly (2004) found significantly inverse association and linkage between the profitability represented by the cash conversion cycle. Efficiency of any industry can determine by the profitability. Fitzgerald defined current assets as "cash and other assets which are expected to be converted into cash in the ordinary course of business within one year or within such longer period as constitute the normal operating cycle of a business. Shin and Soenen (1998) concluded that reducing the level of current assets to a reasonable extent increases firm's profitability.

Teruel and Solano (2007) concluded that company's profitability would be enhanced by reducing days in receivables, days in inventories and length of cash cycle. The relation between account payable with gross profit is negative. Hutchison *et al*. (2007) suggested an opposite relationship between profitability and account payable. Account payable is considered as an elaborated measure of checking the efficiency of current assets. The relationship between account payable with current assets is positive. The relationship between current assets with gross profit is negative. The relationship between account payable and gross profit is negative because the increase in account payable lead to decrease in gross profit. Most of companies delays in payments that's why it lead to decrease in profitability of those firms. Company purchases raw material on credit which is high in cost as compared to purchases on cash. The relationship between account payable and current assets is positive because increases in current assets will results to decrease in account payable which helps to increase in profitability of the firm. Cash in hand is a type of current assets which benefits to pay the debts. The relationship between current assets and gross profit is negative because increase in current assets decreases gross profit. Thus we hypothesize:

H1: Account Payable has negative relation with Gross Profit.

H2: Account Payable has a positive relation with Current Assets.

2.2 Account Payable, Gross Profit & Current Liabilities

The firm creates current liabilities towards creditor from whom it has purchased raw material on credit. Eljelly (2004) concluded that the effective management or working capital involves planning and holding current assets and liabilities in such a good manner that minimizes the risk of solvency to meet short term debt and upcoming operational expenses and also to avoid massive investment in assets After this statement the managers were recommended that they should try to improve the profitability by reducing down the credit period.

Gill *et al*. (2010) stated that if the firm is maintaining its accounts receivable, accounts payable and inventories at maximum level the firm will produce maximum profit. The relationship between account payable and current liabilities is positive. The relation between account payable and current liabilities is directly interrelated that is if account payable increases which results in increase of current liabilities. Liabilities are also known as account payable and shown in the balance sheet till the payment has been made to credit. Thus account payable directly linkage with the current liabilities that's why they have a positive relation between them the relationship between gross profit and current liabilities also positive. Padachi (2006) experimenting small manufacturing firms examined the sample of manufacturing enterprise in Mauritius and concluded the relationship between current assets and profitability. The increase in current liabilities results to decrease in profit so there is inverses relation and vice versa. Thus we hypothesize:

H3**:** Account Payable has a positive relation with Current Liabilities.

2.3 Account Receivables, Gross Profit & Current Assets

Firms prefer sale for cash rather than credit but competitive pressures force firm along credit. By giving these goods and reducing the stock an account receivable is created. Corrective action mostly required the only means of understanding if the condition is going out of hand with good receivable control system (Brigham &

Ehrhardt, 2004).With respect to size of investment in account r the financial manager does not play any role the level of sale also determine the size of investment account receivable that is the more sale the greater the account receivable. Account receivable makeup a very large portion of firm asset. They actually compose of 25.97 % of a typical firm asset because of their magnitude any changes in their level effect profitability (Loderer & Martin, 1997). Gill *et al.* (2010) stated that there was an inverse relation between the periods of Account Receivable's collections and profitability i.e. the greater the account receivable collection period the lesser would be the profitability. The relationship between account receivable and gross profit is positive. When they meet together overall profit of the firm increases and vice versa. Account receivable has negative relation when the receiving period exceeds certain time span. Account receivable increases which decreases the current assets. Thus we hypothesize:
H4: Account Receivable has positive relation with Gross Profit.
H5: Account Receivable has a negative relation with Current Assets.

2.4 Account Receivable, Gross Profit & Current Liabilities

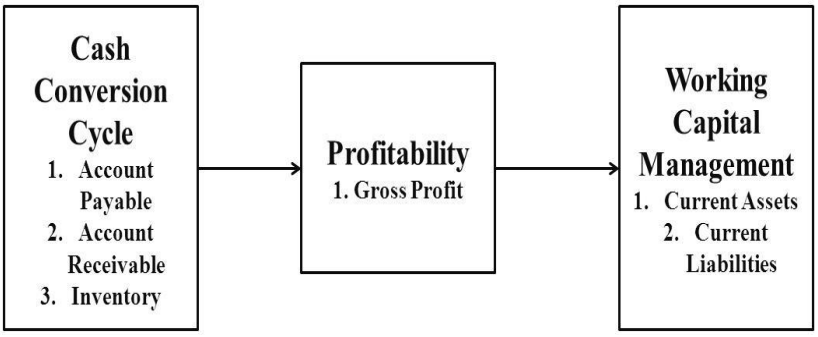
Raheman and Nasr (2007) stated that for excellent performance the time duration for collection of receivable should be kept very short. The relationship between account receivables with current liabilities is positive. Greater the liabilities are, greater will be receivables and lesser the liabilities, lesser will be the receivables. Thus we hypothesize:
H6: Account Receivable has a positive relation with Current liabilities.

2.5 Inventory, Gross profit & Current Assets

Mostly in manufacturing companies inventory usually comprises of raw material work in progress, other supplies and final products. Inventory needs to be financed there efficient management can increase firm profitability (Block *et al.,* 2013). Inventory management is described as planning, coordinating and controlling activities related to flow of inventory through and out of organization (Homgren *et al.*, 2013). Nobanee *et al.* (2009) concluded that for good performance of company inventory must be converted into cash as soon as possible. Companies can enhance their profitability by decreasing their length of cash conversion cycle through decreasing the receivables collection period, decreasing the inventory selling period and increasing the credit payment period. There is negative relation between inventory and gross profit. If there is huge amount of stock or inventory, there will be fewer sales so the profit will be low and vice versa. Relation between current asset and inventory is positive relation, increase in current assets will increase in inventory due to the reason that inventory can easily be converted into cash. Thus we hypothesize:
H7: Inventory has a negative relation with Gross Profit
H8: Inventory has a positive relation with Current Assets.

2.6 Inventory Gross Profit & Current Liabilities

Uyar (2009) find out significant association and connection of working capital management with liquidity and profitability and concluded that the firm size is negatively connected and related to cash conversion cycle and a negative and oppositely moving connection of cash conversion cycle with profitability was observed. (Luo & Lee, 2009) stated that if the value of the firm increases the cash conversion cycle will decrease. (Randall & Farris, 2009) argued that by enforcing a collaborative cash to cash management cycle by using weighted average cost of capital will increase the profitability. Current liabilities have negative relation with inventory. Greater the inventory, the greater will be current liabilities and vice versa. Thus we hypothesize:
H9: inventory has negative relation with current liabilities.
Theoretical Framework



III. Methodology

In this research we are using secondary data, of 20 cement industries of Pakistan, having duration of 7 years from 2008-2014 listed in Karachi Stock Exchange (KSE), due to unavailability of appropriate data.

Table 1:- Descriptive statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
Current Assets (CA)	3580.84	4674.89	4279.6842	409.89535
Current Liabilities (CL)	3561.26	4803.74	4067.8509	454.97710
Gross Profit (GP)	1076.89	3399.79	2360.6053	869.80047
Account Receivable (AR)	3024.32	3840.37	3502.6930	307.70842
Account Payable (AP)	3441.00	5023.42	4258.9561	746.30615
Inventory (IN)	3099.42	4780.84	3767.8070	640.39653

Table 1 indicates descriptive statistics for 19 cement Companies in Pakistan for a period of six years ranging from 2008 to 2013. The minimum and maximum value for CA is 3581 and 4675 while the mean and standard deviation is 4280 and 410 respectively. The minimum and maximum value for CL is 3561 and 4803 while the mean and standard deviation value is 4068 and 455 respectively. The minimum and maximum value for GP 1079 is and 3310 while the mean and standard deviation value is 2361 and 870 respectively. The minimum and maximum value for AR is 3024 and 3840 while the mean and standard deviation value is 3503 and 308 respectively. The minimum and maximum value for AP is 3441and 5023 while the mean and standard deviation value is 4259 and 746 respectively. The minimum and maximum value for IN is 3099 and 4781 while the mean and standard deviation value is 3768 and 640 respectively.

Table 2: Correlation

Variables	CA	CL	GP	AR	AP	IN
CA	1					
CL **Sig.**	-.531 .279	1				
GP **Sig.**	-.707 .116	.091 .863	1			
AR **Sig.**	-.062 .906	.470 .347	.021 .968	1		
AP **Sig.**	.757 .081	.016 .977	-.671 .144	.017 .975	1	
IN **Sig.**	.167 .752	-.765 .076	-.037 .944	-.602 .206	-.083 .876	1

Table2**:** Correlation matrix of all variables included in the analysis is presented in table 2 which is calculated based on data of 19 firms. Pearson's correlation analysis is used for data in table-2 to find the relationship between working capital management, profitability and cash conversion cycle. The table depicts correlational impact of variables, as Current liabilities (CL) correlates Current assets (CA) at -53% indicating faint negative linkage and insignificant relationship. Gross profit indicates a negative and insignificant association with CA of -71% and positive while insignificant association with CL at a value of 9.1%. Account receivable (AR) correlates CA at -6.2% showing negative and insignificant relationship. Also AR correlates CL 47% showing positive and insignificant relationship and AR correlates GP at 2.1% showing positive and insignificant relationship. Account payable (AP) correlates CA at 76% positive and insignificant relationship. AP correlates CL at 1.6% showing positive and insignificant relationship. AP also correlates GP at -67% showing negative and insignificant relationship AP correlates AR at 1.7% shows positive and insignificant relationship. Inventory (IN) correlates CA at 17% positive and insignificant relationship. IN correlates CL at -77% showing negative and insignificant relationship. IN also correlates GP at -3.8% showing negative and insignificant relationship. IN correlates AR at -60% shows negative and insignificant relationship. IN also correlates AP at -8.3 % shows negative and insignificant relationship.

Table 3: Impact of Account payable on Gross profit

Variables	β	R^2	ΔR^2	Sig
AP	-.782	.450	.313	.144

Dep. Variable: GP

R=.671, F=3.279

Table 3 shows regression analysis, illustrating AP which brings -78.2% change in GP demonstrating strong negative relation (R=67.1%, R^2=.450, ΔR^2=.313) and can be generalized on year (f=32.79%).

Table 4: Impact of Account receivable on Gross profit

Variables	β	R^2	ΔR^2	Sig
AR	.059	.000	-.249	.968[a]

Dep. Variable: GP
R=.021, F=.002

Table 4 shows regression analysis, illustrating AR which brings 5.9% change in GP demonstrating weak positive relation (R=2.1%, R^2=.000, ΔR^2=-.249) and can be generalized on year (f=0.2%).

Table 5: Impact of Inventory on Gross profit

Variables	β	R^2	ΔR^2	Sig
IN	-.051	.001	-.248	.944[a]

Dep. Variable: GP
R=.037, F=.006

Table 5 shows regression analysis, illustrating IN which brings -5.1% change in GP demonstrating weak negative relation (R=3.7%, R^2=.001, ΔR^2=-.248) and can be generalized on year (f=0.6%).

Table 6: Impact of Gross profit on Current assets

Variables	β	R^2	ΔR^2	Sig
GP	-.333	.500	.374	.116[a]

Dep. Variable: CA
R=.707, F=3.993

Table 6 shows regression analysis, illustrating GP which brings -33% change in CA demonstrating negative relation (R=70.7%, R^2=.500, ΔR^2=.374) and can be generalized on year (f=399.3%).

Table 7: Impact of Gross profit on Current Liabilities

Variables	β	R^2	ΔR^2	Sig
GP	.048	.008	-.240	.863[a]

Dep. Variable: CL
R=.091, F=.340

Table 7 shows regression analysis, illustrating GP which brings 4.8% change in CL demonstrating weak positive relation (R=9.1%, R^2=.008, ΔR^2=-.240) and can be generalized on year (f=34%)

Table 8: Impact of Account payable on Current Assets

Variables	β	R^2	ΔR^2	Sig
AP	.416	.574	.467	.081[a]

Dep. Variable: CA
R=.757, F=5.385

Table 8 shows regression analysis, illustrating AP which brings 41.6% change in CA demonstrating positive relation (R=75.7%, R^2=.574, ΔR^2=.467) and can be generalized on year (f=53.85%).

Table 9: Impact of Account payable on Current Liabilities

Variables	β	R^2	ΔR^2	Sig
AP	.004	.000	-.250	.977[a]

Dep. Variable: CL
R=.061, F=.001

Table 9 shows regression analysis, illustrating AP which brings 0.4% change in CL demonstrating weak positive relation (R=6.1%, R^2=.000, ΔR^2=-.250) and can be generalized on year (f=0.1%).

Table 10: Impact Account Receivable on Current Assets

Variables	β	R^2	ΔR^2	Sig
AR	-.083	.004	-.245	.906[a]

Dep. Variable: CA
R=.062, F=.016

Table 10 shows regression analysis, illustrating AR which brings -8.3% change in CA demonstrating weak negative relation (R=6.2%, R^2=.004, ΔR^2=-.245) and can be generalized on year (f=1.6%).

Table 11: Impact Account Receivable on Current Liabilities

Variables	β	R^2	ΔR^2	Sig
AR	.695	.221	.026	.347[a]

Dep. Variable: CL
R=.470, F=1.136

Table 11 shows regression analysis, illustrating AR which brings 69.5% change in CL demonstrating positive relation (R=47%, R^2=.221, ΔR^2=.026) and can be generalized on year (f=113.6%).

Table 12: Impact Inventory on Current Assets

Variables	β	R^2	ΔR^2	Sig
IN	.107	.028	-.215	.752[a]

Dep. Variable: CA
R=.167, F=.114

Table 12 shows regression analysis, illustrating IN which brings 10.7% change in CA demonstrating positive relation (R=16.7%, R^2=.028, ΔR^2=-.215) and can be generalized on year (f=11.4%).

Table 13: Impact Inventory on Current Liabilities

Variables	β	R^2	ΔR^2	Sig
IN	-.544	.586	.482	.076[a]

Dep. Variable: CL
R=.765, F=5.660

Table 13 shows regression analysis, illustrating IN which brings % change in CL demonstrating negative relation (R=76.5%, R^2=.586, ΔR^2=.482) and can be generalized on year (f=566.0%).

Table 14: Mediation (Mediated Regression) Impact of Account payable and Current Assets with the mediating effect of Gross profit

Variables	β	R^2	ΔR^2	Sig
AP	.283	.645	.409	.348
GP	-.170			.493

Dep. Variable: CA
R=.803, F=2.731

Table 14 shows mediation analysis of variables, illustrating AP bring 28.3% change in CA, demonstrating a strong positive relationship. On the other hand, GP -17.0% units change in CA, indicating a strong negative relationship

Table 15: Mediation (Mediated Regression) Impact of Account Receivable and Current Assets with the mediating effect of Gross profit

Variables	β	R^2	ΔR^2	Sig
AR	-.063	.502	.170	.914
GP	-.333			.182

Dep. Variable: CA
R=.708, F=1.511

Table 15 shows mediation analysis of variables, illustrating AR bring -6.3% change in CA, demonstrating a strong negative relationship. On the other hand, GP -33.3% units change in CA, indicating a strong negative relationship.

Table 16: Mediation (Mediated Regression) Impact of Inventory and Current Assets with the mediating effect of Gross profit

Variables	β	R^2	ΔR^2	Sig
IN	.090	.519	.199	.749
GP	-.331			.178

Dep. Variable: CA
R=.721, F=1.620

Table 16 shows mediation analysis of variables, illustrating IN bring 9.0% change in CA, demonstrating a strong positive relationship. On the other hand, GP -33.1% units change in CA, indicating a strong negative relationship.

Table 17: Mediation (Mediated Regression) Impact of Account payable and Current Liabilities with the mediating effect of Gross profit

Variables	β	R^2	ΔR^2	Sig
AP	.085	.019	.635	.868
GP	.097			.826

Dep. Variable: CL
R=.138, F=.029

Table 17 shows mediation analysis of variables, illustrating AP bring 8.5% change in CL, demonstrating a positive relationship. On the other hand, GP 9.7% units change in CL, indicating a positive relationship.

Table 18: Mediation (Mediated Regression) Impact of Account payable and Current Liabilities with the mediating effect of Gross profit

Variables	β	R^2	ΔR^2	Sig
AR	.693	.228	-.287	.424
GP	.043			.883

Dep. Variable: CL
R=.477, F=.442

Table 18 shows mediation analysis of variables, illustrating AR bring 69.3% change in CL, demonstrating a positive relationship. On the other hand, GP 4.3% units change in CL, indicating a positive relationship.

Table 19: Mediation (Mediated Regression) Impact of Inventory and Current Liabilities with the mediating effect of Gross profit

Variables	β	R^2	ΔR^2	Sig
IN	-.542	.590	.316	.131
GP	.033			.876

Dep. Variable: CL
R=.768, F=2.175

Table 19 shows mediation analysis of variables, illustrating IN bring -54.2% change in CL, demonstrating a strong negative relationship. On the other hand, GP 3.3% units change in CL, indicating a positive relationship.

IV. Conclusion

The result indicted negative as well as positive relationship between the variable From the Pearson's correlation it is also found that the negative correlation between account payable and gross profit over the study period with some exceptions where the correlation is negative. Regression analysis results indicated that independent variables (AP,AR & IN) of the models are statistically Insignificant for explaining the variation of dependent variables (GP,CA.CL) as well as coefficient of the regression equation shown that there exist negative β coefficient between dependent & independent variables of the model. Among the independent variables negative β coefficient of AP with dependent variables (GP) is statistically also insignificant at -33%. In this study recommended that cement industries of Pakistan should make efficient account receivable and current liabilities for improving their profitability position.

V. Limitation And Directions For Future Research

This research is conducted in Pakistan cement sector but it can be further conducted in any other country. This research is limited to cement sector but it can be further conducted in other sectors like in medical, textile, or banking etc. In this research we selected 19 companies listed in KSE but if it further be conducted there is no restriction for selecting such numbers. We conducted our research in companies listed in KSE but it could be in other exchanges like LSE or ISE. We use secondary data from annual reports of the listed companies but primary data can also be used.

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