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Impact of Working Capital Management on Firms Profitability in Different Business Cycles: Evidence from Pakistan

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Abstract: *This study investigates the influence of working capital management on firms' profitability under different business cycles in 65 non-financial firms listed on Karachi stock exchange of Pakistan by using the annual panel data for 10 years from the period of 2004 to 2013. We use Pedroni panel co-integration and Kao residual panel co-integration approaches to confirm the valid long run relationship between considered variables. The result of regression analysis indicates that the significant negative relationship exists between cash conversion cycle and its components with firms' profitability. Moreover, the business cycle affects the working capital management and firms' profitability relationship. It can be concluded that efficient working capital management matters and hence should be included in financial planning.*

Keywords: Working capital management, profitability, business cycles, non-financial firms.

Introduction

In today's business world, the firms are enjoying good revenues, but their survival is uncertain because of the two facts. One is the inability of the companies to meet the short-term debts and the other is poor economic conditions (Javid, 2014). The firms, in order to earn good profits, make corporate financial decisions related to capital structure, capital budgeting and working capital management (Addae & Nyarko-Baasi, 2013) and mainly much attention is given to capital structure and capital budgeting which are long term capital decisions (Kandpal & Kavidayal, 2013). However, the working capital management is also very important because of its significant effect on firm's liquidity and profitability (Raheman & Nasr, 2007; Nazir & Afza, 2009).

Every firm's core objective is to maximize the shareholders' value and profits (Nimalathasan & Brabete, 2010) but maintaining sufficient liquidity position is another important objective. Therefore, these two objectives involve a trade-off between risk and return. When the firms decide to invest more money in currents assets, this reduces the risk of illiquidity but the profitability hinders since the excess investment in current assets lost the opportunity for the firms to earn more money. On the other end, if the firms don't focus on maintaining liquidity, it may result in bankruptcy. These facts highlight the importance of efficient management of working capital management.

Working capital Management ensures the availability of sufficient cash to ensure uninterrupted functioning of the business in day-to-day operations (Gul et al., 2013). The two major components of working capital management are current assets and current liabilities (Harris, 2005). Current assets are those which can be turned into cash within one year and current liabilities are those which

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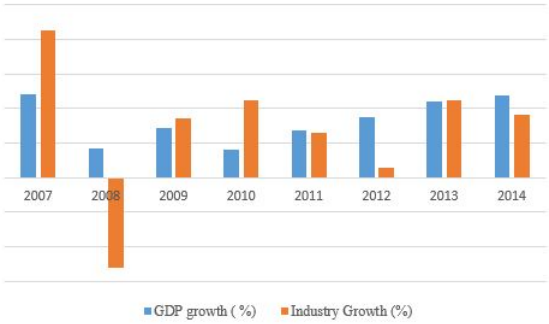
are intended to pay within one year (Nunn, 2007). Efficient working capital management involves planning and controlling of current assets and current liabilities in such a way that eliminates the risk of default of payment without having excessive cash in hand. Every firm needs to maintain the optimal level of working capital in order to maximize the value of a firm (Nimalathasan & Brabete, 2010).

Working capital management is highly depended on how well the company is managing its cash conversion cycle. Cash conversion cycle includes the time period, which starts with the purchase of raw material and ends up on the receipt of cash or payments to suppliers (Nimalathasan & Brabete, 2010). At one end larger inventory, lenient trade credit terms may lead to higher profitability and reduces the risk of the stock out, but on the other hand so much money is locked up in working capital which lengthen the cash conversion cycle. However, delayed payments to suppliers provide the firms flexible source of financing and reduce the cash conversion cycle, but at the same time cash discounts for early payment may compromise.

Fluctuations in economic conditions affect the firms operating and short term financing decisions. During business cycles, the success of the firms depends on the effective planning and management of working capital. So, the firms in order earn profits in every business cycle forecast the economic condition in advance and its impact over inventory management, account receivables management and account payables management, and prepare plan when to invest /disinvest in working capital and when to finance the working capital internally or externally.

In Pakistan economy, the firms, finance in 4 ways (i) taking loans from the banks, (ii) issuance of shares (iii) issuance of bonds or debentures (iv) retain earnings. For meeting the working capital requirement, the firms take loans from the banks and the rest of the options are used when medium to long term finance is needed. So, the economic conditions play a significant role in making these decisions. Moreover, the growth of the Pakistan economy is dependent on its firms operating in different sectors. They are a major source of revenue for government and job opportunities. According to the *Economic survey of Pakistan* (2015) the industrial sector share in GDP was 22.1% in 2007 which decline to 20.9 in 2008, and become stagnant in the years 2009, 2010 and 2011 at 21.0%, 21.2%, 21.0% and then decline to 20.3% in 2012, whereas, in 2013 it contributes 20.4% to the GDP. In last five years, the unemployment rate of Pakistan is also stagnant at 5.1% (*World Bank*, 2014). As seen from the graph below the close relationship exists between the two variables (GDP and industrial growth) the appreciation or depreciation in one variable directly influences the other variable.

Figure 1
Trend between GDP growth and Industry Growth



Thus, the impact of working capital management on profitability under different business cycles is highly important in Pakistan perspective and no empirical study has been carried out therefore, this study investigates the impact of the cash conversion cycle on the firm?s profitability under different business cycles by using the sample of 65 non-financial sectors of Pakistan from the period 2004-2013.

The present research is arranged in 5 sections. Section 2 presents the literature review. Section 3 discusses the methodology; section 4 presents the empirical results and section 5 presents the conclusion.

Literature Review

Developed Countries

Shin and Soenen (1998) examine the relationship between working capital management and firms' profitability by using the dataset of American firms for the period of 1975-1994 and find a negative relationship between the cash conversion cycle and firms profitability. Wang (2002) used the Japanese and Taiwanese firms' data to examine the relationship between CCC and firms' performance and reported that firms can increase its performance by reducing its cash conversion cycle. Deloof (2003) investigates the association of companies' profitability and WCM by using the sample of 1,009 Belgian non-financial firms for the period of 1992-1996. The result indicate that the significant negative relationship exists between gross operating income, accounts receivable, inventories and accounts payable in days. Juan García-Teruel and Martinez-Solano (2007) study the effect of working capital management on profitability of Spanish SMEs by using the dataset of 8,872 firms for the period comprising of 1996-2002. The results show that the significant negative relationship exists between the variables. Rehn (2012) also investigates the relationship of working capital management and firms' profitability by using the data of Finnish and Swedish corporations and reported that the profitability of the firms increases when the cash conversion cycle decreases. Enqvist, Graham, and Nikkinen (2014) also examine the same relationship, but added the impact of the business cycles on this relationship by using the 18-years data of non-financial Finnish companies. The results indicate that business cycles affect the working capital management and profitability relationship, and the effect of efficient inventory management and account receivable management on firms' profitability increases in recession periods.

Developing Countries

In the specific case of Pakistan, Shah and Sana (2005) investigate the impact of working capital on the firms' profitability by using the dataset of listed companies on Oil and Gas sector of Pakistan for the period of 2001-2005. They reported that a negative relationship exists between inventory, account receivable, cash conversion cycle, sales growth and gross profit, whereas, a positive relation between exists between account payables and gross profit. Raheman and Nasr (2007) also examine the relationship between working capital management, liquidity and profitability of the firms by using the data of 94 Pakistani firms comprising of 6 years from 1999-2004. The results indicate that cash conversion cycles, and its components, liquidity, debts have a negative association with the profitability of the firms and positive relationship exists between the size of the firms and profitability.Usman, Saleem, and Aziz (2012) uses the data of manufacturing firms of Pakistan and concluded that a negative association exists between CCC and profitability whereas, a positive association exists between current ratio, firm size and current assets to total assets with the

firm's performance. Tariq, Mumtaz, and Rehan (2013) use the panel technique to conclude the significant positive relationship between receivables, net trading cycle, CCC and performance whereas, negative insignificant relationship exists between inventory turnover, payable turnover and performance. Nasreen, Khanam, and Pirzada (2014) uses the dataset of 45 listed companies in the food sectors of Pakistan for the period 2008-2012 and reported that strong positive association exists between working capital management and firm's profitability.

Zariyawati, Annuar, Taufiq, and Rahim (2009) applied the Pooled OLS regression on the dataset of 1628 Malaysian firms comprising of years 1996-2006 and reported that a significant relationship exists between the firms' profitability and the cash conversion cycle. Nimalathasan and Brabete (2010) also explores the linkage between firms' profitability and working capital management by using the dataset of manufacturing firms of Sri Lanka and confirms that negative association exists between CCC and ROA. Niresh (2012) also reports that an inverse relationship exists between CCC and profitability in Sri Lankan firms.Takon (2013)uses the dataset of 46 listed Nigerian firms for the periods 2000-2009 and indicate the significantly negative association exists between profitability and the cash conversion cycle. Addae and Nyarko-Baasi (2013) applied the regression and correlation analysis on the data of non-listed Ghanaian firms comprising of years 2004-2009 and reported that inverse association exists between the profitability of the firms and the cash conversion cycle. Ukaegbu (2014) uses the dataset of Egypt, Kenya, Nigeria, and South Africa manufacturing firms for the period 2005-2009 and reported that an inverse relationship exists between CCC and firms' profitability. (Ofunya, 2015) also confirms the existence of an inverse relationship between the cash conversion cycle and profitability.

Methodology

In this study, we use 10 years' annual panel data from the period of 2004 to 2013 of 65 non-financial firms listed on KSE-100 index of Pakistan. All data are acquired from the financial statements managed by State Bank of Pakistan (SBP). After reviewing the empirical studies, the model to analyze the relationship between working capital management and non-financial firms profitability in different business cycles is determined by following functions:

$$ROA_{i,t} = \beta_0 + \beta_1 CCC_{i,t} + \beta_2 CR_{i,t} + \beta_3 SAL_{i,t} + \beta_4 BYC_{i,t} + \epsilon_{i,t}$$

$$ROA_{i,t} = \beta_0 + \beta_1 INV_{i,t} + \beta_2 CR_{i,t} + \beta_3 SAL_{i,t} + \beta_4 BYC_{i,t} + \epsilon_{i,t}$$

$$ROA_{i,t} = \beta_0 + \beta_1 AAR_{i,t} + \beta_2 CR_{i,t} + \beta_3 SAL_{i,t} + \beta_4 BYC_{i,t} + \epsilon_{i,t}$$

$$ROA_{i,t} = \beta_0 + \beta_1 AP_{i,t} + \beta_2 CR_{i,t} + \beta_3 SAL_{i,t} + \beta_4 BYC_{i,t} + \epsilon_{i,t}$$

Where, ϵ_t is the error term, i represent the number of firms in the panel and t represents the number of observations over time. ROA is the return on assets and expressed in percentage (%), CCC is the cash conversion cycle which is measured in days, INV is the inventories in days, AAR is the accounts receivable in days, AP is the Account payable in days, CR is the current ratio and expressed in percentage (%), BYC is the business cycle which is used as a proxy for recession period and boom period. The detailed description of all variables is presented in Table 1.

The present study also employs the Hadri panel unit root test has been used to scrutinize the stationary properties of variables. Pedroni (1999) panel co-integration technique to analyze the long run relationship among variables. In this study, we use regression analysis to analyze the long-run coefficients. Moreover, in this research we also use different interaction terms of the cash conversion cycle, inventory, accounts receivable and account payable to more validate their impact on the profitability of the non-financial firms in different business cycles.

Table 1
Variable Definitions

Variable	Full Form	Definitions
ROA	Return on Assets	It measures the operating performance of an institution. It is the widely used indicator of earning and is calculated as net profit as percentage of average assets.
CCC	Cash conversion cycle	It is a metric that expresses the length of time a company takes to convert resource inputs into cash flows. It can be calculated by: CCC=INV+AAR-AP
INV	Inventories measured in days	It tells the average number of days a company takes to turn its inventory into sales. It can be calculated by: Inventory /COGS * 365
AAR	Accounts receivable measured in days	It tells the average time the company takes to collect its receivables from the customers. It can be calculated by: Accounts Receivable /Net Sales * 365
AP	Accounts Payable measured in days	It tells the average time the company takes to pay off its liabilities. It can be calculated by: Accounts Payable /Net Purchase * 365
CR	Current Ratio	It measures a company's ability to pay short-term and long-term obligations.
SAL	Sales	It is the transaction between two parties where the buyer receives goods (tangible or intangible), services and/or assets in exchange for money.
BYC	Business Cycles	A cycle or series of cycles of economic expansion and contraction.

Source: Authors' construction.

Estimations and Results

To check the stationary properties of variables, we use Hadri panel unit root test. Table 2 represents the results of stationary tests. These tests are applied first on the level of variables, then on their first difference.

Results of table 4 show that all variables are stationary and integrated at first difference. This implies that the series of variables may exhibit no unit root problem and we can use these series of variables to analyze the long run relationship.

Since the stationary results from unit root tests confirm that each series of variable are integrated of order one. The panel co-integration technique developed by (Pedroni, 1999) has been used to analyze the long run relationship between our considered variables. The Pedroni's panel co-integration approach has several advantages upon other cointegration methods of panel data. This approach controls the biasness from firms size and also solves the issue of heterogeneity. A panel co-integration technique is examined by analyzing the variables and residuals of a model. The variables should be co-integrated on I(1) while the residuals should be I(0) if the variables are co-integrated. The residuals of the hypothesized co-integration equation can be established from the following equation:

Table 2
Hadri Unit Root Test Results

Variables	Trend		Trend & intercept	
	t-statistic	Prob	t-statistic	Prob
ROA	7.199	0.000	35.143	0.000
	9.672	0.000	54.512	0.000
CCC	5.824	0.000	20.508	0.000
	8.914	0.000	47.863	0.000
INV	7.297	0.000	34.565	0.000
	8.662	0.000	49.771	0.000
AAR	8.533	0.000	41.304	0.000
	9.392	0.000	49.432	0.000
AP	4.387	0.000	22.616	0.000
	8.667	0.000	48.205	0.000
CR	15.480	0.000	74.980	0.000
	9.409	0.000	50.119	0.000
SAL	8.369	0.000	17.986	0.000
	8.908	0.000	44.490	0.000

Source: Authors' estimation.

With the null hypothesis of no co-integration, the residual is I(1) and $\rho_i = 1$. There are two alternative hypotheses. First, the homogenous alternative (within dimension test), $(\rho_i = \rho) < 1$ for all i, and second, heterogeneous alternative (between dimension or group statistics) $\rho_i = < 1$ for all i.

$$ROA_{i,t} = \beta_0 + \beta_t^1 CCC_{i,t} + \beta_t^2 CR_{i,t} + \beta_t^3 SAL_{i,t} + \beta_t^4 BYC_{i,t} + \epsilon_{i,t}$$

$$ROA_{i,t} = \beta_0 + \beta_t^1 INV_{i,t} + \beta_t^2 CR_{i,t} + \beta_t^3 SAL_{i,t} + \beta_t^4 BYC_{i,t} + \epsilon_{i,t}$$

$$ROA_{i,t} = \beta_0 + \beta_t^1 AAR_{i,t} + \beta_t^2 CR_{i,t} + \beta_t^3 SAL_{i,t} + \beta_t^4 BYC_{i,t} + \epsilon_{i,t}$$

$$ROA_{i,t} = \beta_0 + \beta_t^1 AP_{i,t} + \beta_t^2 CR_{i,t} + \beta_t^3 SAL_{i,t} + \beta_t^4 BYC_{i,t} + \epsilon_{i,t}$$

Where i=1,..,N; t=1,..,T, and N is the number of firms in the panel and T is the number of observations over time. The estimated residuals become:

$\varepsilon^{it} = \rho_i \varepsilon_{it-1} + \nu_{it}$

Pedroni (1999) panel co-integration technique is based on seven panel co-integration statistics. Four of these statistics are based on within a dimension test while, the other three statistics are based on the group statistics approach by using the appropriate mean and variance, the asymptotic distribution of these statistics follows a normal distribution.

$K = \frac{K_{NT} - \mu\sqrt{N}}{\nu} \geq N(0,1)$

Where K_{NT} represents the corresponding form of test statistics with respect to N and T. μ and ν are the moments of the Brownian function that are given in (Pedroni, 1999). Numerical values of μ and ν depend upon the presence of a constant, time trend, and the number of regressors in the co-integration test regression. Results of Pedroni's panel co-integration are presented in table-3.

Results indicate that in the all six models the test statistics of ADF and PP based on both within dimension and group based approach statistics demonstrate the rejection of null hypothesis

of no co-integration in the favor of alternative that all considered variables are co-integrated in non-financial firms. Gutierrez (2003) argues that group statistics has the best power to judge the co-integration among the test statistics of (Pedroni, 1999). It is concluded that our selected variables exhibit a valid long run relationship.

Table 3
Pedroni (Engle-Granger based) Panel Cointegration

Estimates	Stats.	Prob.
ROA= f (CCC+CR+SAL)		
Panel v-statistic	-4.172	1.000
Panel rho-statistic	4.449	1.000
Panel PP statistic	-6.337	0.000
Panel ADF statistic	-2.949	0.002
Alternative Hypothesis: Individual AR Coefficient		
Group rho-statistic	8.39	1.000
Group PP statistic	-10.782	0.000
Group ADF statistic	-2.658	0.004
ROA= f (INV+CR+SAL)		
Panel v-statistic	-3.533	1.000
Panel rho-statistic	3.798	1.000
Panel PP statistic	-10.407	0.000
Panel ADF statistic	-4.546	0.000
Alternative Hypothesis: Individual AR Coefficient		
Group rho-statistic	7.459	1.000
Group PP statistic	-16.58	0.000
Group ADF statistic	-3.935	0.000
ROA= f (AAR+CR+SAL)		
Panel v-statistic	-3.036	0.999
Panel rho-statistic	4.263	1.000
Panel PP statistic	-7.101	0.000
Panel ADF statistic	-3.585	0.000
Alternative Hypothesis: Individual AR Coefficient		
Group rho-statistic	7.926	1.000
Group PP statistic	-11.623	0.000
Group ADF statistic	-2.392	0.008
ROA= f (AP+CR+SAL)		
Panel v-statistic	-3.975	1.000
Panel rho-statistic	4.082	1.000
Panel PP statistic	-7.43	0.000
Panel ADF statistic	-2.876	0.002
Alternative Hypothesis: Individual AR Coefficient		
Group rho-statistic	8.001	1.000
Group PP statistic	-12.924	0.000
Group ADF statistic	-2.896	0.002

Source: Authors' estimation.

Table 4
Kao Residual (Engle-Granger based) Panel Co-integration

Estimates	**Stats.**	**Prob.**
	ROA= f (CCC+CR+SAL)	
Panel ADF statistic	-4.578	0.000
	ROA= f (INV+CR+SAL)	
Panel ADF statistic	-3.709	0.000
	ROA= f (AAR+CR+SAL)	
Panel ADF statistic	-4.07	0.000
	ROA= f (AP+CR+SAL)	
Panel ADF statistic	- 4.686	0.000

The null hypothesis of Kao Residual Co-integration panel co-integration procedure is no co-integration
Source: Authors' estimation.

We also use Kao (1999) residual based panel co-integration test to analyze the long run relationship between cash conversion cycle and its components on the non-financial firms profitability. The null hypothesis of Kao residual panel co-integration test is that there is no co-integration among the series of variables. The desirable probability to have a valid long run relationship is must be less than 0.10 which represents that there exists a valid long run relationship at significance level of 10 percent. Results of Kao residual based panel co-integration test are presented in table-4. Results suggest that in all six model the null hypothesis of no co-integration is rejected in the favor of alternative that all considered variables are co-integrated in non-financial firms. Results of long run estimations based on regression analysis are presented in table 5.

Table 5
The relationship of CCC and ROA in different business cycles

Coefficient Estimate	**1**		**2**		**3**		**4**	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
INTERCEPT	-3.622	0.258	-6.945	0.26	-2.632	0.325	-2.116	0.269
REC	-3.324	0.004						
BOOM			3.324	0.009				
CCC	-0.001	0.068	-0.001	0.016				
(CCC*REC)					-0.001	0.002		
(CCC*BOOM)							-0.007	0.001
CR	0.283	0.521	0.283	0.569	0.287	0.582	0.333	0.521
SAL	2.718	0.005	2.718	0.000	2.328	0.102	2.212	0.047
Adj. R2	0.278		0.285		0.167		0.170	
F-Statistic	4.135		4.135		3.285		3.334	
p-value	0.003		0.003		0.021		0.019	

Source: Authors Estimation

Results presented in Table 5 of regression analysis indicate that the cash conversion cycle has a significant negative impact on the profitability of the non-financial firms. These results suggest that the cash conversion cycle plays a significant role to enhance the profitability of the firms. So, in order to increase the profitability, the cash conversion cycle should be minimized because when the firms have a larger cash conversion cycle, then they need external financing which ultimately increases the borrowing cost and decreases the profitability of the firms.

Table 6
The relationship of INV and ROA in different business cycle

Coefficient Estimate	**1**		**2**		**3**		**4**	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
INTERCEPT	-2.476	0.251	-5.69	0.352	-1.875	0.213	-1.875	0.214
REC	-3.215	0.008						
BOOM			3.215	0.008				
INV	-0.007	0.041	-0.007	0.041				
(INV*REC)					-0.032	0.001		
(INV*BOOM)							0.033	0.001
CR	0.296	0.255	0.296	0.255	0.313	0.24	0.313	0.24
SAL	2.583	0.012	2.583	0.012	2.261	0.021	2.261	0.021
Adj. R2	0.28		0.28		0.202		0.202	
F-Statistic	4.181		4.181		2.985		2.985	
p-value	0.002		0.002		0.019		0.019	

Source: Authors Estimation

After having the negative and significant impact of the cash conversion cycle on the non-financial firms' profitability, we now analyze the same relationship with different components of the cash conversion cycle. Results of inventory in days, accounts receivable in days and accounts payable in days are presented in table 6, table 7 and table 8 respectively. Results show the negative and significant impact of inventories, accounts receivable and accounts payable on the non-financial firms' profitability.

Table 7
The relationship of AAR and ROA in different business cycle

Coefficient Estimate	**1**		**2**		**3**		**4**	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
INTERCEPT	-4.069	0.251	-7.159	0.214568	-3.396	0.352	-3.396	0.568
REC	-3.089	0.002						
BOOM			3.089	0.002				
AAR	-0.011	0.001	-0.011	0.001				
(AAR*REC)					-0.016	0.024		
(AAR*BOOM)							-0.019	0.037
CR	0.296	0.223	0.296	0.223	0.324	0.216	0.324	0.216
SAL	2.813	0.003	2.813	0.003	2.470	0.015	2.470	0.015
Adj. R2	0.30		0.30		0.20		0.20	
F-Statistic	4.489		4.489		2.972		2.972	
p-value	0.001		0.001		0.019		0.019	

Source: Authors Estimation

Model (1) and model (2) of table-6 shows that the significant negative relationship exists between inventories in days and firms profitability. The result concludes that when the inventory movement is slow it increases the holding costs such as storage, warehousing, insurance, cost of the firms which ultimately reduces the firms profitability. Result of table 7 also shows a significant negative relationship between accounts receivables and profitability in model (1) and model (2). The reason behind this negative relationship is that if the customers delayed payment the much amount is tied up and, as a result, the interest which can be earned by investing those funds cannot be earned and the firms should go for additional borrowings to complete the inventory replenishment process which affects the firms profitability.

Model (1) and model (2) of Table 8 shows a significant negative relationship between accounts

payable and firm profitability because more profitable firms pay their short term liabilities within the discounted days and avail the cash discount, however, the short term payments are delayed by those firms which are less profitable.

Table 8
The relationship of AP and ROA in different business cycle

Coefficient Estimate	**1**		**2**		**3**		**4**	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
INTERCEPT	-3.456	0.254	-6.827	0.470	-3.766	0.198	-3.766	0.250
REC	-3.371	0.000						
BOOM			3.371	0.000				
AP	-0.007	0.009	-0.007	0.009				
(AP*REC)					0.018	0.001		
(AP*BOOM)							-0.020	0.000
CR	0.255	0.852	0.255	0.856	0.282	0.430	0.282	0.457
SAL	2.801	0.014	2.801	0.015	2.581	0.035	2.581	0.026
Adj. R2	0.29		0.29		0.25		0.25	
F-Statistic	4.462		4.462		3.825		3.826	
p-value	0.001		0.001		0.004		0.004	

Source: Authors Estimation

Results of Interaction Terms

The model (3) and model (4) in table 5, table 6, table 7 and table 8 shows the results of interactive terms of the cash conversion cycle, inventories, accounts receivable and accounts payable in the full sample of non-financial firms. The objective of these estimations is to analyze the influence of business cycle, i.e., recession and boom on the relationship of working capital management and profitability.

Results show that the interaction terms of cash conversion cycle and accounts receivable shows the negative relationship with the profitability which means that they do not depart from the norms, whether it is recession situation or boom situation the firms should focus on shorter cash conversion cycle and account receivable period in order to improve the firms' profitability.

The result of the model (3) in table 8 shows that the interactive term (REC*INV) does not change the significance of the relationship which means that during recession still a negative relationship exists between the variables. However, the model (4) in table 6 shows that interactive term (BOOM*INV) changes the significance of the relationship and reports a significant positive relationship exists between inventories and profitability in boom periods. The result implies that more inventory holding during the boom period ensures the uninterrupted production of inventories, timely meeting of customers' demand which ultimately increases the firms? profitability.

The result of the model (3) in table 8 shows that the interactive term (REC*AP) changes the significance of the relationship which means that during the recession a positive relationship exists between the variables. The result implies that during the recession period, it is very difficult for the firms to take loans from the banks so by delaying the supplier's payments they can use this cash to fulfill their cash needs and improves their profitability. However, the model (4) in table-6 shows that interactive term (BOOM*AP) does not change the significance of the relationship and reports a significant negative relationship exists between accounts payable and profitability in boom periods.

Results of control Variables:

In all the models, current ratio shows an insignificant impact on non-financial firms' profitability whereas, sales have a significant impact on non-financial firms' profitability.

Conclusion and Policy Implications

This study investigates the influence of working capital management on firms' profitability under different business cycles in 65 non-financial firms by using the annual panel data for 10 years from the period of 2004 to 2013. We use cash conversion cycle and its 3 components, i.e., inventories in days, accounts receivables in days and accounts payable in days to analyze their impact on the profitability of the non-financial firms. We also form the interaction terms to analyze the impact of the business cycle on the working capital management and profitability relationship.

Pedroni panel co-integration and Kao residual panel co-integration approaches are used to confirm the long run relationship between considered variables. Results of regression analysis on the complete sample indicate that the cash conversion cycle and its components have a significant negative impact on the non-financial firms' profitability. Results also indicate that the control variable current ratio has an insignificant impact on firms' profitability whereas, sales have a significant positive impact on firms' profitability.

Results show that the interaction terms of cash conversion cycle and accounts receivables show the same negative relationship with firms' profitability in different business cycles, whereas the interaction term of inventory shows a significant positive relationship with firms' profitability in the boom period. Moreover, the interaction term of accounts payable shows a significant positive relationship with firms' profitability in the recession period.

It can be concluded that firms' profitability can be improved by managing the working capital in an efficient manner. Moreover, the value of the shareholders can be improved by minimizing the account receivables in days and by maximizing the creditor's terms. This excessive cash should be reinvested in the short term funds to earn profits.

During the recession period, the companies should focus on delaying their payments as this will help them to improve their liquidity and should choose those suppliers which provide lenient credit terms and should shift their selves to JIT concept because this lead to minimum inventory holding and results in profitability. On the contrary, during boom period, the firms should pay their liabilities as soon as possible because the long cash holding will have a negative effect on their profitability and the companies should have a sufficient inventory available all the time as this will ensure the uninterrupted supply of the goods and enhances the performance of the companies.

Moreover, the companies should hire the financial experts who can guide them in efficient management of working capital.

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