IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY

Hina Agha, Mba, Mphil
Bahria University Karachi Campus, Pakistan

Abstract

The main purpose of this study is to empirically test the impact of working capital management on profitability .To investigate this relationship between these two, the author collected secondary data from Glaxo Smith Kline pharmaceutical company registered in Karachi stock exchange for the period of 1996-2011. For this purpose, in this study we use variable of return on assets ratio to measure the profitability of company and variables of account receivable turnover, creditors turnover, inventory turnover and current ratio as working capital management criteria. The results of the research show that there is a significant impact of the working capital management on profitability of company. Therefore, managers may enhance the profitability of their firms by minimizing the inventory turnover, account receivables ratio and by decreasing creditors turnover ratios but there is no significant effect of increasing or decreasing the current ratio on profitability. So, the results indicate that through proper working capital management the company can increase its profitability. This study will benefit the Pharmaceutical companies in the management of their working capital in such an efficient manner so that they can multiply their profitability.

Keywords: Working capital, Profitability, management

I - Introduction

In financial affairs of companies, working capital management is a very important factor, which has a direct positive effect on profitability as well as liquidity of the company. Liquidity and profitability are both the two different sides of same coin. Optimum level of liquidity guarantees a firm to meet their short term debts and the proper management of flow can be promised by a profitable business. Liquidity shows the ability of company in responding to short-term obligations. A firm ought to optimize its liquidity and profitability while conducting its daily business operations. Working Capital Management contains proportion balance of working capital components i.e. – debtors, inventory and payables and the use of cash effectively for daily business operations. Proper optimization of working capital balance means minimizing the working capital requirement and realizing maximum possible revenues (Ganesan, 2007). There is a strong linear relationship between profitability of the firm and its working capital efficiency. The ability of the company to earn profit can be referred to as the profitability of that company. Profit is determined by deducting expenses from the revenue incurred in generating that revenue. The amount of profit can be a good measure of the performance of a company, so we can use profitability as a measure of the financial performance of a company, as well as, profitability is the promise for a company to remain a going concern in the world of business. Proper Working capital management ensures that the company increased its profitability. Effective working capital management is very important due to its significant effect on profitability of company and thus the existence of company in the market. If a firm minimizes its investment in current assets, the resulting funds can be invested in value-creating profitable projects, so it can increase the firm's growth opportunities and shareholders return. However, management can also face liquidity problems due to underinvestment in working capital. The ability of financial managers to effectively and efficiently manage their receivables, inventories, and payables has a significant impact on the success of the business and on profitability as well. The study attempts to enhance the knowledge of companies by identifying the ways that Pharmaceutical companies manage their working capital in order to increase profitability.

IA- Research question:

Is there any significant relationship between profitability (ROA) and working capital management (DTO,CTO,ITO,CR).

IB-Key terms and their definitions

Return on assets ratio (ROA): Return on assets is a ratio of net income (annual) divided by the total assets (average) of a business during its financial year. It explains the performance and progress of the business in utilizing its resources to generate the income. It is a profitability ratio. The formula to calculate return on assets is total annual net income divided by the average total assets during a financial year.

Debtors turnover ratio (DTO): It shows how many times company collects its account receivable. High ratio increases the liquidity of the company. It calculates by dividing net credit sales by average account receivable.

Creditors turnover ratio (CTO): Accounts payable turnover ratio shows how much credit worthy is the company. A high ratio means quick or prompt payment to suppliers for the products purchased on credit and a low ratio may be a sign of delayed payment. A high ratio (prompt payment) is desirable but company should always avail the credit facility offered by the suppliers. It is calculated by dividing net credit purchase with average account payables.

Inventory turnover ratio (ITO): Inventory turnover ratio may vary significantly from industry to industry. A high ratio means fast moving inventories and a low ratio means slow moving or obsolete inventories in hand. A low ratio can also be the result of maintaining excessive amount of inventory needlessly. Maintaining excessive inventories means tidying up the capital that could be used in other profitable operations. Therefore, the formula for calculating inventory turnover ratio is sales divided by inventory.

Current Ratio: Current ratio is the ratio of current assets of a business to its current liabilities. It is the most commonly used method for testing the liquidity of a business and measures the ability of a business to repay its short term debts. Hence, the formula for calculating current ratio is current assets divided by current liabilities of a particular financial year. Current ratio should be greater than 1. Current ratio below 1 shows critical liquidity problems faced by the company because it shows that the total amount of current liabilities are more than the total amount of current assets and that the company is not in the position to pay its short term debts. Abnormally, high current ratio may be the result of underutilized resources in the business.

II-Review of literature:

Abbasali Pouraghajan and Milad Emamgholipourarchi empirically tested the impact of working capital management on profitability and Market evaluation of the Tehran Stock Exchange listed companies. Keeping in mind this objective, they studied a sample of companies during the years 2006 to 2010 registered in Tehran Stock Exchange and analyzed them. Also, they used various variables to measure these two factors. The estimated result of the research shows that there is a significant positive relationship between the effective working capital management and profitability of company. Also, the results of the study show that management can enhance the profitability of company through minimizing cash conversion cycle and the total debts to total assets ratio.

Kulkanya Napompech reviewed the impact of working capital management on profitability .The primary objective of this research was to test the effects of working capital management on profitability. The regression analysis was calculated on a panel sample of 255 companies listed on the Stock Exchange of Thailand from 2007 to 2009. Therefore, the results showed an inverse relationship between the operating profits and inventory conversion period and the receivables collection period. However, there are no effects on profitability by extending the payables deferral period. The findings also demonstrated that industry characteristics have an impact on gross operating profits.

Malik Muhammad, Waseem Ullah Jan, and Kifayat Ullah empirically tested that effective Working capital management is very important for the success of a business because it has a direct positive impact on the profitability of the business. For this purpose, secondary data were collected from listed firms in Karachi stock exchange for the period of 2001-2006 with an attempt to examine the relationship between profitability, and working capital management criteria. The population of the study is Pakistan textile industry, and the findings of the study demonstrate that there is a strong positive relationship between profitability and cash, accounts receivable and inventory; but there is a negative relationship between profitability and accounts payable. Therefore, this indicates that increase in cash, inventory and credit sales will result in an increase in the profitability of firm.

Mobeen Ur Rehman and Naveed Anjum empirically examine the effects of working capital management on the profitability of Pakistan cement industry. Secondary Data was collected from Annual Reports and the sample size is 10 consisting of Pakistan cement Companies listed in KSE from 2003-2008. The relationship between working capital management and profitability is examined using statistical tools. The result accepts the hypothesis that there is a positive relationship between working capital management and profitability on the cement sector of Pakistan.

This study was conducted by Mohammad Morshedur Rahman, and it examines that the Profitability and Working Capital management of Textiles Industries has a positive relationship ratio on all the statistical tools used to examine Profitability, Working Capital position and relation between them and the effect of Working Capital on Profitability as well. Author mainly collected data from Annual Reports of the companies. The study reveals that positive relationship exists between Working Capital Management and Profitability, but the textile industry is not showing working capital management efficiency.

The study was conducted by Sarbapria Rai. Therefore, according to this study, there is a positive relationship between working capital management and profitability of the company; hence for this purpose, the author took sample of 311 Indian manufacturing firms of 14 years from 1996-2010 and studied the impacts of working capital management on profitability, and including the debtors turnover ratio, inventory turnover ratio, debt ratio and many other ratios for measuring the working capital and return on assets and others for measuring profitability of Indian manufacturing firms. After analyzing the results, it was proved that there is a significant relationship between working capital management and the profitability of company.

III- Modeling framework:

After reviewing theoretical literature, the following best fitted variables have been driven to measure the impact of working capital management on profitability, and the equation to investigate the relationship between working capital management and profitability is as follows:

$$ROA = \beta o + \beta 1CTO + \beta\ 2DTO + \beta 3ITO + \beta 4CR + \varepsilon$$

Where ROA is the return on assets ratio, CTO is the creditors turnover ratio, DTO is the debtors turnover ratio, ITO is the inventory turnover ratio and CR is the current ratio.

Where ROA is dependent and the remaining are independent variables:

The ε is the error term. In the above equation, β1 is expected to be negative but the researcher is not very sure about it, so it has to be determined (CTO $\leq$?), β2, β3, β4 are expected to be positive ($\beta 2DTO \geq 0$, $\beta 3\ ITO \geq 0$, $\beta 4CR \geq 0$). All data was obtained from annual report of Glaxo smith Kline pharmaceutical company, sample size is 16 i.e. from 1996 to 2011. Following is the hypothesis which has to be tested in this study.

H^o: $\beta 1 = \beta 2 = \beta 3 + \beta 4 = 0$
H1: $\beta 1 + \beta 2 + \beta 3 + \beta 4 \neq 0$

IV - Estimation results:

To examine the data, the following analysis was done. The descriptive statistics of the data is:

Table1. Sample: 1996 2011					
	ROA	DTO	CTO	ITO	CR
Mean	35.95625	53.68750	15.43750	4.981875	3.262500
Median	35.05000	51.50000	14.00000	5.000000	3.500000
Maximum	59.90000	77.00000	23.00000	7.800000	4.600000
Minimum	24.20000	43.00000	5.000000	3.800000	2.100000
Std. Dev.	10.33002	10.48630	4.486554	1.079779	0.915696
Skewness	0.690672	0.732289	-0.252075	1.108555	-0.123767
Kurtosis	2.696294	2.432848	3.232120	3.917211	1.384716
Jarque-Bera	1.333567	1.644433	0.205365	3.837903	1.780277
Probability	0.513357	0.439456	0.902413	0.146761	0.410599
Sum	575.3000	859.0000	247.0000	79.71000	52.20000
Sum Sq. Dev.	1600.639	1649.438	301.9375	17.48884	12.57750
Observations	16	16	16	16	16

Table-1 is explaining to us the descriptive statistics which covers the mean, median, standard deviation and other results.

The correlation matrix for the equation is:
Correlation matrix

Table2.

	ROA	DTO	CTO	ITO	CR
ROA	1.000000	0.989984	0.638537	0.965144	0.871140
DTO	0.989984	1.000000	0.623751	0.952698	0.849886
CTO	0.638537	0.623751	1.000000	0.474999	0.559231
ITO	0.965144	0.952698	0.474999	1.000000	0.840868
CR	0.871140	0.849886	0.559231	0.840868	1.000000

As the correlation shows the degree of relationship between dependent and independent Variables, It shows how much strong or weak the relationships between two variables are. Hence, the above data shows there is a strong positive relationship between return on assets (dependent variable), debtors turnover and inventory turnover ratios (independent variables). Moreover, the above number shows that there is a moderate relationship between creditors turnover and dependent variable and more than moderate relationship between current ratio and dependent variable.

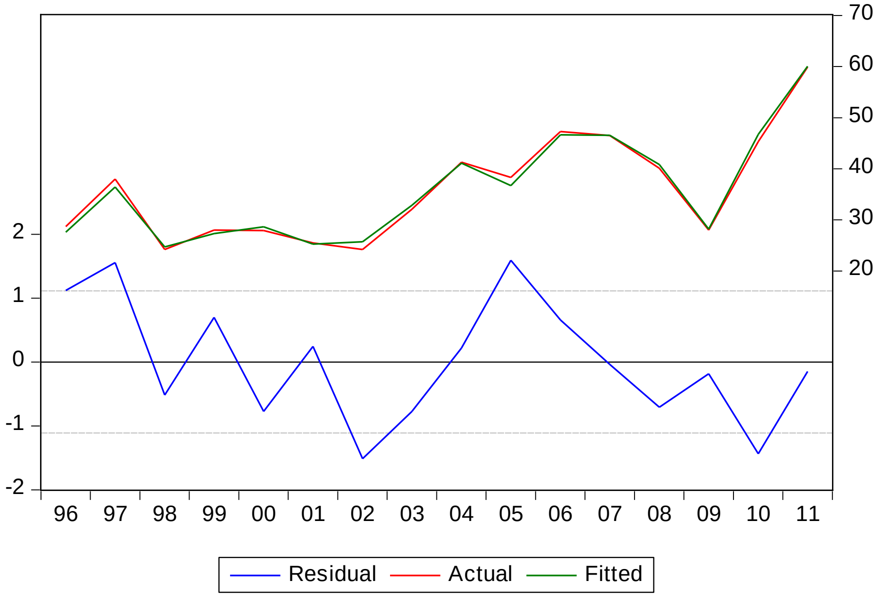
Regression results:
Regression results for the equation are as follows:

Table3.

Dependent Variable: ROA				
Method: Least Squares				
Date: 05/23/13 Time: 13:53				
Sample: 1996 2011				
Included observations: 16				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CTO	0.228787	0.096566	2.369225	0.0372
DTO	0.540272	0.118003	4.578448	0.0008
ITO	3.317941	1.049417	3.161699	0.0091
CR	0.652331	0.618795	1.054196	0.3144
C	-15.23929	1.565700	-9.733213	0.0000
R-squared	0.991506	Mean dependent var		35.95625
Adjusted R-squared	0.988418	S.D. dependent var		10.33002
S.E. of regression	1.111736	Akaike info criterion		3.300029
Sum squared resid	13.59552	Schwarz criterion		3.541463
Log likelihood	-21.40023	Hannan-Quinn criter.		3.312392
F-statistic	321.0153	Durbin-Watson stat		1.540742
Prob(F-statistic)	0.000000			

The statistical significance can be verified by the Coefficient, standard error test, t-statistics, Adjusted R-squared, F-statistic, Prob.(F-statistic) and the Durbin-Watson statistics. In summary, the econometric test applied through E-views shows the statistically significant relationship between the dependent variable and independent variables from the model. The above regression results shows that CTO, DTO and ITO have a positive significant impact on ROA, but there is no significant impact of CR on ROA. Also, the adjusted r-squared is showing that the above mentioned independent variables effect the dependent variable by 98.8 percent.

Actual fitted graph for the equation:



V -Conclusions and Implications:

As the above results shows that there is a positive relationship between debtors turnover (DTO) and return on assets(ROA), between inventory turnover(ITO) and ROA and between creditors turnover (CTO) and ROA, but there is no significant relationship between Current ratio and ROA, so the null hypothesis has been rejected.

Hence, the interpretation of results is that by increasing debtors turnover and inventory turnover and by decreasing creditors turnover ratios, the company can increase its profitability but there is no significant effect of increasing or decreasing the current ratio on profitability. Therefore, the results of the research indicate that through proper working capital management, the company can increase its profitability. This above study will benefit and contribute to the body of knowledge by identifying how Pharmaceutical companies manage their working capital in the most effective and efficient manner in order to multiply profitability of the business.

VI-Direction for further research:

There is a need for further research in the area of describing the variables effecting profitability because there might be some more variable effecting the profitability of the business.

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