

Impact of Working Capital Management on Profitability of Micro and Small Enterprises in Ethiopia: The Case of Bahir Dar City Administration

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Abstract

Working capital management is one of the most important and challenging aspect of the overall financial management that needs a series consideration in firm's financial decision. Efficient management of WC is a fundamental part of the overall corporate strategy in creating value. In light of this the purpose of this study is to examine impact of working capital management on profitability of micro and small enterprises with special reference to Bahir Dar city administration using a sample of 67 micro and small enterprises. Data for this study was collected from the financial statements of the enterprises listed on Bahir Dar city micro and small enterprises agency for the year 2003. Variables entered in this study were number of days accounts receivable, number of days inventory, number of day's accounts payable, cash conversion cycle controlling for CATA ratio, CLTA ratio GEAR and enterprise size. This study applied Pearson's correlation and OLS regression with a cross sectional analysis. The result shows that there is a strong positive relationship between number of days accounts payable and enterprises profitability. However, number of days accounts receivable, number of days inventory and cash conversion cycle have a significant negative impact on profitability. By shortening cash conversion cycle an enterprise's profitability be increased.

Key words: working capital, number of days accounts receivable, cash conversion cycle, size.

Introduction

Promotion and development of micro and small enterprises are considered as vehicles to address the challenges of unemployment, import substitution, economic growth, competitive advantage and enhancing equity in the country. Due to this the federal government of the country has formulated a national micro and small enterprise promotion and development, which enlightens a systematic approach to alleviate the problems and promote their growth.

The sector is a quick remedy to alleviate unemployment and facilitate the environment for new job seekers and self-employment with a direct intervention and support of the government. With this respect Micro and small enterprises play an essential role in facilitating economic growth, bringing about equitable development, create long-term jobs, strength and cooperation between MSEs, and participate in export market (FeDMSE 1997).

More practically in most developing countries, micro and small businesses face a wider range of constraints and problems such as governmental, political, legal and regulatory environment, access to markets, shortage and access to finance etc which they are not able to solve by themselves, even in effectively functioning market economies(Fe MOTI 1997).

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In Ethiopia's situation, since there have not been organized policy and support systems that cater for the sector, MSEs have been confronted by serious marketing problems, shortage of supply of raw materials and lack of working capital which are considered the first most pressing problems facing micro and small enterprises for not expanding their businesses (Fe MOTI 1997).

Working capital management is important issue in the financial decision of firm because of its effect on firm's profitability and risk and consequently its value (Raheman and Nasr, 2007).

Working capital management, which deals with the management of current assets and current liabilities, directly affects the liquidity and profitability of the company. However, an appropriate attention usually is not given for. The ability of the firm to continuously operate for longer period is depending on how they deal with investment in working capital. There are much empirical evidences in the financial literature that present the importance of working capital management (Deloof 2003; Teruel and Solano, 2007; Shin and Soenen, 1998 and Wang, 2002; Raheman and Nasr, 2007). Results of these empirical analysis show that there is statistical evidence for a strong relationship between the firm's profitability and its WCM efficiency. The studies also give significant evidence that issues of WCM vary for different industries and firms from different industry sectors adopt different approaches to working capital management and follow an appropriate working capital management approach that is favorable to their industry.

Firms in an industry that has less competition would focus on reducing credits granted and number of days allowed for receivable to increase their cash flow and firms in industry where there are large numbers of suppliers of raw materials; their focus would be on maximizing number of days payable (Deloof 2003; Teruel and Solano, 2007; Shin and Soenen, 1998 and Wang, 2002; Raheman and Nasr, 2007). Having this significance the very purpose of the current study is to analyze the impact of working capital management on profitability of micro and small enterprises with special reference to Bahir Dar city administration. Furthermore, it intends to contribute the existing literature by analyzing a cross sectional data for a sample of 67 micro and small enterprises for the year 2003 by applying multiple regression and Pearson's correlation analysis. In order to analyze the effect of working capital management on profitability, return on asset (ROA) is dependent variable explained by using number of days account receivable, number of days account payable, number of days inventory and cash conversion cycle ((number of days account receivable +days inventory) - days account receivable) controlling for enterprises size which is measured by logarithm of sale, GEAR, CATA and CLTA.

1.2. Problem statement

In most fast developing countries, MSEs by virtue of their size, location, capital investment and their capacity to generate greater employment have proved their powerful propellant effect for rapid economic growth; in Ethiopia MSE created 1.5 million job opportunities, 1.2 million actors become beneficiary from various training, 10,000 actors and 5000 professionals become beneficiary from business development and providing service respectively (FeMSEDS.2011). MSEs are also sources of innovation that they tend to occupy specialized market and competitive strategy which set them apart from other companies. This might include reengineering products or services to meet customers demand, exploring innovative distribution or developing new market (FeMSEDS.2011). Even if such an important role their financial management is not yet seen. Additionally, MSEs with limited access to the long- term capital markets tend to rely more heavily on owner financing, trade credit and short term bank loans to finance their operations (Olomi, 2008).

Since smaller firms experience difficulties in accessing external finance, they rely more strongly on internally generated funds than large firms. Working capital management thus plays an important role in financing MSE s. This assumption is confirmed by the fact that working capital related problems are cited among the most significant reasons for the failure of MSE s and strong statistical relationship has been found between working capital management and profitability.

Lukkari, (2011) in his bibliometric review literature Study identified that most studies in the literature were done on the developed economies but no evidence has identified on the developing countries, especially for micro and small label companies, this is more evident for Ethiopian micro and small enterprises; therefore, the study is a median to analyze the impact of working capital management on profitability of Ethiopian MSE with especial reference to Bahir Dar.

1.3 Objective

The general objective of this study is to examine the impact of working capital management on profitability of micro and small enterprises.

Specifically it is intended to:

- To examine the impact of number of days account receivables on profitability of micro and small enterprises at Bahir Dar city administration.
- To analyse impact of days of inventory on enterprises profitability.
- To identify the impact of days account payable on enterprises profitability
- To identify the impact of cash conversion cycle on return on total assets of enterprises.

1.4 Research question

- What is the impact of number of days account receivables on profitability of micro and small enterprises at Bahir Dar city administration?
- What is the impact of days of inventory on performance of micro and small enterprises?
- What is the impact of days account payable on enterprises profitability?
- How cash conversion cycle affects MSE's return on total assets?
- How MSEs are managing their working capital and how can it be improved?

1.5 Research methodology

This section describes and justifies the methodological approach that has been employed. Quantitative technique is used to analyse collected secondary data.

Sample and sampling technique

The study consists of 67 purposively selected MSEs from a population of 655 enterprises listed at Bahir Dar city administrations micro and small enterprises agency. Enterprises at growth and maturity stage from all sectors; urban agriculture, industry, construction, trade and service sectors for the period selected are considered for the study. However, enterprises at start up stage from all sectors were excluded from the sample due to absence of data. Start up stage refers to enterprises that incorporate people who are interested to establish MSE and those who completed the required profession/skill from various institutions and innovated legally either in the form of association or private. It is a level where an enterprise begins service and production under the legal framework or legal entity (FeMSEDS2011).

The rationale behind restricting periodically on 2003E.C is absence of completed financial statement for years before 2003. From those enterprises some of them were not even existed and they were not required by the agency to prepare and submit financial statements and also do not keep necessary records and statements as well.

Useful information for the study was collected from secondary data source; the secondary data that is the main source of the study were collected from micro and small enterprises financial statements. For this purpose balance sheet and income statement of the enterprises were the prime data sources that are empirically analyzed.

Quantitative Analysis

Through quantitative analysis researcher has applied two methods. First: the researcher use correlation analysis, specifically Pearson correlation to measure the degree of association between different variables under consideration. Second: multiple regression analysis to estimate the causal relationships between profitability variable, Working Capital efficiency variables and other chosen variables. By using this method the significance of each explanatory variable and control variables to the model and also the significance of the overall model are identified. To this end cross-sectional data was analyzed. For the purpose of analysis SPSS software was used to run the regression, correlation, ANOVA and test overall significance of the model.

1.6 Model development and specification

The primary aim of this study is to investigate the impact of working capital management on micro and small enterprises profitability. This is achieved by developing a methodology and empirical framework as used by (pedachi 2006); (Stephen & Elvis 2011) and (Lakshan 2007). The following regression equations were used to obtain estimates.

$$ROA = \beta_0 + \beta_1DINV + \beta_2LNSALE + \beta_3GEAR + \beta_4CATA + \beta_5 CLTA + \epsilon_i$$

$$ROA = \beta_0 + \beta_1DAR + \beta_2 LNSALE + \beta_3GEAR + \beta_4CATA + \beta_5CLTA + \epsilon_i$$

$$ROA = \beta_0 + \beta_1DAP + \beta_2LNSALE + \beta_3GEAR + \beta_4CATA + \beta_5 CLTA + \epsilon_i$$

$$ROA = \beta_0 + \beta_1CCC + \beta_2LNSALE + \beta_3GEAR + \beta_4CATA + \beta_5CLTA + \epsilon_i$$

WHERE;

ROA return on asset is net income divided by total asset

DAR is the number of day's accounts receivable

DINV is the number of day's inventory

DAP is the number of day's accounts payable

CCC cash conversion cycle

LNSALE is firm size measured by natural logarithm of sale

GEAR is a ratio of total liability to total asset

CATA is current asset to total asset ratio

CLTA is current liability total asset ratio

ϵ_i is the error term

1.7 Result and Discussion

Average number of days granted by enterprises to their clients is 22.22 and its standard deviation is 40.47days. Minimum time taken by enterprises to collect cash from their customers is 0 and the maximum is 208 days, while they paid their creditors on the average in 44.50 days, as per the descriptive result this value deviates from its mean by 66.53 days. Minimum and maximum time for payment of creditors is 0 and 393.49 days respectively.

Average time an inventory holds to be sold is 35.37 ranging from 0 and 360 days. The standard deviation is 69.72 days. Overall, the average number of days of cash conversion cycle is 13.24 this value deviate from its mean by 105 days. The minimum time for cash conversion cycle is -393.49 while the maximum 338.85days.

The maximum debt ratio used by an enterprise is 0.97. In this case the enterprise is almost totally financed through debt. While the minimum of debt ratio is 0, this means that there are firms which finance their asset only from their own equity in its operation. Current asset and total asset ratio on the descriptive statistics shows a mean value of 0.90 with a standard deviation of 0.22, minimum value for current asset to total asset ratio is 0 while the maximum value is 1.

The value zero implies that the entire enterprises asset is only from current parts of the asset and a value of one means the composition of enterprises asset is proportional. Current asset is equal to fixed asset of the enterprise. Finally descriptive statistics for Current liability to total asset ratio presents that the mean value of current liability in proportion to total asset is 0.159, the values of its standard deviation is 0.221. The maximum value is 0.97 while the minimum is 0.

OLS assumptions were tested, all variables in the models had a variance inflation factor (VIF) ranged between 1 and 1.6. This indicates there is no problem of multicollinearity between the predictors in the regression models (see appendix II). There is no problem of autocorrelation since it is cross-sectional analysis. Normality of residuals were also checked with Kolmogorov-Smirnov test on SPSS and the result shows it is normal.

Correlation analysis

The result of correlation analysis shows a correlation between average collection period (DAR) and profitability measure (ROA) is negative with a coefficient of 0.436, and p - value of 0.000. It shows that there is highly significant correlation at $\alpha = 1\%$. This means that if number of days accounts receivable increase, profitability of micro and small enterprises decreases and vice versa. Contrarily, correlation between number of days accounts payable (DAP) and return on asset is positive at a coefficient is 0.96 and p value 0.000. It is also highly significant at $\alpha = 1\%$. This implies if firms lengthen periods to settle their bills they can increase their return on asset. Similar to this, correlation between inventory turnovers in days (DINV) and the operating profitability indicate insignificant positive relationship. The cash conversion cycle that is used as a comprehensive measure of working capital management is negatively correlated to return on asset with a coefficient of -0.748 and p value is 0.000. It is also highly significant at 1% significant level. This show that taking longer time for payment of debt, shortening collection period granted to customers as well as holding raw material, working process and finished goods inventory in stock less time are all associated with an increase in the firm's profitability. Finally MSE with shorter cash conversion cycle are profitable as compared with those who have a longer cash conversion cycle.

Correlation between working capital components show that, days account receivable is positively and significantly correlated with cash conversion cycle while negatively and significantly correlated with days account payable. Days inventory positively and significantly correlated with cash conversion cycle and positively not significantly with days account payable while negatively and not significantly correlated with days account receivable. Days account payable negatively and significantly correlated with cash conversion cycle.

Multiple regression analysis

Pearson's correlation fails in identifying causes from consequences. Therefore, the study uses regression analysis to investigate further the casual association between profitability and the indicators of working capital management. The determinant of profitability is estimated with regression models expressed.

Firm Profitability and Number of Days Accounts Receivables

Model 1

$$ROA = \beta_0 + \beta_1 DAR + \beta_2 LN SALE + \beta_3 GEAR + \beta_4 CATA + \beta_5 CLTA + \epsilon + \dots \dots \dots \text{ (Equation 1)}$$

In this model return on asset (ROA) is dependent variable, number of days accounts receivable is independent variable, and logarithm of sale, total liability to total asset ratio (GEAR), current asset to total asset ratio (CATA) and current liability to total asset ratio (CLTA) were used as control variables, and all of these requested variables are entered.

Table 1: model summary

Model	R	R squares	Adjusted R squared	Std.error of the estimate
1	.460 ^a	.212	.147	1.27994

a. Predictors: (constant),CATA,LNSALE,GEAR,DAR,CLTA

Table 2 ANOVA^b

Model	Sun of squares	Df	Mean square	F	Sig
Regression	26.883	5	5.377	3.282	.001 ^a
Residual	99.932	61	1.638		
Total	126.815	66			

a. Predictors: (constant),CATA,LNSALE,GEAR,DAR,CLTA

b. Dependent variable ROA

Table 3 Coefficients^a

Model	Un standardized coefficients	Standardized coefficients	T	Sig
	B	Beta		
1 (constant)	1.239		.991	.326
DAR	-.014	-.418	-3.332	.001
LNSALE	.015	.022	.189	.851
GEAR	-.526	-.105	-.730	.468
CLTA	1.065	.170	1.211	.231
CATA	.408	.066	.544	.588

a. Dependent variable ROA

ANOVA table of this model implies the overall model is highly significant at p-value 0.011.

The R², that is called the coefficient of determinations, is the percentage of the variation in the dependent variable uniquely or jointly explained by the independent variables is 21.2%. From result of SPSS, the model is fit with F-statistics 3.282 and p-value is 0.011. It shows it is significant at $\alpha = 0.05$. So it is concluded at least one of the DAR, GEAR, CLTA, CATA and LNSALE is related to return on asset.

From these variables number of days account receivable is negatively related to return on asset its coefficient is 0.14 , p value is 0.001 and it is significant at $\alpha = 5\%$ this implies days account receivable has a significant impact on return on asset and the result is 95% confident. This means a change in number of days account receivable significantly affect firm's profitability measured by ROA. More specifically, coefficient of -.014 shows that when other variables in the regression model being constant, if number of days accounts receivable increased by one day, return on asset (ROA) of the firm on the average is decrease by 0.14 percent.

The result is confirmed with the results of Deloof (2003), Lazaridis and Tryfonidis (2006), Raheman and Nasr (2007) and Garcia-Teruel and Martinez-Solano (2007). However it is contrary to Sharma and Kumar (2010) who found positive relationship between number of days account receivable and profitability. The reason for this significance difference is political and environmental influence of competitive force from multinational companies (MNCs) over the company they were studied. Control variables in the model do not have significant effect.

Firm Profitability and Number of Days Inventory

Model 2

$ROA = \beta_0 + \beta_1DINV + \beta_2LNSALE + \beta_3GEAR + \beta_4CATA + \beta_5 CLTA + \epsilon_i$ (Equation 2)

Table 4: model summary

Model	R	R squares	Adjusted R squared	Std. error of estimates
1	.267 ^a	.071	-.005	1.38951

a. Predictors: (constant),CATA,LNSALE,GEAR,DAR,CLTA

Table 5: Coefficients^a

Model	Un standardized coefficients	Standardized coefficients	T	Sig
	B	Beta		
1 (constant)	.104		.077	.939
DINV	.001	.053	.424	.673
LNSALE	.009	.014	.111	.912
GEAR	-1.082	-.217	-1.083	.160
CLTA	1.035	.165	1.083	.283
CATA	1.120	.180	1.408	.164

a. Dependent variable ROA

Tables 8-10 show the summary statistics of regression equation (2). Regression results reveal that there is a positive but not significant relationship between inventory days and the dependent variable (ROA). The regression coefficient of number of days of inventory (INV), even though statistically insignificant, was found to be positive (0.001) which implies that an increase in the number of days inventory by one day other things remain constant, results an average increment in profitability by 0.001.

Analyzing the relationship between the number of days the inventory is held and the profitability, most studies found negative relationship, Raheman and Nasr (2007), Padachi (2006), Garcia-Teruel and Martinez-Solano (2007), Deloof (2003). Contrarily, (Gill, Biger and Mathur 2010) on the sample of manufacturing industry firms with similar methodology, found an insignificant positive relationship. This result is further investigated by (Pedachi 2006 and Lakshan 2007)

Even though they were applied similar methodology, their findings are quite different; such a variation is occurred due to an environmental difference and sample size they considered. Consistent to Gill, Biger and Mathur (2010), (Pedachi 2006 and Lakshan 2007) this study revealed insignificant positive relationship to the sampled micro and small enterprises. Positive relationship between number of days of inventory (DINV) and return on asset (ROA) does not indicate that micro and small enterprises can increase their return on asset by increasing the duration of inventory stock since the relationship was not significant and which cannot be true in the practical business world. Further, the regression model, unlike all other equations is not significant with a very low R² value of 0.07 which is very weak to explain return on asset. The F statistic used to test significant of R shows 0.936 and p-value is 0.464 all of these shows it is insignificant.

Firm Profitability and Number of Days Accounts Payables

Model 3

$$ROA = \beta_0 + \beta_1 DAP + \beta_2 LNSALE + \beta_3 GEAR + \beta_4 CATA + \beta_5 CLTA + \epsilon_i \dots \dots \dots \text{(Equation 3)}$$

Table 6: model summary

Model	R	R squares	Adjusted R squared	Std.error of the estimate
1	.961 ^a	.923	.917	.40028

b. Predictors: (constant),CATA,LNSALE,GEAR,DAR,CLTA

Table 7 ANOVA^b

Model	Sum of squares	Df	Mean square	F	Sig
Regression	117.041	5	23.408	146.099	.000 ^a
Residual	9.774	61	.160		
Total	126.815	66			

- a. Predictors: (constant),CATA,LNSALE,GEAR,DAP,CLTA
b. Dependent variable ROA

Table 8 Coefficients^a

Model	Un standardized coefficients	Standardized coefficients	T	Sig
	B	Beta		
1 (constant)	-.060		-.159	.874
DAP	.020	.957	26.005	.000
LNSALE	.020	.031	.846	.401
GEAR	-.025	-.005	-.113	.910
CLTA	.049	.008	.177	.860
CATA	.076	.012	.329	.743

- b. Dependent variable ROA

R2 is 92.3% it is highly explaining the dependent variable. From result of SPSS, the model is fit with F-statistics 146.099 and p-value is 0.000 it can be said that it is highly significant.

Table 15 shows that there is positive relationship between number of days account payable and profitability of an enterprise. The result is confirmed with their positive correlation. The coefficient is 0.02 and p value is 0.000 which implies it is highly significant at all significant level. Delaying payment of bills for one day on the average increase its return on asset by 0.02 percent, other things remain constant.

This positive relationship between the average payment period and profitability indicates that more profitable firms wait a longer time to pay their bills while less profitable pay early. This is in line with results of prior studies by Lakshan 2007), Dong and Su 2010) (Karaduman H. Akbas. H. Ozsozgun. A. & Durer.S, 2010 and Dănuțiu A.E, 2010).

Firm Profitability and Cash Conversion Cycle

Model 4

$$ROA = \beta_0 + \beta_1 CCC + \beta_2 \text{lnsale} + \beta_3 \text{gear} + \beta_4 \text{cata} + \beta_5 \text{clta} + \epsilon \dots \dots \dots \text{(Equation 4)}$$

Table 9: model summary

Model	R	R squares	Adjusted R squared	Std.error of the estimate
1	.754 ^a	.5692	.534	.94646

- c. Predictors: (constant),CATA,LNSALE,GEAR,CCC,CLTA

Table 10: ANOVA^b

Model	Sun of squares	Df	Mean square	F	Sig
Regression	72.172	5	14.434	16.114	.000 ^a
Residual	54.643	61	.896		
Total	126.815	66			

- a. Predictors: (constant),CATA,LNSALE,GEAR,CCC,CLTA
b. Dependent variable ROA

Table 11: Coefficients^a

Model	Un standardized coefficients	Standardized coefficients	T	Sig
	B	Beta		
I (constant)	2.009		2.178	.033
CCC	-.010	-.760	-8.418	.000
LNSALE	.031	.046	.539	.592
GEAR	-.372	-.075	-.710	.481
CLTA	.466	.074	.712	.479
CATA	.317	.060	.661	.511

a. Dependent variable ROA

The R2 of this model is 56.9, these means 56.9 percentage of the variation in the dependent variable is explained uniquely or jointly by the independent variable. The model is fit with F-statistics 16.11 and p-value is 0.000. It shows it is highly significant at $\alpha = 0.01$.

The comprehensive effects of all the three independent variables used in equations above were analyzed using the relationship between profitability and cash conversion cycle. The coefficient of cash conversion cycle was found to be negative 0.010 and p value is 0.000. This implies that an increase in the cash conversion cycle will reduce enterprises performance. Clearly stating, an increase in the number of cash conversion cycle by one day, other things in the model being constant, on the average reduces return on asset of micro and small enterprises by 0.01percent.

In theory, longer cash conversion cycle negatively affect profitability of companies, whereas shortening of cash conversion cycle adds to the profitability of the company. Contrary to this Sharma and Kumar (2011) by using an environment in which there is a severe competition from multinational companies MNCs, found positive relationship which states an increase in the cash conversion cycle will generate higher profit for a company. However result of this study is consistent to Deloof (2003) who found negative relationship between cash conversion cycle and profitability of the firm. As indicated by Uyar (2009), firms with shorter cash conversion cycle could not require an external financing therefore, there is low cost of borrowing and this consequently increases their profitability. Further negative relationship is proved by (Samiloglu and Demirgunes 2008), (Lazaridis and Tryfonidis 2006) and (Raheman and Nasr 2007), concluding that shortening cash conversion cycle positively contribute to profitability of firms.

Conclusion

Working capital management is an important part of financial management decisions in all firms regardless of its nature and type. The ability of the firm to operate for longer time depends up on a proper tradeoff between management of investment in long term and short term funds (working capital). This study was examined to explain the impact of firms working capital management and its components on the profitability of Ethiopian micro and small enterprises with special reference to Bahir Dar to the year 2003 with a cross sectional analysis on sample of 67 enterprises. The finding of the study Conclude that efficiency of working capital management significantly contribute to performance of an enterprise.

The study found a positive relationship between return on asset and number of days account payable, as per the regression result an increase in number of days of accounts payable by one day results in on the average 0.02 percent increase in return on asset of an enterprise, other things in the regression being constant.

But significant negative relationship between profitability and number of days account receivables, shows that when other variables in the regression model being constant, if number of days accounts receivable increased by one day, it results in return on asset (ROA) of the enterprise on the average to decrease by 0.014 percent.

With regard to comprehensive analysis of the number of days account receivables, days of inventory and number of days of accounts payable as measured by cash conversion cycle period, presents a negative relationship. An increase in the number of cash conversion cycle by one day, other things being constant, on the average reduces return on asset of micro and small enterprises by 0.01 percent. Over all, from this study WCM and profitability show a strong negative relationship [as measured by cash conversion cycle, a comprehensive measure of working capital]. It reveals that shortening of the cash conversion cycle is able to contribute in profitability of micro and small enterprises.

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