Greener Journal of Business and Management Studies

ISSN: 2276-7827 Impact Factor 2012 (UJRI): 0.6670 ICV 2012: 6.03

Impact of Working Capital Management on the Profitability of Cooperative Unions in East Showa, Ethiopia

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Research Article

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ABSTRACT

The impact of Working Capital Management (WCM) of the cooperative unions in Ethiopia is imperative. Although the impact of WCM on profitability has been studied by some researchers but appreciable efforts have not been made on the sectors of cooperative unions. Therefore, the present study was carried out to investigate the impact of WCM on the profitability of cooperative unions in East Showa, Ethiopia. The quantitative research approach was employed to accomplish the objectives of this study. The secondary data were collected from eight sample cooperative unions in East Showa, Ethiopia that fulfil the criteria of the data availability from the financial statement of the unions during the period from1999-2003 Ethiopian Calender (E.C.). Random effect multiple regression model was used to analyse the panel data for the standard determinants of working capital. The Generalized Least Square (GLS) estimator was used as an efficient estimator for the Breusch Pagan test. The most relevant impact of WCM on profitability of the unions employed based on a sequential regression approach with two alternative specifications of the models. The results showed that Average Collection Period (ACP) has a negative effect on the profitability of the unions and also indicated that as the unions decreased, ACP has increased the profitability of the unions. The results from regression Inventory Turnover Period (ITP) has a positive effect on the profit of the unions and also revealed that the comprehensive measure of WCM i.e. Cash Conversion Cycle (CCC) showed a positive effect on the profitability. This was to mean that as the union increases, a period for cash conversion leads the unions to more profit. The regression results also indicated that there was a positive relationship between liquidity, which was measured by Current Ratio (CR), and profitability of the unions. The results showed a significant positive relationship between the size of the unions and its profitability and a positive relationship between debt used by the cooperative unions and its profitability. The results also delivered some insights on the impact of WCM on profitability of the unions in East Showa zone, Ethiopia. This could be intended to encourage and create conducive environment for cooperative unions to use working capital as a viable source of finance in order to meet their noble objectives. Finally, the focus should be placed on the relationship between ownership and governance structure and their effects on the profitability of the cooperative unions left for further studies to be conducted in future. The beneficiaries of the results of this study was corporate finance academicians whose interest is in the area of impact of WCM on the profitability of cooperative unions, so that they consider the impact of these unique sectors and also helps as a baseline for further studies and the cooperative managers to understand the relationship between WC and profitability for the management of the cooperative unions in Ethiopia.

Keywords: WCM, WC, Cooperative Unions, Profitability, ACP, APP, ITP, CCC.

INTRODUCTION

Working Capital (WC) is the flow of ready funds necessary for the working of a concern. It comprises funds invested in Current Assets (CAs), which is in the ordinary course of business can be turned into cash within a short period without undergoing diminishing in value and without disruption of the organization. Current Liabilities (CLs) are those, which are intended to be paid in the ordinary course of business within a short time. Every company has to arrange for adequate funds to meet the day-to-day expenditure apart from investment in Fixed Assets (FAs). The internal resources of a business organization often are insufficient for meeting all its needs. In addition, it is not always possible for the owners, promoters or the entrepreneurs to mobilize finance from their personal resources. Resources, therefore, have to be financed through borrowing, keeping in view the short, medium and long-term requirements of trade or industry for funds.

Working capital management (WCM) is a very important component of corporate finance because it directly affects the liquidity and profitability of the company. It deals with CAs and CLs. WCM is very important due to many reasons. For one thing, the CAs of a typical manufacturing firm accounts for over half of its total assets. For a distribution company, they account for even more. Excessive levels of CAs can easily result in a firm's realizing a substandard return on investment. However, firms with too few CAs may incur shortages and difficulties in maintaining smooth operations (Horne and Wachowicz, 2000). Efficient WCM involves planning and controlling CAs and CLs in a manner that eliminates the risk of inability to meet due to short term obligations on one hand and avoid excessive investment in these assets on the other hand (Eljelly, 2004). Many surveys indicated that managers spend considerable time on day-to-day problems that involve working capital decisions. One reason for this is that current assets are short-lived investments that are continually being converted into other asset types (Rao, 1989). With regard to current liabilities, the firm is responsible for paying these obligations on a timely basis. Liquidity for the ongoing firm is not reliant on the liquidation value of its assets, but rather on the operating cash flows generated by those assets (Soenen, 1993). Taken together, decisions on the level of different working capital components become frequent, repetitive and time consuming. WCM is a very sensitive area in the field of financial management (Joshi, 1994). It involves the decision of the amount and composition of CAs and the financing of these assets. CAs include all those assets that in the normal course of business return to the form of cash within a short period of time, ordinarily within a year and such temporary investment as may be readily converted into cash upon need. The WCM of a firm in part affects its profitability.

The ultimate objective of any firm is to maximize the profit. But, preserving liquidity of the firm is an important objective too. The problem is that increasing profits at the cost of liquidity can bring serious problems to the firm. Therefore, there must be a trade-off between these two objectives of the firms. One objective should not be at cost of the other because both have their importance. If we do not care about profit, we cannot survive for a longer period. On the other hand, if we do not care about liquidity, we may face the problem of insolvency or bankruptcy. For these reasons, WCM should be given proper consideration and will ultimately affect the profitability of the firm.

The subject of corporate finance can be discussed under three main areas: investment, financing and working capital management. Capital budgeting and capital structure decisions are related to financing and managing long-term investments and their returns. WCM is a very important component of corporate finance and deals with managing short-term financing and short-term assets decisions of the firm. The corporate finance literature in the past has focused extensively on the study of long-term financial decisions, particularly investments, capital structure or company valuation decisions. However, WCM also directly affects the liquidity of the company as it deals with the management of CAs and CLs that are essential for the smooth running of a business unit. Efficiency in WCM is vital, especially for production firms as it accounts for over half of its total assets. For a trading or distribution company, they constitute even more than half of their total assets and thereby directly affect the profitability and liquidity of the company (Raheman and Nasar, 2007). Sometimes, inaccurate WCM procedures may also lead to bankruptcy, even though their profitability may constantly be positive (Samiloglu and Demirgunes, 2008). Excessive levels of CAs can easily result in a firm's realizing a substandard return on investment (Raheman and Nasar, 2007).

On the other hand, firms with lower levels of CAs may incur a shortage of funds and face difficulty in maintaining smooth business operations (Horne and Wachowicz, 2000). Efficient management of working capital is a fundamental part of overall business strategy in creating shareholders' value. Therefore, firms try to keep an optimal level of working capital that maximizes their value (Afza and Nazir, 2007; Deloof, 2003). More specifically, WCMs involve a trade-off between profitability and risk as it affects the firm value. Corporate decisions that tend to increase profitability lead to increased risk and conversely, decisions that focus on risk reduction will lead to reduced potential profitability.

An important part of managing WC is maintaining the liquidity in day-to-day operations to ensure smooth running and meeting its obligations (Eljelly, 2004). This is not a simple task since managers must make sure that business operation is both efficient as well as profitable. There are chances of mismatch in current assets and current liability during this process, which could affect the growth and profitability of the business. A popular measure of WCM is the cash conversion cycle, that is, the time lag between the expenditure for purchase of raw materials and the collection from sales of finished goods. The longer this time lag, the larger the investment in working capital. A longer cash conversion cycle might increase profitability because it leads to higher sales. On the other hand, corporate profitability might also decrease with the cash conversion cycle, if the costs of higher investment in working capital rise faster than the benefits of holding inventory or granting more trade credit to customers. Shin and Soenen (1998) highlighted the importance of shortening the Cash Conversion Cycle (CCC), as managers can create value for their shareholders by reducing the cycle to a reasonable minimum.

WCM is important because of its effects on the firm's profitability and risk, and consequently its value (Smith, 1980). On the one hand, maintaining high inventory levels reduces the cost of possible interruptions in the production process or of loss of business due to the scarcity of products, reduces supply costs, and protects against price fluctuations, among other advantages (Blinder and Manccini, 1991). On the other, granting trade credit favours the

firm's sales in various ways. Trade credit can act as an effective price cut (Brennan et al., 1988; Petersen and Rajan, 1997), incentivizes customers to acquire merchandise at times of low demand (Emery, 1987), allows customers to check that the merchandise they received as agreed (quantity and quality) and to ensure that the services contracted are carried out (Smith, 1987), and helps firms to strengthen long-term relationships with their customers (Smith and Smith, 1999). However, firms that invest heavily in inventory and trade credit can suffer reduced profitability. Thus, the greater the investment in CAs, the lower the risk, but also the lower the profitability obtained.

Narware (2004) studied a relationship of WC and profitability with the help of accounting ratio and statistical tools and found that a significant relationship exist between profitability and WC. Reheman and Nasar (2007) studied this relationship with different accounting ratios. They found that a negative relationship exists between liquidity and profitability, and debt and profitability, while positive relationship exists between size of the firm and its profitability.

Firms may have an optimal level of WC that maximizes their value. Large inventory and a generous trade credit policy may lead to high sales. Larger inventory reduces the risk of a stock-out. Trade credit may stimulate sales because it allows customers to assess product quality before paying (Long et al., 1993; Deloof and Jegers, 1996). Another component of WC is accounts payable. Delaying payments to suppliers allows a firm to assess the quality of bought products, and can be an inexpensive and flexible source of financing for the firm. On the other hand, late payment of invoices can be very costly if the firm is offered a discount for early payment. A popular measure of WCM is the CCC, i.e. the time lag between the expenditure for the purchases of raw materials and the collection of sales of finished goods. The longer this time lag, the larger the investment in WC (Deloof, 2003). A longer CCC might increase profitability because it leads to higher sales. However, corporate profitability might also decrease with the CCC if the costs of higher investment in WC rise faster than the benefits of holding more inventories and/or granting more trade credit to customers. Therefore, the importance of WCM, its different components and its effects on profitability leads the study to the problem statement.

Different studies have been assessed for manufacturing business, small and medium sized enterprises, corporate organizations and factories to identify the impact of WCM on the profitability; but there are no studies on how WCM affects the profitability of cooperatives. Generally, most of the firms keep their attention almost with the short- term financing sources and specially concern about their WCM. Therefore, this study was conducted to assess the impact of WCM, particularly Cash Collection Cycle (CCC), short term debt, union's size, Average Payment Period (APP), Average Collection Period (ACP), Inventory Turnover Period (ITP), Leverage (LEV) ratio and Financial Assets to Total Assets (FATA) ratio on the profitability of the selected cooperative unions in East Showa, Ethiopia and also to examined the relationship between WCM and profitability of this study makes a set of testable hypotheses.

Methodology and Design: Description of the study area: Profile of East Showa Zone

East Showa is one of the 18 Zones found in the Oromia region of Ethiopia which **is located in the** middle of Oromia, connecting the Western regions to the Eastern ones (Fig 1).

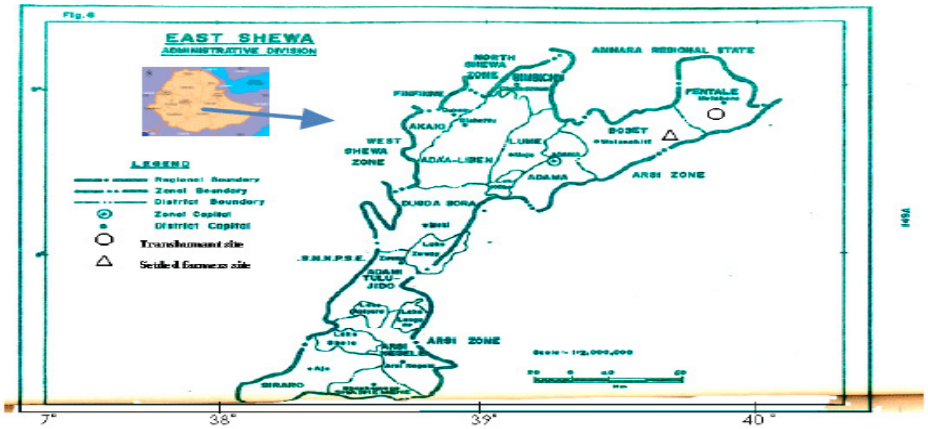

Figure 1: Map of the study area

Based on the Central Statistical Agency of Ethiopia (CSA), this zone has a total population of 13, 56,342, of which 6, 96,350 are men and 6, 59,992 women, with an area of 8,370.90 square kilometers. East Showa has a population density of 162.03, while 3, 40,225 or 25.08% are urban inhabitants and a further 664 (0.05%) are Pastoralists. 3, 09,726 households were counted in this zone, which results in an average of 4.38 % to household and 2, 96,342 housing units. There are different types of cooperative unions found within the zone and these unions were operating in different districts found in this zone, including the rural and urban areas. 12 cooperative unions were operating in

this zone. Out of the total unions, three of them are multipurpose cooperative unions, three are fruit and vegetables, three are savings and credits, one sugar cane, one mineral and one fishery union.

Table 1: Summarizes the Type, Number of Affiliated Primary Cooperatives, Number of Members and their Capital for the Cooperative Unions in East Showa.

S.N.	Name of the cooperative Unions	Number of affiliated PC	Number of Members			Total Capital
			Male	Female	Total	
1	Lume Adama	31	18,220	1,727	19,947	16,279,009.30
2	Erer	37	32,289	3,861	36,150	16,493,693.60
3	Bora Dambal	39	5,206	1,400	6,606	4,500,100.00
4	Maki Batu	60	1,883	260	2,143	4,595,876.00
5	Tokkuma Gudina	-	883	250	1,133	4,668,046.00
6	Bosat Fantale	-				
7	Biftu Batu	1	1,000	1,621	2,621	162,538.00
8	Awash	2	2,434	2,2928	5,362	3,648,440.00
9	Abdi Gudina	9	1,211	2,006	3,217	2,247,788.00
10	Sulula Bosat	145	28,866	745	29,611	8,306,499.00
11	Shonkora	7	922	407	1,329	2,627,371.00
12	Sulula Gudina	-	-	-		

Source: CPBESZ (2003)

Sampling Frame and Sampling Procedure

Purposive sampling technique was used to select East Showa Zone, Ethiopia as the study area, where there are large cooperative unions found in this zone. Beside their size, the cooperatives are pioneers for the establishment of unions in this country. The availability of the data needed for the study and the service of the unions are also among the reasons why this area is being selected.

Sample Selection

Cooperative unions are being selected purposively based on the record keeping, date of establishment, profitability, size of their capital and operational activities. There are **12** cooperative unions operating in this selected East Showa zone. The sampling process is based on the availability of financial statements. Among these cooperative unions, **8** unions viz. Lume Adama, Arer, Bora Dembal, Maki Batu, Awash, Abdi Gudina, Sulula Bosat and Sulula Gudina were selected and collected with data of the number of days' accounts receivable, number of days inventories, number of days accounts payable and operating income. The study analysis was undertaken for 5 –consecutive- years of operation for the unions; therefore, 40 observations were used for the study.

Types and Sources of Data

The panel data is considered the most appropriate to address the research objectives. A panel data is the combination of cross-sectional and time series data. A panel data approach is more useful than either cross-section or time-series data alone (Baltagi, 2005). Panel data has the ability to identify and measure the effects that are simply not noticeable in pure cross-section or pure time-series data. Panel data are usually gathered on micro units, like individuals, firms and households. Many variables can be more accurately measured at the macro level, and biases resulting from aggregation over firms or individuals are eliminated.

This study used panel data specifically cross sectional and time series data. The data that was used in this study were acquired from the financial statements of the cooperative unions and from reports to the zone cooperative promotion bureau. Data of the unions listed on the financial statement for the most recent five years were formed for the basis of calculations. The period covered by the study extends to five years from 1999 - 2003 E.C. The reason for restricting to this period is to get latest data for investigation.

ECONOMETRIC MODEL AND SPECIFICATION

Econometric Model

In this study, a Panel Regression Model was employed. In line with the previous studies investigating the impact of WCM on profitability literature, the study employs Panel Data Multiple Regression Model to investigate the impact of explanatory variables on net operating profit. This study examined the impact of WCM on profitability overtime using the following multiple regression models:

The general form of the model was specified as:

$$Y_{it} = \beta_0 + \beta_i X_{it} + \varepsilon$$

Where:
Y_{it} = the dependent variable of i cooperative union at time t
β_0 = the interception of Equation
β_i= Coefficients of X it variables
X_{it} = the different independent variables for working capital Management of cooperative i at time *t*
t = Time = 1, 2… 5 years; ε= the error term

The Model Specification

The primary aim of this study was to investigate the impact of WCM on cooperatives profitability of the selected multipurpose cooperative union societies. This was achieved by developing a methodology and empirical framework as used by Nazir and Afza (2009), Zariyawati et al. (2008), Samiloglu and Demirgunes (2008), and Garcia-Teruel and Martinez-Solano (2007). The following panel data regression equations were used to obtain the estimates:

$NOP_{it}=\beta0 + \beta1FATAit + \beta2LEVit + \beta3CRit + \beta4SIZEit + \beta5INVit + eit$ (1)
$NOP_{it}=\beta0+\beta1FATAit+\beta2LEVit+\beta3CRit+\beta4SIZEit+\beta5ARit+eit$ (2)
$NOP_{it}=\beta0+\beta1FATAit+\beta2EVit+\beta3CRit+\beta4SIZEit+\beta5APit+eit$ (3)
$NOP_{it}=\beta0+\beta1FATAit+\beta2LEVit+\beta3CRit+\beta4SIZEAit+\beta5CCCit+eit$ (4)

Where NOP measures the net operating profit, Size, Size of union's, LEV, the leverage, FATA, the cooperatives' financial assets to total assets, INV, the number of days inventories, AR, the number of days accounts receivables, AP, the number of days account payables, CR, the current ratio and CCC measures the cash conversion cycle. The subscript i denotes cooperative unions (cross section dimensions) ranging from 1-8 and t denoting years (time-series dimension) ranging from 1999 – 2003 E.C.

Data Analysis

Two types of data analysis were used viz. descriptive and inferential.

Descriptive Analysis

Descriptive analysis is the first step in the analysis; it helps the researcher to describe relevant aspects of dependant variable and explanatory variables and provide detailed information about each relevant variable. Random effect model method was used in the study to test the hypotheses stated above under hypotheses formulation. This method was selected after Hausman test was performed. STATA 10 software version was used for analysis of different variables in the study.

Empirical Analysis

The quantitative analyses of assessing the impact of WCM on the profitability of East Showa zone cooperative unions were done using PDMRA. Panel data allows us to control for variables we cannot observe or measure like cultural factors or differences in business practice across firms, or variables that change overtime (Baum, 2006). Thus, it accounts for individual heterogeneity. However, there were two techniques used to analyse panel data viz. Fixed Effects (FE) and Random Effects (RE) Model. When using FE model, we assumed that something within the individual may affect the predictor variable and we need to control for this. This is the rational behind the assumption

of the correlation between entity's error term and predictor variables. The rational behind RE model is that, unlike the FE model, the variation across entities is assumed random and uncorrelated with the predictor variables included in the model. "… the crucial distinction between fixed and random effect is whether the unobserved individual effect embodies elements that are correlated with the regresses in the model, not whether these effects are stochastic or not" (Greene, 2003).

The Choice between Fixed and Random Effects

Hausman (1978) suggested a test to check whether the individual effects are correlated with the regressors. To decide between fixed and random effect run a Hausman test where the null hypothesis states that the preferred model is random effect and the alternative is the fixed effects (Greene, 2003). The main difference between FE and RE is on the relationship between individual heterogeneity and the regressors. The null hypothesis states that they are systematic and the alternative states they are unsystematic. Meaning in the null hypotheses the relationship between the heterogeneity and regresses is not systematic, that is RE assumes they are uncorrelated and the alternate hypothesis states the relationship between them is systematic, that is FE assumes there exists correlation between the heterogeneity and regressors.

Estimation issues in RE Model

The estimation issue in this study has been summarized from Baum (2006) application Econometrics using Stata book. Random effects assume that the entity's error term is not correlated with the predictors, which allows time-invariant variables to play as explanatory variables. It also assumes to generalize the inferences beyond the sample used in the model.

$$\Upsilon_{it} = X_{it}\beta + Z_i\delta + (u_i + \epsilon_{it})$$

To implement the RE formulation of equation above, we assume that both μ and ε are non-zero processes, uncorrelated with the regresses, that they are each homo skedastic and that there is no correlation over individuals or time.

Several estimation techniques are often used in panel data models including Pooled OLS and GLS; the choice of technique depends on the econometric approaches that are more efficient in estimating the parameters and the coefficients. From Hausman results, when we accept the null hypothesis_ the RE model that is GLS the efficient estimator ; however there are various forms under which the efficient estimator of the model relies, by testing the Breusch Pagan Lagrajan multiplier test that require initially the various econometric problems in multiple regression to be tested. Among these, the violation of constant variance (homo scedaticity) and autocorrelation gives much weight justification on the use of GLS.

RESULTS AND DISCUSSION

In general, the data presented the impact of WCM on the Profitability of cooperative union's case of East Showa zone, Ethiopia using qualitative analysis.

Empirical Results

The empirical results were mainly consists of three sections such as: the descriptive statistics, correlation and the regression analysis. These three empirical results were supported with STATA software package output.

Descriptive Statistics

Descriptive analysis showed the average and standard deviation of the different variables of interest in the study. It also presents the minimum and maximum values of the variables, which help in getting a picture about the maximum and minimum values a variable can achieved. Under this section, the descriptive statistics is classified into two parts: The first part is concentrated on the detailed analysis of descriptive statistics, and the second part described the overall descriptive statistics analysis.

Detailed Descriptive Analysis

The detailed descriptive analysis showed the average and standard deviation of the different variables of interest in the study classifying them into overall, between and within mean and standard deviation for the cooperative unions. Overall implies the comparison of all the unions operating in East Showa zone, between indicates comparison between a union and the rest of the unions and within indicates the contrast between one operating period of a union and another operating period of the same union. It also presents the overall, between and within minimum and maximum values of the variables, which help in getting a picture about the maximum and minimum values a variable can achieved.

Mean Net Operating Profitability (NOP) of the union is in birr 2,785,974 with an overall standard deviation of birr 3,250,118. The standard deviation indicates by how much the profitability can deviate from mean to both sides. Overall standard deviation showed the total amount of standard deviation for all the unions. The between standard deviation is birr 1,000,784 and it indicates the standard deviation between a particular cooperative union and the others. It has to mean that, by the amount the mean is deviated to both sides for a cooperative union while compared to the rest of the unions. The within standard deviation is in birr 3,121,132. This number indicates by how much the mean is deviated to the increase or decrease side. Within standard deviation indicates by how much the mean is deviated to both sides for a particular operation period of a union and other operating period of the same union. The overall minimum NOP is birr (-830) whereas the minimum between NOP is birr 1,166,763. Minimum within NOP for a cooperative union is 797,480.1. This showed by how much the NOP of a cooperative union is decreased for a specified period while compared to the rest of operating periods. The maximum overall NOP for the unions is birr 11,400,000 and the maximum between NOP is birr 3,725,606. The maximum within NOP is birr 10,500,000.

The results from descriptive statistics showed that the mean ACP is 131.353 days. This means the unions are waiting on average 131.353 days to convert their receivables into cash. The overall standard deviation is 131.457 days and it showed by how much ACP is deviated from the mean to the increase or decrease side. The between standard deviation is 13.142 days and within standard deviation is 130.917 days. The minimum overall ACP is 8.391 days. This indicated the shortest period within which the unions are collecting their receivables. The minimum between ACP is 116.945 days and the minimum within ACP is (8.480). This shows that a particular union lags by this much to collect receivables for a specified operation period while compared to the other operation period of that union. The maximum overall ACP for the unions during the period is 514.788 days and the between ACP is 148.224 days. The maximum within ACP for a union during a particular period is 514.768 days.

Again the results from the descriptive statistics showed that the mean APP for the unions during the period is 301.004 days. This indicates that a union waits on average of 301.004 days to make a payment for short-term debts. The overall standard deviation is 259.921 days and this indicates all the unions APP is deviated from the mean to both sides by this amount. The between standard deviation of one cooperative union to another is 31.788 days. Within standard deviation is 258.321 days. The minimum overall APP is 15.654 days. It means that the union waits at least 15.654 days to make payment for short-term debts. The minimum between APP is 273.642 days and the minimum within APP is 24.530 days. The maximum overall APP is 917.950 days. This showed the maximum number of days that the unions wait to make a payment for short-term debt. The maximum between and within APP are 351.101 days and 905.398 days respectively.

The mean ITP is 91.005 days. The overall standard deviation for ITP is 101.480 days. Between standard deviation for the unions is 27.717 days. This indicates by how much the mean ITP is deviated between one union and the other to both sides. Within standard deviation for ITP is 98.326 days, which implies the amount with which mean ITP is deviated to both sides within the union. The overall minimum ITP is 2.659 days. This amount showed the minimum duration of time that the unions take to sell their inventories. The minimum between ITP is 57.655 days and this indicated the minimum time period a union takes to sell its inventories while compared to others union. The minimum within ITP is -29.332 days. This number indicates by how much the union lags to sell its inventories for a specified period while compared to the rest of periods. The maximum ITP is 553.613 days for all the cooperative unions. This showed the maximum number of days that the unions wait to sell their inventories. The maximum between ITP is 122.997 days and this shows how much time a particular union takes in order to sell its inventories while compared to others. The maximum within ITP is 521.621 days. This indicated the maximum duration that a union is waiting in order to sell its inventories when compared to other periods of the same union.

CCC is the difference between the summation of ACP and ITP minus APP. From the table mean CCC is -78.646 days. The value of the mean for CCC is negative and it shows that the number of days that the unions take to collect receivables (ACP) and convert inventories (ITP) is less than the number of days that the unions take to make payment for short-term debt or APP. The overall standard deviation of CCC is 315.905 days. This showed the number of days by how much the mean is deviated to the increase or decrease side. The standard deviation for between and within CCC is 36.408 days and 314.179 days respectively. The minimum overall CCC is -820.991 days and the minimum between CCC is -113.401 days. As per the result from the descriptive statistics the minimum within

CCC is (786.227) days. The result from descriptive statistics shows that the maximum overall CCC is 417.319 days. The maximum between CCC is (36.954) whereas the maximum within CCC is 452.083 days.

Debt Ratio (DR) measures the debt financing and its relationship with the profitability. DR is obtained by dividing total debts to total assets. The results from descriptive statistics, the overall mean DR for East Showa cooperative unions is 0.659 with a standard deviation of 0.278.The between DR measures the DR between a union and other unions. The result from descriptive statistics shows that the between DR for East Showa cooperatives unions is 0.060 and within DR is 0.273. Within DR indicated the amount of a DR for a particular cooperative union's operation period while compared to the operation period of the same union. The minimum overall DR for the unions is 0.059 while the between DR is 0.553. According to the results from descriptive statistics, the minimum value of within DR is 0.018. The results also showed that the maximum overall DR is 1.310, which is unusual unless the equity of the union is in negative. The maximum DR between one cooperative union and the others is 0.600 where the maximum within DR is 1.270.

In order to measure the liquidity of the unions, a traditional measure of liquidity, i.e. CR is used. The overall mean CR for East Showa cooperative unions is 2.147 with a standard deviation of 3.527. The between standard deviation for the unions CR is 0.644and within standard deviation CR is 3.572. The results from descriptive statistics indicated that the overall minimum CR is 0.021 whereas the minimum between CR is 1.072. The minimum within CR for the cooperative unions is -0.404. This means the minimum CR for a particular union for a specified period is less than the other period by 0.404 to the minimum. According to the results from the descriptive statistics, the maximum overall CR is 15.019 for the unions for the specified period of time. The maximum between and within CR for East Showa cooperative unions is 2.707 and 14.460, respectively.

To measure the ratio of Fixed Financial Assets (FFA) to the total assets of the cooperative unions, the FATA ratio is used as a control variable. The overall mean value for this ratio is 0.025. The standard deviation for between cooperative unions is 0.014 and within standard deviation for a union is 0.022. The overall minimum portion of assets in the form of financial assets for cooperative unions is 0.000 while the minimum between FATA is 0.001. The minimum amount of within financial assets ratio is -0.015. As per the result from the descriptive statistics, the maximum overall financial assets ratio is 0.125 for the cooperative unions. The maximum between financial assets ratio is 0.040 whereas the maximum within financial assets ratio is 0.110.

For measuring, the size of the union's sales volume is employed as a control variable and it's measured as natural logarithm of sales. According to the results from descriptive statistics, the overall mean size of the unions is 12,237,310 with standard deviation of 8,109,434. The between standard deviation for East Showa cooperative unions is 2,170,592 and their within standard deviation is 9,769,253. The overall minimum size of the unions is 18,920 while the minimum between size of the unions is 5,010,268. The minimum within size is 39,340. The maximum overall size of the unions is 312,464,056. The maximum size between of the unions is 24,692,250 while the maximum size within is 495,461,396.

The Overall Analysis of Descriptive Statistics

This section dealt with the results of overall descriptive statistics for the sampled cooperative unions. It indicated the mean, standard deviation, minimum and maximum value of the variables employed in the study. The descriptive statistics are calculated and presented in Table 2.

The mean value of net operating profitability is 2,785,974 of total assets, and standard deviation is 3,250,118. It means that the value of the profitability can deviate from mean to both minimum and maximum sides by 3,250,118. The maximum value for the net operating profitability is 11,400,000 birr for a company in a year while the minimum is (830). The CCC used as a proxy to check the efficiency in managing working capital is on average 79 days. This value indicated the length of time, which the unions wait on average to cash conversion. There is no standard for CCC to compare with and so, the unions just use the previous years' trends to make a decision about the goodness or badness of the period for the unions. So, compared to the previous trends this value is good for the unions since it is not too long or too short. The standard deviation for CCC is 316 days. The maximum CCC for the unions is 417 days and it indicated the poor management in management of CCC. The minimum CCC is (820) and indicated the good management of CCC. The negative sign indicated the number of days for APP is greater than the number of days that the unions wait for ACP and ITP.

Table 2:The Overall Analysis of the Descriptive Statistics

Descriptive Analysis					
8 Cooperative Unions, 1999-2003, 40 Observations					
Variable	N	Minimum	Maximum	Mean	Std. Dev
NOP	40	-830	11,400,000	2,785,974	3,250,118
ACP	40	8.391	514.787	131.353	131.457
APP	40	15.654	917.946	301.003	259.921
ITP	40	2.65	553.613	91.005	101.480
CCC	40	-820	417.318	-78.646	315.904
DR	40	0.058	1.310	0.659	0.278
CR	40	0.021	15.019	2.147	3.572
FATA	40	0.001	0.125	0.023	0.025
LOS	40	9.848	19.55946	16.319	2.382

Source: Calculation Based on Annual Reports of the Unions from 1999-2003 (STATA 10)

Firms receive payments against sales after an average of 131 days. The ACP indicated the slowness of receivables. As far as this study is concerned, the average value of ACP indicated the number of days that the unions wait to convert receivables into cash. The standard for ACP 46 days, so, by comparing the value of the average with this standard it shows that the unions on average wait a long period for collection of cash from credit sales. On the other hand, too high ACP indicated that too liberal credit policy, as a result, a large number of receivables may be past due to some uncollectible. Here, too profits may be less than those possible may, because of bad debts losses and the need to finance a large investment in receivables. The standard deviation of ACP is 131 days and it indicated by how much a value is deviated to the maximum or the minimum side. The maximum ACP for the unions is 515 days and it showed those unions are very liberal in collecting receivables. This can also showed that there are more bad debts in the unions. The minimum ACP is 8 days. While compare this value with the standard, it is very short and indicated that there are excessively restrictive credit policies. The receivables on the books may be of prime quality, yet sales may be curtailed unduly and profits less than they might be because of this policy.

The cooperative unions wait an average of 301 days to pay their credit purchases. APP is the length of time, which indicates how much it takes for the unions to pay their credits. The standard for APP is 60 days, so, comparing the mean value with the standard it showed that the unions wait a long period to pay their bill. This may be indicative of the fact that the cooperative unions are less profitable and that is the reason they fail to make the payment on time. The standard deviation for APP is 260 days and it showed by how much a value deviate to both the increase and the decrease side. The maximum APP is 918 days, which is very much long period and indicated that the unions are less profitable. The minimum APP is 16 days and it is less than the standard. Those cooperative unions with less APP have more profitable than those who have more APP. As the APP is declined, profitability of the unions increases since they have more assets to invest than to settle their liabilities.

As per the results from the descriptive statistics, the mean ITP is 91 days. ITP indicates the period of how much stock waits in the store of the unions before converted into cash. There is no standard or accepted rule of thumb to compare the mean value with it, so, the unions compare ITP with the trends of their previous years. For this study, mean of ITP is fair value and it does not affect the unions in any means. The standard deviation for ITP is 101 days. The standard deviation shows by how much the time is deviated either to the increase side or to the decrease side. The maximum ITP is 554 days and this number of days is very high. High ITP indicated it will increase the time to complete the cash conversion cycle. It means, there is more liquidity risk in that level of inventory. The minimum value for ITP is 3 days and it indicated that the unions convert their stock within a short period. A low ITP is held as a sign of efficient management. The faster that inventory sells the less cash that is tied up in inventory. However, it is important that inventory is not too low because this could indicate under stocking of inventory, which could lead to loss of sales and revenue.

To check the size of the firm and its relationship with profitability, natural logarithm of sales is used as a proxy. The mean value of log of sales is 8,886,111 and it implies that East Showa cooperative unions made sales on average of this much, actually, there is no accepted standard but large sales are advisable for the unions in order to increase their profitability. The standard deviation is 7,389. The maximum value of log of sales for a union within a year is 485,165,195 and the minimum is 8,103.

In the same way to check the liquidity of the union's, a traditional measure of liquidity (current ratio) was used. The average current ratio for the unions is 2.147 times and the standard is 2 times, so, this result indicated that the unions are in a good performance in relation to settle their current liabilities. The standard deviation of CR is 3.572.

The highest current ratio for a company in a particular year is 15.019 times and it showed that the unions with this CR might not efficiently utilize their CAs. The minimum ratio for a company in a year is 0.021 times and it indicated that the unions are not capable of paying their CLs.

To check the debt financing and its relationship with the profitability the debt ratio (obtained by dividing the total debt of the company by the total assets) was used as a proxy. The results of descriptive statistics showed that the average debt ratio for the cooperative unions is 65.9% and it reveals that most of the union's assets are financed through debt. The standard deviation is 27.8% and it shows that a value is deviated from the maximum or to the minimum by this amount. The maximum debt financing used by a union is 13.10% and it reveals that most of the union's assets are financed through equity. The minimum level of the debt ratio is 5.8%. To check the ratio of fixed financial assets to the total assets of the cooperative unions, the financial assets to total assets ratio is used as a control variable. The mean value for this ratio is 2.3% and it implies that the unions invest only small part of their assets and the standard deviation of 2.5%. The maximum portion of assets in the form of financial assets for a particular union is 12.5% and the minimum is 0.1%.

Pearson's Correlation Coefficient Analysis

It showed the relationship among the various independent variables (IVs) and the dependent variables (DV) of the study. Pearson's correlation analysis was used for the data to find the relationship between WCM and net operating profit. Pearson's correlation analysis was used for data to check the relationship between variables such as those between WCM and profitability. There is a mixed relationship between gross profitability on one hand and the measures of WCM on the other hand. The time lag between expenditure for purchases of raw material and the collection of sales of finished goods can be too long, and that decreasing this time lag increases profitability. The Pearson correlation coefficients for all variables were considered and presented in Table 3.

Table 3: Pearson Correlation Coefficient

8 East Shewa Zone cooperative Unions, 1999-2003, 40 union-year observation									
	NOP	ACP	APP	ITP	CCC	DR	CR	FATA	SIZE
NOP	1.00								
ACP	-0.207	1.00							
APP	-0.333	-0.196	1.00						
ITP	0.099	0.116	0.224	1.00					
CCC	0.220	0.615	-0.832	0.184	1.00				
DR	0.123	-0.121	-0.012	0.354	0.073	1.00			
CR	0.183	-0.001	-0.183	-0.130	0.107	-0.724	1.00		
FATA	0.041	0.130	-0.079	-0.139	0.074	-0.012	-0.051	1.00	
SIZE	0.652	-0.185	-0.364	0.146	0.270	0.421	-0.155	0.054	1.00

Source: Calculation based on data (STATA 10)

The analysis of correlation has started between the average collection period and net operating profitability. The results of correlation analysis showed a negative coefficient – 0.206 and it indicated that if the average collection period increases it will have a negative impact on the profitability and it will decrease the profitability. The correlation matrix showed there is serious multi collinearity between APP and CCC with correlation coefficient of (0.832). This value exceeds the limit that Gujarati (2003) have proposed for the existence of multi collinearity problem. This is the reason to drop APP in the regression results. Correlation results among the payable turnover in days or average payment period also indicates negative relation with profitability. Here again, the coefficient is negative. The coefficient is 0.333 and it implies that the less profitable unions wait a long period to pay their bills. Correlation results between inventory turnover in days and the net operating profitability indicates positive relationship. The correlation coefficient is 0.099. This showed that if the unions take more time in selling their inventory, it has positively affected their profitability.

The CCC, which is a comprehensive measure of WCC, also has a positive coefficient 0.220. It means that if the union is able to increase this time known as cash conversion cycle, it can increase its profitability. The results of the analysis showed that, if the unions are able to reduce these times, i.e., average collection period and average payment period then the unions are efficient in managing working capital. This efficiency then leads to increasing

their profitability. Current ratio is a traditional measure of checking liquidity of the firm. In this analysis, the current ratio has a positive relationship with profitability (measured by net operating profitability). The coefficient is 0.183. It indicated that the two objectives of liquidity and profitability have direct relationships. So, the unions are performing their operation by making the union both liquid and profitable. One should not overlook the positive association that exists between NOP and LOS (the measures of size). This in turn indicates a positive relationship between size and profitability. The coefficient is positive and it's 0.652. It showed that as the size of the union increases, it can also increase profitability. A negative relationship between number of days' accounts payable and profitability is consistent with the view that less profitable unions wait longer period to pay their bills. In that case, profitability affects the account payables policy and vice versa. An alternative explanation for a negative relationship between the number of day's accounts payable and profitability could be that East Showa cooperative unions wait too long to pay their accounts payable. Speeding up payments to suppliers might increase profitability because they may receive a substantial discount for prompt payment.

Pearson's correlation (Table 3) also displays positive relationship between the average collection period and CCC, the correlation coefficient is 0.615, which means that if a union takes more time to collect cash against the credit sales it will increase its operating or CCC. There is also a positive relationship between inventory turnover in days and the CCC, which means that if the firm takes more time to sell inventory it will lead to increase in the CCC as well. The correlation coefficient is positive and is 0.184. The average payment period and CCC have a negative relationship. The coefficient is 0.832. It means that if unions take more time to pay their purchases than the time for collection and selling inventory, the CCC will be reduced. Now, there is a negative relationship between average collection period and average payment period, while there is a positive relationship between ITP and CCC with the profitability of the unions. The results are consistent with the literature review and have an effect on the profitability of the unions.

Check the Classical Linear Regression Model (CLRM)

The estimators that we create through linear regression give us a relationship between the variables. However, performing a regression does not automatically give us a reliable relationship between the variables. In order to create reliable relationships, we must know the properties of the estimators $\hat{\alpha}, \hat{\beta}$ and show that some basic assumptions about the data are true. One must understand that having a good data set is of enormous importance for applied economic research. Multiple regression models are being used in analyzing empirical results; there is a need to test assumptions made about the nature of the relationships among the variables. Questions naturally arise on the applicability or validity of the basic assumptions in the actual analysis of economic relationship and data.

How to determine assumptions that are being violated in a given situation?
How does the violation of the assumptions affect the parameter estimates and prediction accuracy of the model?
What methods (if any) exist for taking correction caused by the inapplicability of the assumptions in a given situation? (Gebregziabher, 2008).

Some of the problems that may invalidate the regression results include the following and Cameroon and Trivedi (2009) checked these tests.

Check wether data is balanced or not

While analyzing Panel multiple regression model, it is important to check wether the data is balanced or unbalanced because it needs to be balanced data. This data can be verified by declaring the data to be panel-using *xt set firms year* command. The results showed it is strongly balanced and implies that STATA software accepted and is ready to use the data. Its also implies that, there are observations for every cooperative union's for 5 years.

Choice of Panel Model Technique

A panel data has multiple observations on the same economic units (Baum, 2006). In this study there are multiple observations on the same cooperative unions over time.

$$yit = \sum_{k=1}^{k} xkit\beta kit + \epsilon it, i = 1, \ldots, N, t = 1, \ldots, T$$

In panel data, each element has two subscripts, the group identifier a within-group index and I denoted by t in econometrics, because it usually identifies time.

There are two commonly used Panel Model Techniques viz. the Random Effect Model and the Fixed Effect Model. The choice of these techniques depends on Hausman specification test. In order to decide, the model to be employed for the study using Hausman test, the null hypothesis states that the random effect is consistent whereas the alternative hypothesis said, random effect is not consistent and it implies fixed effect is an appropriate model. To run the Hausman test first we have to estimate the random effect and store it and then estimate the fixed effect and store it and finally use the Hausman command. From the Hausman specification result if the chi^2 test value is significantly lower than 5% therefore the null hypothesis is rejected implying the use of FE model is more efficient than RE. Moreover, if the chi^2 test is significantly higher than 5% it implies the null hypothesis is accepted implying the use of RE as more efficient estimator and appropriate than FE. By running the Hausman specification test the results showed the chi^2 value is greater than 0.05. This implies the Hausman test support the use of RE model where the data failed to show the existence of correlation between the individual heterogeneity and the regresses leading to accept the null hypothesis. Based on the results from the Hausman test the null hypothesis, which said that RE is consistent which is highly accepted for this study implies RE is appropriate than the FE model for the study.

Test the OLS Assumptions

Under this section of the study, different tests of OLS assumptions are taken place. This section includes Model specification and measurement error, Normality test, Multi collinearity test, Autocorrelation test and Heteroskedasticity check.

Model Specification and Measurement Error

Once the model has been chosen the study needs to check whether the model fits with the variables to be regressed or not. Specification error can exist if one or more significant explanatory variables are not included in the multiple regression equation. To check the fitness of the model with the data being collected for the variables specified, run a panel multiple regressions. From the results, it is possible to verify the fitness of the model by checking the F statistics level of significance. The results from regression shows F statistics of 5.08 with P-value of 0.0006 and this implies the model is well fitted at 1%; which means it's strongly significant.

In line with this Ramsey Reset test was also employed to check the omission of significant variable that can affect the results of the study. The null hypothesis for this test states that the model has no omitted variable. The null hypothesis is accepted when the results showed that the value of chi^2 is statistically significant, which means below 5%. The alternative hypothesis of the test states that the model has omitted significant variable that can influence the result of the study. The alternative hypothesis is accepted when the value of chi^2 is not statistically significant which means greater than 5%. The acceptability of null hypothesis indicated there are no omitted variables that can significantly affect the results whereas accepting the alternative hypothesis showed there is an omission of significant variables, which can affect the results. As far as this study is concerned, the Ramsey Reset test results imply there is no omission of significant variables because the value of chi^2 is statistically significant at 5%.

Normality Test

Normality assumption can be checked by using histogram but it is judgemental, therefore it is better to use statistical test for normality:

Smrinov Kolmogorov Test of the Residual

The null hypothesis for normality test states that the residual is normally distributed and the alternative said that the residual is not normally distributed. To test the normality of the residual, the researcher has employed SK test command of residual normality distribution and the alternative hypothesis states that the residual term is not normally distributed. The test results of the residual for this study showed that it's statistically significant at 10% and it leads to accept the null hypothesis which states the residual is normally distributed.

Multi Collinearity Test

Whenever a high degree of Interco relation exists among some or all of the independent variables in the regression equation, it becomes difficult to determine the effect of each variable on the dependent variable. For a conditions like this multicollinearity test is important to identify whether the variables are collinear or not. According to Gebregizihbiher (2008), it exists when two or more variables are highly correlated and the standard deviation of their respective regression coefficient becomes large.

Mulitcollinearity Problem Test is tested with Variance Inflation Factor (VIF). A rule of thumb states that there is an evidence of collinearity if the largest VIF is greater than 10 (Baum, 2006). As the results showed, there is no single value, which exceeds 10. The mean value of the VIF is very low for this study which is 2.12 and it showed that there is no serious multi collinearity problem within the variables.

Auto-Correlation Test

This is one of the assumptions underlying the regression model that the disturbance term must be an independent random variable. However, empirical data are in the form of a time series_a series of observations taken on the variables at different points in time. The existence of a significant pattern in the successive values of the error term constitutes autocorrelation. Statistical tests are also available to check for autocorrelation; one commonly used technique is the Durbin-Watson statistic.

Formal hypothesis tests for first-order auto-correlation can be performed using the d statistic and the Durbin-Watson table. The critical value of d from the table at the .05 significance level for a two-tail test is a function of both the number of observations (n) =40 and the number of independent variables (k) =4.

The results from the test of Durbin-Watson for this study indicate that the null hypothesis that said there is no auto-correlation between the variable is rejected and the alternative hypothesis is accepted, which says there is a positive autocorrelation between the variables. Therefore, as far as this study is concerned there is a positive autocorrelation since the value of chi^2 is significant at 1%.

Heteroskedasticity Check

Heteroskedasticity occurs when the variance of the disturbance is not constant. Heteroskedasticity is a problem often encountered in cross section data. Heteroskedasticity does not affect the parameter estimates: the coefficient should be unbiased. It does, however, bias the variance of the estimated parameters. There are a number of procedures which test for the presence of heteroskedasticity. The most often used test for heeteroskedasticity is called Breusch-Pagan test or the Lagrange Multiplier test for heteroskedasticity. The null hypothesis of this test stated that the residuals are homoskedastic whereas the alterative hypothesis stated that the residuals are heteroskedastic. If the P-value is statistically significant it showed that the null hypothesis is rejected which is to mean the alternative hypothesis is accepted.

As far as this study is concerned the test was employed by using Breusch-Pagan test for Heteroskedasticity test. The results from the test showed that the chi-squared test of Breusch-Pagan test indicated that the calculated Chi-squared value is statistically significant and greater than the table value at 5% significance level (the P value $0.0069 < 0.05$), hence we reject the null hypothesis thereby accepting the alternative one. Therefore, the error term of the variable suffers from the problem of Heteroskedasticity.

Although the two econometric problems of multiple regressions exist they can be treated in applied econometrics. Their treatment is the trade-off between two alternatives robust and efficiency. In RE model, as a result of the tests above indicates that whenever the iid of the error term assumptions are violated in an empirical data GLS is appropriate and more efficient than pooled OLS. However, the efficient estimator choice depends on the Lagrajan Multiplier test, which states the null hypothesis RE, is not efficient estimator and the alternate hypothesis states the RE is efficient estimator. Based on these BPLM test results the appropriate estimator is selected.

Breusch and Pagan Lagrajan Multiplier test results indicated that the null hypothesis is rejected as pooled OLS is not efficient estimator of the model. From the results, we can conclude that RE is appropriate. This means, there is an evidence of significant differences across Cooperative unions, therefore we have to run GLS and not a pooled OLS regression.

In general the Breusch Pagan and LM test for RE imply the RE estimator is better than the Pooled OLS. However, the two major econometric problems auto-correlation and Heteroskedasticity can be treated on the trade-off between robust and efficiency. Therefore, the simple solution for these two econometric problems is the use of cluster robust standard errors. And the other alternative is whenever the id assumptions is violated in the RE model, is to employ efficient estimator that is FGLS, by controlling the influence of the hetroskedasticity and autocorrelation; this estimator provides more plausible result of the study.

Regression Analysis

The impact of WCM on profitability was analysed with panel data multiple regression analysis. The Net Operating Profit is taken as dependent variable and ACP, APP, ITP, and CCC are included as explanatory variables whereas DR, CR, FATA and SIZE are the control variables in this study. The panel multiple regression requires the use of either of REM or FEM for estimating the parameters of the empirical data. As it was observed in the beginning of this study, the choice of the two models depends on Hausman specification tests. By running the Hausman test, REM is accepted to be the appropriate model and the RE estimator is GLS. However, with the existence of the econometric problems, the GLS estimator needs more efficient that is using the Cluster Robust Standard (CRS). The regression results using CRS estimators of RE model which empirically tests the relationship between net operating profit (dependent variables) and the four explanatory variables. and four control variables are discussed.

For identifying the important variables influencing the dependent variable, the study has used the regression analysis. In panel data (pooled) regression, time-series and cross - sectional observations are combined and estimated. In other words, several cross - sectional units are observed over a period in a panel data setting. Panel data is more useful in studying the dynamics of adjustment, and is better able to identify and measure effects that are simply not detectable in pure cross-sections or pure time - series data. Moreover, many variables can be more accurately measured at the micro level and biases resulting from aggregation over firms or individuals are eliminated. The study has used regression analysis to investigate the impact of working capital management on the union's profitability. The determinants of the union's profitability were estimated using general least squares method with cross section weights.

DISCUSSION OF THE REGRESSION RESULTS

The panel data was estimated using both random effect and fixed effects. To identify the best estimation technique that more fits with the data collected, the study has employed the Hausman test and then found that the random effect is the appropriate estimator. Therefore, the results showed that some explanatory variables are statistically significant and others are not significant (Table 4).

Table 4: Regression Results Using GLS (Cluster robust)

Random Effect (GLS with Cluster robust)			
NOP	**Coefficient**	**Std. Error**	**P-Value**
ACP	-4,039.67	2,316.09	0.001*
APP	Dropped	_	
ITP	1,233.54	5,241.14	0.814
CCC	1,109.67	714.09	0.080***
DR	560,391.40	4298975	0.896
CR	281352.70	157102.90	0.073***
FATA	5617158	2.30e + 07	0.807
SIZE	837068.90	272156.10	0.002*
Cons	-1.5e + 07	2172898	0.000*
Numb ob	40		
Wald chi2(7)	706.73		0.000*
R-square	0.5263		
Firms	8		
Sig.	**Level of significance *refers statistically significant at 1% , ** statistically significant at 5% and *** statistically significant at 10%**		

Source: Own Sketch

Impact of Average Collection Period on the Profitability of the Unions

The first variable that is used to measure working capital is number of days' accounts receivable/ average collection period (ACP). The model that is applied for this regression is:

$$NOP_{it} = \beta 0 + \beta 1 FATAit + \beta 2 LEVit + \beta 3 CRit + \beta 4 SIZEit + \beta 5 ACPit + eit$$

Previous research predicts negative relationship between accounts receivables and corporate profitability. The results are in line with these findings.

The coefficient of the accounts receivable variable is negative and highly significant, and implies that an increase in the number of days' accounts receivable is associated with a decline in net operating profit. The finding indicates that slow collection of accounts receivables is correlated with low profitability. This variable showed the duration of period at which unions converts receivables into cash. Hence, the estimate showed that the duration of period at which unions' converts' receivables into cash has negatively related to the net operating profit. This means as the unions frequently collects its receivables within short period the more it is profitable. This relationship is strong and statistically significant at 1% (Table 4). This finding implies that managers can improve profitability by reducing the credit period granted to their customers.

Impact of Average Payment Period on the Profitability of the Unions

The second variable that was used to measure working capital is Average Payment Period (APP). The model that is employed to check the effect of APP on the profitability of the unions is:

$$NOP_{it} = \beta 0 + \beta 1 FATAit + \beta 2 LEVit + \beta 3 CRit + \beta 4 SIZEit + \beta 5 APPit + eit$$

As per the regression results, this variable has dropped because of multi collinearity problem. The findings showed that the variable is collinear with another variable; which is CCC.

Impact of Inventory Turnover Period on the Profitability of the Unions

Under this model, the coefficient of ITP is positive but not significant at any level. This means that there exists a positive relationship between the ITP and Profitability. This result is consistent with studies carried out on conservative working capital policies (David, 2010). This implies maintaining high inventory levels reduce the cost of possible interruptions in the production process and the loss of the business due to the scarcity of the products. Maintaining high levels of inventories also helps in reducing the cost of supplying the products and protects the firm against price fluctuations as a result of adverse microeconomic factors as observed by Blinder and Macccini (1991). Most studies have not found expected negative relationship between ITP and profitability to be significant (Lazaridis and Tryfinidis, 2006; Padachi, 2006).

Impact of Cash Conversion Cycle on the Profitability of the Unions

The fourth variable that is used as the measurement of WC is the CCC, which is used as the comprehensive measurement of working capital. The model specification is:

$$NOP_{it} = \beta 0 + \beta 1 FATAit + \beta 2 LEVit + \beta 3 CRit + \beta 4 SIZEit + \beta 5 CCCit + eit$$

When the study used CCC as the proxy for WCM, the coefficient of the variable CCC is positive and significant at α= 10%. Thus, the higher the CCC the higher the profitability of the firm (Table 4). The positive relationship of CCC showed that unions that are more profitable failed to reduce the CCC.

Impact of DR on the Profitability of the Unions

The NOP increases with an increase in DR. The results showed that an increase in DR for a cooperative union increases it profitability. The results for DR is not statistically significant but it positively affect the profitability.

Impact of CR on Profitability of the unions

Results from the regression showed that CR has positive impact on profitability and is significant at α= 10%. This is to mean as the CR of the cooperative unions increases the profitability of the unions will also increase. In order to increase their profitability the unions should have more CR.

Impact of FATA on the Profitability of the Unions

As far as East Showa Cooperatives unions' concerned FATA ratio has a positive relationship with the profitability of the unions. Even if it does have, a positive impact on the profitability of the unions FATA is not statistically significant.

Impact of SIZE on the Profitability of the Unions

The model showed a positive coefficient for size. This indicated that the net operating profit increases with unions size (measured by natural logarithm of sales) and is highly significant at α=1% level. This means as the sales volume of the unions increases the profitability will also increase.

Hypothesis Testing

Hypothesis one:

H_{01}: Working Capital Management does not affect the profitability of the unions
H_{11}: Working Capital Management does affect the profitability of the unions

In order to test this hypothesis, the study used CCC as the comprehensive measure of profitability. The hypothesis is tested after random estimation.

```
. test ccc

 ( 1)  ccc = 0

           chi2(  1) =    0.24
         Prob > chi2 =    0.6267
```

As per the results from the test, the prob > chi^2 is statistically insignificant and the results concluded that the alternative hypothesis (H_{11}) that says WCM does affect the profitability of East Showa zone cooperative unions is the one that is accepted and therefore the researcher failed to reject the null hypothesis.

Hypothesis Two:

H_{02}: Short-term debt does not affect the profitability of the unions
H_{12}: Short-term debt does affect the profitability of the unions

In the same way the researcher accept the second alternative research hypothesis (H_{12}) that short-term debt does affect the profitability of the cooperative unions, therefore the researcher failed to reject null hypotheses (H_{02}). The results from the regression showed that the prob > chi^2 is not statistically significant, which therefore means that the short-term debt does affect the profitability of East Showa zone cooperative unions.

```
. test cr

 ( 1)  cr = 0

           chi2(  1) =    2.38
         Prob > chi2 =    0.1228
```

The results shown above is from STATA and it showed that the probability greater than chi-square is insignificant, i.e. is greater than 0.05. This is the reason why the researcher fails to reject the null hypothesis.

Hypothesis Three:

The third hypothesis of the study is:
H_{03}: Size of the unions does not affect the profitability of the unions
H_{13}: Size of the union's does affect the profitability of the unions

The results from STATA are described as follows:

```
. test size

 ( 1)  size = 0

           chi2(  1) =  15.79
         Prob > chi2 =   0.0001
```

It was found that in East Showa cooperative unions, SIZE is the most important variable that affects profitability. The researcher also accepts the research hypotheses (H_{13}) regarding the size and profitability. As the size (measured in terms of natural logarithm of sales) increases, it will lead to an increase in profitability of the firm; therefore the researcher failed to reject null hypotheses (H_{03}). The researcher accepts the alternative hypothesis since the results showed that the prob > chi^2 is statistically significant and therefore SIZE is the most valuable variable which highly influences the profitability of the unions.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The results showed that there is an empirical linkage between the determinants of WCM and profitability of East Showa cooperative unions. It was noted that the impact of WCM, as it was hypothesized, showed some consistency with an empirical studies. From this view, the implication that the WCM can influence the profitability of the unions seems to be considered in decision-making process of the unions. Further studying of this fact had to be properly taken into consideration while drawing conclusions from the empirical results.

The following are the major findings of this study

- ✓ The empirical results showed that, there is a significant impact of ACP, CCC, CR and SIZE on the profitability of East Showa Cooperative Unions whereas ITP, DR and FATA have insignificant impact on the profitability of the unions.
- ✓ ACP has a negative and highly significant impact on the profitability of the unions.
- ✓ ITP has a positive but insignificant impact on the profitability of the unions.
- ✓ CCC has a positive and significant impact on profitability.
- ✓ DR has a positive but non-significant impact on the profitability of East Showa cooperative unions.
- ✓ The results for CR showed that it has a positive and significant impact on the profitability of the unions.
- ✓ FATA, the regression results for this variable shows a positive but insignificant impact on profitability.
- ✓ SIZE has a positive and highly significant impact on the profitability.

CONCLUSIONS

From the major findings of this study, the following conclusions are drawn:

- ➢ The negative impact of ACP on profitability of the unions indicates East Showa cooperative unions' wait too long to collect their receivables.
- ➢ The positive impact of ITP on profitability showed that the unions take a long period to convert their inventories into cash.
- ➢ The positive impact of CCC on profitability indicates the unions wait long period for collecting their receivables and conversion of their receivables than they wait for payment of their credits.
- ➢ The positive impact of DR on profitability showed that a cooperative union with large DR has more profit than those who have less DR.
- ➢ The positive impact of CR on profitability indicates that a union, which has large CR has earned more profit.
- ➢ The positive impact of FATA on profitability showed that a cooperative union with large FATA has more profit than the rest.
- ➢ The positive impact of SIZE on the profitability of East Showa cooperative unions indicates that unions, which have more sales volume, have more profit than the rest.
- ➢ Regarding the hypothesis, it is concluded that the alternative hypothesis (H_{11}) that WCM does affects the profitability of East Showa cooperative unions is the one that is accepted; and therefore the researcher failed to reject the null hypothesis. In the same way the researcher accept the second alternative research hypothesis (H_{12}) that short- term debt does affect the profitability of the cooperative unions ; therefore the

researcher failed to reject null hypotheses (H_{02}). It is found that in East Showa cooperative unions, SIZE is the most important variable that affects profitability. The researcher also accepts the research hypotheses (H_{13}) regarding the size and profitability. As the size (measured in terms of natural logarithm of sales) increases, it will lead to an increase in profitability of the firm; therefore the researcher failed to reject null hypotheses (H_{03}).

RECOMMENDATIONS

Based on the above summary and conclusions the following recommendations are forwarded

- The results of the study revealed that ACP has a negative impact on profitability. This implies cooperative unions with short collection period of their collectibles are more profitable than those cooperative unions that wait a
- long period before converting their receivables into cash. Therefore, it is recommended that the unions should reduce the period of converting receivables into cash to its possible minimum days and this increases their profitability; because reducing ACP minimizes the bad debt of the union.
- The results from the regression showed that ITP has a positive impact on profitability. This implies that as the number of days for inventory conversion increases the profitability of the union is also increased and this protects the unions against cost fluctuation. The waiting of inventory conversion for a long period is advantageous for the unions to minimize the cost of supplying inventories to customers. As per the results from the study, the researcher recommends that it is better for the unions to take a long period for ITP since it increases the profitability of the unions. The increase in number of days of ITP increases profitability by eliminating shortage of inventories because the unions hold more inventories in their store.
- The results from the study implied that CCC has a positive impact on profitability. CCC is a comprehensive measure of WCM and it's the difference between the summation of ACP and ITP minus APP. The results imply that as the CCC is increased the profitability of the unions also increases. Therefore it is preferable for the unions to take relatively long period for cash conversion. If the period for cash conversion period increases the sales of the unions also increased relatively since the rule of the unions allows credit sales to their customers.
- The results from the study showed that there is a positive impact of DR on profitability. This implies that as the DR of the cooperative unions' increases the profitability is also increased, therefore it is advisable to the managers to hold optimal amount of DR so as to increase profitability. More debt ratio indicates that the unions get money from credit institutions, so their working capital is updated and they get money to be financed, as a result, this may be a reason for profitability of the unions.
- The regression results also revealed that CR has a positive impact on the profitability of East Showa zone cooperative unions. This is to mean that a cooperative union with large CR has earned more profit than those who have small value of CR. For the reason it has recommended that, the cooperative unions have to enlarge the amount of their CR or to its maximum and increase their profitability. The accepted value of CR is 2:1, taking this into account the unions may keep their current assets to current liabilities to the standard that they are going to make profit from the operation.
- The results from the study showed that there is a positive impact of FATA on profitability. From this finding, one can understand that as FATA of a cooperative union increases the profitability is also increased. This indicates that the managers of cooperative unions have to prefer large FATA to small amount of FATA in order to increase their profitability.
- The results from the study also showed that SIZE has a positive impact on the profitability. This indicated a cooperative union that has large sales volume will have more profit than cooperative union, which has less volume of sales. Therefore, the researcher would like to recommend the unions to increase their sales volume to increase their profitability. Unions can increase their sales through sales promotion, allowing credit sales and providing sales discount to their customers.

Further studies could be made by: including of other variables like profitability ratios (G/p ratio, N/p ratio, etc) and analyzing the inter-relationship between the WCM and profitability; by categorizing the unions into heterogeneous groups like agricultural, consumer and saving and credit based on measures like assets, capital, long term borrowings, and net worth.

REFERENCES

Afza T and Nazir MS (2007). Working Capital policies of firms: Empirical evidence from Pakistan. In the proceedings of 9th South Asian Management Forum (SAMF), 24-25 February, North South University, Dhaka, Bangladish.

Baum FC (2006). An Introduction to Modern Microeconometrics Using Stata. Brighton, Massachusetts. Stata Press.

Baltagi B (2005). Econometric Analysis of Panel Data, 3rd ed., John Wiley & Sons Ltd, England.

Blinder AS and Maccini LJ (1991). The Resugence of Inventory Research: What have we learned? Journal of Economic Survey. 5: 291-328.

Brennan M, Maksimovic V and Zechner J (1998). Vendor Financing, Journal of Finance. 43: 1127-1141.

Cameron CA and Trivedi PK (2009). Micro econometrics Using Stata, Lake Way Drive College Station, Texas Stata Press.

Deloof M (2003). Does Working Capital Management Affect Profitability of Belgian Firms? Journal of Business, Finance and Accounting. 30: 573-587.

Deloof M and Jegers M (1996). Trade credit, product Quality, and Intra Group Trade: Some European Evidence, Financial Management. 25(3): 33-43.

Emery GW (1987). An Optimal Financial Response to Variable Demand, Journal of Financial and Quantitative Analysis. 22: 209-225.

Eljelly A (2004). Liquidity-Profitability Trade-off: An empirical Investigation in an Emerging Market, International Journal of Commerce & Management. 14 (2): 48 – 61.

Garcia-Teruel PJ and Martinez-Solano PM (2007). Effects of working capital management on SME profitability. International Journal of Managerial Finance. 3: 164-177.

Gebregziabher H (2008). Research Methods in Accounting and Finance. Teaching Material, Mekelle University, Mekelle, Ethiopia.

Greene WH (2003). Econometric Analysis, 5th ed., Pearson Education LTD. Prentice Hall, USA.

Hausman J (1978). Specification tests in econometrics, Econometrica. 46:1251-1272.

Joshi PV (1995). Working Capital Management under Inflation, 1st Ed. Anmol Publishers, pp. 20 – 93.

Long Michael S, Malitz Lleen B and Abraham RS (1993). Trade Credit, Quality Guarantees, and Product Marketability, Financial Management, pp. 117 – 127.

Narware PC (2004). Working capital and profitability_an empirical analysis. The Management Accountant. 39 (6): 120-127.

Nazir MS and Afza T (2009). Impact of Aggressive Working Capital Management Policy on Firms' Profitability. The IUP Journal of Applied Finance. 15 (8): 156-165.

Padachi K (2006). Trends in working capital management and its impact on firms' performance: An analysis of Mauritian small manufacturing firms. International Review of Business Research Papers. 2(2): 45–58.

Rao RKS (1989). Fundamentals of Financial Management, 3rd Ed. Macmillan publishers, pp 550-644.

Raheman A and Nasar M (2007). Working capital management and profitability – case of Pakistani firms. International Review of Business Research Papers. 3: 279-300.

Samiloglu F and Demirgunes K (2008). The effect of working capital management on firm profitability: Evidence from Turkey. The International Journal of Applied Economics and Finance. 2(1): 44–50.

Soenen LA (1993). Cash Conversion Cycle and Corporate Profitability. Journal of Cash Management. 13: 53-57.

Smith K (1980). Profitability versus Liquidity Tradeoffs in Working Capital Management, in Readings on the Management of Working Capital. (Eds). KV Smith, St. Paul West Publishing Company, pp. 549-562.

Shin HH and Soenen L (1998). "Efficiency of Working Capital and Corporate Profitability", Financial Practice and Education. 8: 37-45.

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Smith (1987); Smith and Smith (1999); Zariyawati et al. [include the co-authors' name] (2008)