Effect of Capital Structure on Firm Performance: Evidence from Ethiopian Farmers Coffee Cooperatives

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Abstract

This paper examined the empirical relationship between capital structure and firm performance using balanced panel data of nine primary farmers coffee cooperatives in Guji zone, Oromia regional state during 2020-2023. The profitability measured by return on asset indicated that short term debt to asset has positively significant relationship; total debt to equity has insignificant relationship, total debt to asset & total equity to asset have positively significant relationship with return on asset. The control variables Size & Asset tangibility has insignificant relationship, Asset utilization efficiency (current asset turnover has insignificant relationship, fixed asset turnover has positively significant relationship, total asset turnover has insignificant relationship)& liquidity have insignificant relationship with return on asset. Likewise, the profitability measured by return on equity showed that short term debt to asset has insignificant relationship, total debt to equity has negatively significant relationship.

Key Words: Return on Asset, Return on Equity, Fixed Effect Model, Random Effect Model, Capital Structure

I. Introduction

The financing mix determined by the organizations is particularly important for defining the optimal capital structure. Scholars believed that the choice of financing structure is the most important business decisions; an optimal capital structure can take advantage of the company's stock price and value. Modiglian & Miller(1958) proposed in their static trade-off theory that firms seek an optimal level of capital to balance the benefits and costs of holding cash under perfect capital market conditions [1]. Thereafter, Modigliani and Miller (1963)revised the terms and clarified that interest expense is tax deductible and contended that the value of the firm should increase with higher debt ratios [2]. Contrary to the static trade-off theory, Myers & Majluf(1984), proposed in their pecking order theory that firms should adopt their capital structure in accordance with the following order; Internal financing, debt, equity [3]. The theory does not assume the most promising capital structure and target capital structure of the companies. Similarly, they found that the hierarchy of a firm's financing decisions is influenced by information asymmetry [4].

However, companies have varying degrees of leverage, and the question of the optimal capital structure is an ongoing debate among many scholars. Since, these propositions do not work in the same manner in the actual world. On the other hand, researchers confirmed that the institutional and cultural characteristics also describe the behavior of companies in relation to debt [5]. Subsequently, based on the advanced literature on capital structure, the researchers identified many variables that influence both financing decisions and the financial performance of firms, and may affect firms differently depending on their

situation. Such as: company size, growth, tangibility, risk, inflation and the like [6].

In addition, recent evidence on the empirical relationship between capital structure and firm performance across different countries and organizations remains controversial or inconclusive [7]. Some researchers found a statistically significant positive empirical relationship between capital structure and firm performance [8]. On the other hand, other researchers found a statistically significant negative relationship while the rest of the work did not reveal any empirical relationship.

Furthermore, very little research has been conducted in developing countries. Most research has been conducted in industrialized nations with well-developed advanced economies. They differ in their country context, social and cultural factors. Also the studies conducted in the Ethiopian context were conducted by taking only a small sample from the specific area of the cooperatives. Therefore, it is impossible to infer the results in the context of the Guji zone [9]. To this end, the present research investigated the empirical relationship between the capital structure and financial performance of the selected farmer's coffee cooperatives in Guji zone, Oromia regional state [10]. For this purpose, balanced panel data of nine primary coffee cooperatives from 2013/14 to 2020/21wasused.The profitability is represented by ROA and ROE measured as the ratio of net income after tax to total assets and equity [11].

A. Literature Review and Hypothesis

Many researchers have examined the empirical relationship between capital structure and firm performance across countries and firms. However, the results of the studies remain contradictory or inconclusive. A positive, negative, or no association with company performance was found. In the UK, Vuong, Quynh Vu,

& Mitra (2017) employ panel data of 739 UK very large and large listed companies on the London Stock Exchange from 2006 to 2015 revealed that ROA, ROE and Tobin's Q have a negative relationship with long-term liabilities, while short-term Debt has no significant impact and EPS has no relationship [12]. Similarly, in Asia, Aulia & Gandakusuma (2020) examined companies of Indonesia, Malaysia, Philippines, Singapore and Thailand from 2014 to 2018 and indicated that TDTA negatively significantly affected ROA, TDTA and TDTE negatively significantly affected ROE and TDTE did not significantly affect Tobin's Q [13].

Furthermore, in Turkey, Nassar (2016) employed industrial companies from 2005 to 2012 found a negative significant relationship between capital structure and company performance [14]. Furthermore, in Ethiopia, Ayalew (2021) used private bank panel data from 2013/14 to 2018/19 and found that both the leverage ratio and size have a significant negative impact [15]. In Malaysia, Islam, Tunku Ahmad, & Mosa Ghazalat (2019) used panel data from nine listed sectors over the period 2000-2015 and found that short-term debt and long-term debt to total assets have a positive significant relationship with firm value [16]. However, total debt to total assets has a negative effect. Similarly, in Latin America, particularly Brazil, Chile, Mexico, and Peru, Mardones & Cuneo (2020) found a positive relationship between financial performance, growth, and firm size using panel data from 2000 to 2015 [17]. However, there are mixed results for short-term and long-term financial leverage, as well as corporate liquidity. Furthermore, in Jordan, Ghosh, Cai, & Fosberg, (2017)Used the non-financial sector panel data from 2006 to 2016, revealed that it is positive when leverage is low but negative when leverage is higher [18].

In Vietnam, Doan (2020)employed 102 non-financial companies listed on the Ho Minh Stock Exchange (HOSE) from 2008 to 2018 and found that company performance was significantly correlated with the financing decision [19]. Similarly, Ejike & Nike(2020)employed companies of the brewery industry in Nigeria and showed that the ratio of debt to equity has a significant impact on the return on investment and total debt significantly affects the return on investment [20]. Likewise, in Tanzania, , Nyabakora(2021) employed 29 companies panel data from 2005 to 2018 showed that the financing decision has a significant impact on performance [21]. On the other hand, Shaikh(2017) employed 100 companies in Pakistan from 2004 and 2009 and showed that the financing decision does not affect ROE, ROA, Tobin's Q and market capitalization [22]. In addition, Obande et al. (2017) in Kenya found that capital structure explains only 0.01% of the variance in ROA [23].

The following research hypotheses have been developed.

H1: There is significant relationship between capital structure and firm performance.

In addition, the empirical relationship between Firm Size, asset tangibility, asset utilization, liquidity, leverage and firm performance was highlighted In Bangladesh, Hossain, Naser, & Saif (2019)employ 10 banking companies from 2011 to 2015 and found out that company size positively affected the profitability of companies [24]. Likewise, in Vietnam, Hung, Vinh, & Thai (2021) used panel data of private firms from 2009 to 2018, showed that total assets is the largest factor in determining firm performance, followed by total labor and growth rate [25]. In Nigeria, Luqman(2017)examined data of non-financial firms from 2005-2013, found that firm size has a negative effect on total assets, while it has a negative effect on total sales; Company size has a positive effect on performance

[26]. Similarly, In Turkey, İltas & Demirgunes (2020), employ manufacturing panel data from 1990 to 2016, revealed that asset tangibility has a significant positive impact on financial performance up to (and including) the reference date [27].

From this date, however, they will have a negative impact on the earning. Likewise, in India, Yameen, Farhan, & Tabash (2019) used a balanced panel of data from 82 pharmaceutical companies from 2008 to 2017, revealed that the current liquidity ratio and the quick ratio have a positive significant impact on the ROA, while company size has a negative impact on ROA [28]. Furthermore, examined industrial sectors from 2015 to 2019, In Jordan found that liquidity is positively significant related to profitability [29]. In contrast, financial leverage has a negative impact on profitability(Saleh, Jaradat, Wedyan, & Saleh, 2021). In Pakistan, İltas & Demirgunes(2020) used commercial banks' panel data over the period 2006–2019 and concluded that higher liquidity increases banks' performance [30]. Similarly, in Nigeria, Akinleye & Olufemi Dadepo(2019) examined data of ten manufacturing companies from 2012 to 2016 concluded that asset turnover (ATR) has a positive significant impact on ROA. Working capital ratio also has a positive significant impact on ROA while leverage ratio has a negative but insignificant impact on ROA [31].

Thus, the following research hypotheses have been proposed.

H2: There is a significant relationship between size and firm performance.

H3: There is a significant relationship between Asset utilization and firm performance.

H4: There is a significant relationship between Asset tangibility and firm performance.

H5: There is a significant relationship between liquidity and firm performance.

B. Objective of the Study

The objective of the study was to examine the effect of capital structure on financial performance of the farmers' primary coffee cooperatives in Guji zone. According to Wand & Weber(2002) , Conceptual framework are diagrammatic representation of theorized relationships between constructs under investigation [32]. The following conceptual framework provides the hypothesized effect of the capital structure on firm performance.
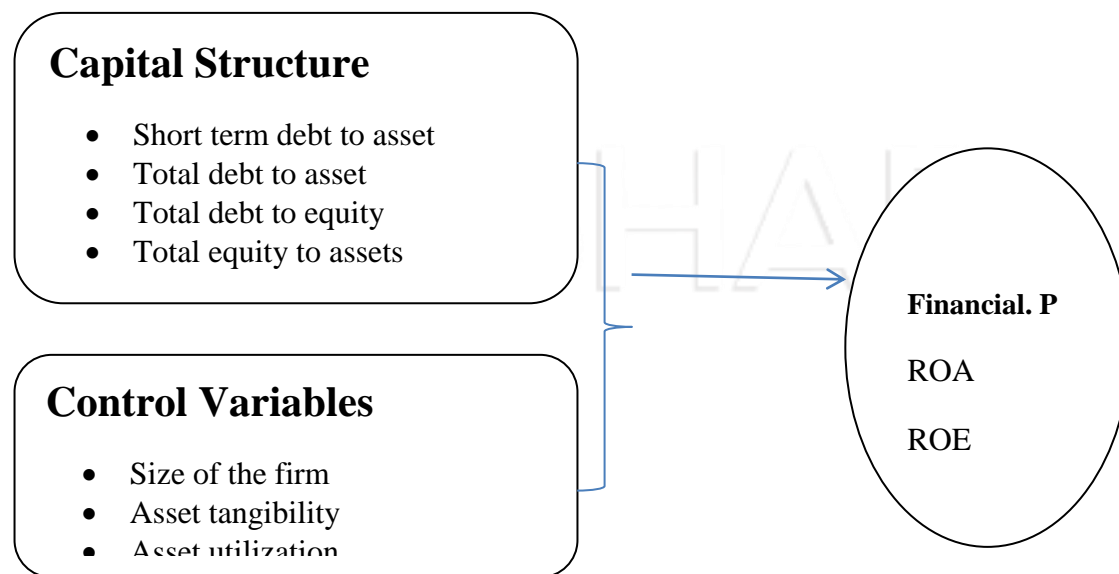

Capital Structure

- Short term debt to asset
- Total debt to asset
- Total debt to equity
- Total equity to assets

Control Variables

- Size of the firm
- Asset tangibility
- Asset utilization

Financial. P

ROA

ROE

Figure 2.1 Conceptual Framework of the Current Study Compiled from (Masuku, 2016; Cevheroglu-acar, 2018; Taqi et al., 2020).

II. 3. Methodology

The target populations of the study were 33 primary coffee cooperatives of farmers in six coffee-producing districts of West and East Guji Zone who have been in business for more than five years. According to Kothari (1990), the literature does not provide precise guidelines for selecting the exact sample size

[33]. However, a homogeneous population can be well represented by a small sample. A heterogeneous population requires a relatively larger sample size. Tabachnick & Fidell(2007)suggested a reasonable sample of 10:1 events plus the number of independent variables for multiple regressions [34]. Likewise, Hair,et al.,(2010) recommends a sample size ratio of 10:1 as acceptable. To select the primary cooperatives from different clusters, amulti-stage cluster proportional systematic random sampling procedure was used. Consequently; the secondary data of audited financial statements from nine primary cooperatives was collected from longitudinal balanced panel data from 2013-2020. Because the panel data used to observe the heterogeneity of firms over time allows control variables such as cultural factors or differences in business practices [35].

A. Description of the Study Area

Oromia is one of the largest region in Ethiopia & well known for high production of coffee, 489,799.36 hectare of land and 3,101,927.33 quintals was produced with average yield of 6.33 quintals/ha in 2017/18 meher season . Oromia Coffee Farmers Cooperatives Union was formed in 1999. OCFCU has been one of the fastest growing green-coffee exporters in Ethiopia [36]. It has 250 cooperatives with 250,000 members (Meskela & Teshome, 2014;Oromia Cooperaives Development Bureau,2021). Among coffee producing areas in the region, Guji administrative zone is well known endowed area in producing and exporting coffee [37].
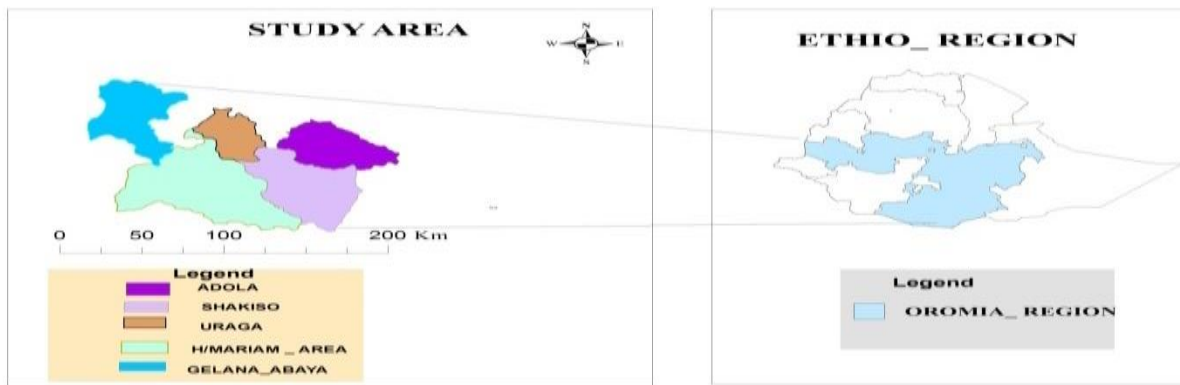
B. Data Analysis tools

The data was analyzed using STATA version 14. In terms of statistics, Stata is full featured that provides all the standard univariate, bivariate and multivariate statistical tests **[38]**.

C. Measurement of Variables

Various techniques have been used in the literature to measure organizational performance. Among these techniques, return on equity and return on assets are the most commonly used (Durrah et al., 2016; Madushanka & Jathurika, 2018). It relates to how many companies have made profits based on their assets and equity, and how effectively managers are using investors' money [39].

Variables	Abbreviation	Measurements
Dependent Variables		
Return on Assets	ROA	Net income after tax/Total Assets
Return on Equity	ROE	Net income after tax/ Total Equity
Independent Variable		
Short term –debt to assets	STDA	Short term debt/Total Assets
Total debt to assets	TDA	Total debt/Total Assets
Total debt to equity	TDE	Total debt/Total Equity
Total equity to assets	TEA	Total equity/Total Assets
Control Variable		
Size of the company	SIZE	Natural Logarithm of total assets
Asset tangibility	TANG	Fixed Assets/Total Assets

Current Asset Turnover	CAT	Sales/Current Assets
Fixed Asset Turnover	FAT	Sales/Fixed Assets
Total asset Turnover	TAT	Sales/Total Assets
Liquidity	LIQ	Total current assets/Total Current Liability

D. Variable descriptions

1. Dependent variables

The higher the ratio shows how far the company uses its assets &equity efficiently. Whereas, low ratio indicates the inefficiency in utilization of its assets and equity. The higher the ratio shows how far the company uses its assets equity efficiently whereas, low ratio indicates the inefficiency in utilization of its assets and equity [40].

2. Independent Variable

Theories argued differently, the tradeoff theory predicts that the leverage tax deductible, reduce inefficiency and thereby lead to improvement of firm's performance it predicts a positive relationship between debt ratio and performance [41]. The pecking order theory predicts a negative relationship between the performance and debt ratio.

3. Control Variables

- **Asset tangibility:** The most common argument in the literature is the utilization of tangible assets boosts corporate performance. Hence, it favors that a positive relationship between the two variables [42].

- **Asset utilization ratio**: Total assets turnover measures the efficiency with which total assets are utilized. The high ratio indicates that high efficiency of total assets to generate sale. [43].

- **Liquidity:** Result of the Literatures shows positive relationship with firm performance [44].

E. Diagnostic Tests

1. Normality test

Jarque Vera test was made to check the distribution of data. Since, the probability of the chi2>0.05, the data is normally distributed.

2. Multicollinearity test

Vif test was made to check the multicollinearity among the independent variables, the result of the regression shows that vif<10. Thus, there is no multicollinearity among the variables.

Variance inflation factor

	VIF	1/VIF
CAT	2.571	.389
TAT	1.776	.563
TDA	1.615	.619
TANG	1.556	.643
TEA	1.265	.79
LIQ	1.194	.838
FAT	1.167	.857
TDE	1.076	.929
STDA	1.076	.929
Size	1.053	.95
Mean VIF	1.435	.

3. Heteroscedasticity

Imtest *was made to check the* heteroscedasticity, the result of the regression shows P=0.258. Since, P>0.05, there is no heteroscedasticity.

Cameron & Trivedi's decomposition of IM-test

Source	chi2	Df	P
Heteroscedasticity	71.990	65	0.258
Skewness	11.760	10	0.301
Kurtosis	2.860	1	0.091
Total	86.620	76	0.190

III.   3.5 Results

A. Results of the Descriptive Statistics

As summarized in Table 3:1 below, the mean of ROA and ROE was 18.8% and 74.5%. Overall, the average ratio of ROA & ROE is greater than zero; this result implies that the way cooperatives use their assets and equity is promising. However, the average ROE ratio is extremely higher than the ROA; this implies that the cooperatives use their own capital comparatively more efficiently than their assets. Likewise, the mean capital structure mix of STDA, TDE and TDA & TEA has a share of 9.6%, 102.7%, 58.7% and 62.5%, respectively. This result implies that, on average, the cooperatives finance their business with long-term debt. Likewise, their debt-to-equity ratio shows that co-operatives are the riskiest relative to their debt burden [45].

Thus, there is an opportunity to use the short-term liabilities as quickly as possible, assuming the effective use of their liabilities in the shortest possible time. In addition, the average tangible asset ratio was 74.5%, implying that most of the cooperatives' assets are invested in fixed assets. The first assumption is that the cooperatives have sufficient assets as collateral to access credit. On the other hand, if the balance between fixed assets and current assets is not maintained, a deficiency of working capital will result, causing them to incur unnecessary debt [46]. So the second assumption works for this case. In addition, the average ratio of CAT, FAT, and TAT was 6.96%, 2.74%, and 2.2%, respectively. This implies that CAT has high efficiency in generating sales. Therefore, cooperatives should invest in current assets to keep the balance between current assets and fixed assets

Table 3:1 Descriptive Analysis

Variable	Obs	Mean	Std. Dev.	Min	Max
STDA	72	.096	.388	0	2.972

TDE	72	1.027	25.364	-163.68	79.866
TANG	72	.745	.156	.286	1
TDA	72	.587	.827	0	6.935
Size	72	.837	.38	.28	3.87
CAT	72	6.963	6.803	0	39.68
FAT	72	2.739	1.964	0	8
TAT	72	2.204	4.59	0	39.68
TEA	72	.625	.412	-.88	1.7
LIQ	72	2.479	1.878	.6	6.53
ROE	72	.745	2.453	.005	20.611
ROA	72	.188	.172	.002	.83

Table 3:2 Correlation

1	*2*	*3*	*4*		*6*	*8*	*9*	*10*	*11*
			5	*7*				*12*	

ROE1.000
ROA0.0310   1.000
STDA 0.0460   0.28371.0000
TDE-0.6908   -0.07110.0138   1.0000
TANG -0.0561   -0.14480.0924   0.2021 1.0000
TDA 0.1142   0.2069   0.0035   0.0362 0.2017   1.0000
SIZE -0.0028   0.0157 -0.0286 -0.0064 -0.1175   0.0284 1.0000
CAT - 0.0044 0.1187   0.1545   0.1674   0.4451   0.4443 -0.0240 1.0000
FAT -0.1316   0.2894   0.0685   0.0182 -0.3021 -0.1282   0.1319 -0.0847 1.0000
TAT -0.0399 -0.0155   0.1174   0.1596   0.1585   0.0379   0.0105   0.5880   0.0191
1.0000
TEA -0.2614   0.1019 -0.0290 -0.0150 -0.2017 -0.3813 -0.1119 -0.2304   0.0640
-0.1368 1.0000
LIQ -0.1100 -0.2178   -0.1817 -0.0448 -0.2114   0.1138 -0.1226   0.0093 -0.2340
-0.1136   0.083   1.0000

According to Samuels Pearson correlation matrix interpretation, 0.00-0.10 negligible, 0.10-0.39 weak, 0.40-0.69 moderate, 0.70-0.89 strong & 0.90-1.00 very strong correlation. Thus, the result of the correlation matrix 3:2 shows, ROE has moderate positive relationship with STDA, moderate negative relationship with TDE, negligible negative relationship with TANG, negligible positive relationship with TDA, negligible negative relationship with size of the firm, weak negative relationship with TEA, negligible negative relationship with asset utilization (CAT,

FAT&TAT) & Liquidity [47]. Likewise, ROA has a weak positive relationship with STDA, a negligible negative relationship with TDE, a weak negative relationship with TANG, a weak positive relationship with TDA, a negligible positive relationship with company size, a weak positive relationship with TEA, a weak positive Relationship to asset utilization (CAT&FAT), negligible negative relationship to total asset utilization (TAT), and weak negative relationship to liquidity [48].

B. Regression Results

1. The effect of capital structure on return on assets

In all three models, short-term debt has a significantly positive relationship; the ratio of total debt to equity is insignificant, the ratio of total debt to assets is positively significant, and the total equity ratio is positively significant to return on capital. In all three models, tangibility has an insignificant relationship. The size of the company is insignificantly related in both models of OLS and RE. But negative significant relationship in FE model; in all three models, the current asset turnover has an insignificant relationship. In all three models, asset turnover has a positively significant relationship [49]. In all three models, total asset turnover and liquidity have an insignificant relationship to ROA.

Table 3:3 Comparative Analyses of the Models

Variables	OLS -Model		FE -Model		RE- Model	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
STDA	.1081166	0.032	.081362	0.051	.1081166	0.028
TDE	-.0005348	0.480	-.0009036	0.118	-.0005348	0.477
TANG	-.1176696	0.427	.0851499	0.524	-.1176696	0.424
TDA	.0642864	0.027	.0858488	0.001	.0642864	0.023
SIZE	-.0104705	0.834	-.113626	0.006	-.0104705	0.833
CAT	.0032461	0.457	-.0038606	0.335	.0032461	0.454
FAT	.0214687	0.038	.0167323	0.038	.0214687	0.034
TAT	-.0035653	0.507	.0027456	0.555	-.0035653	0.505

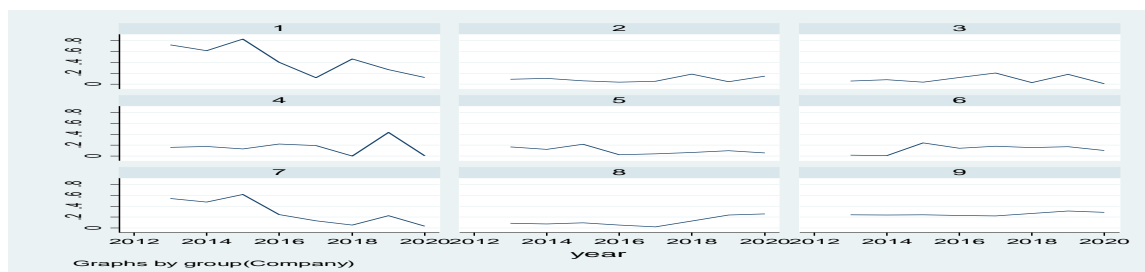|					
TEA	.0899404	0.079	.1156312	0.034	.0899404	0.074
LIQ	-.0148051	0.172	-.0035844	0.710	-.0148051	0.167
_Cons	.1432592	0.289	.0734559	0.547	.1432592	0.285

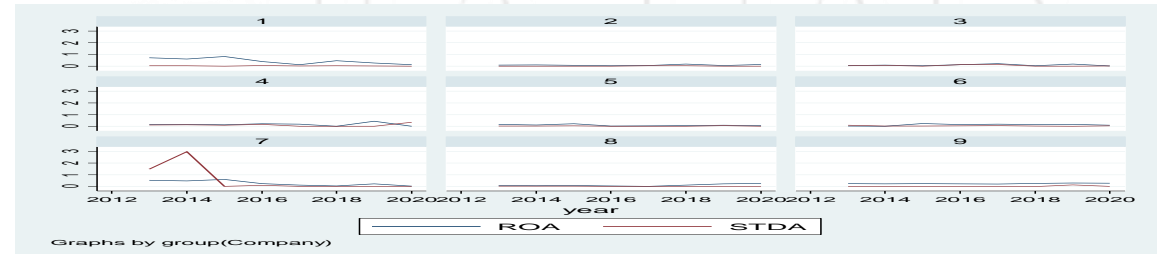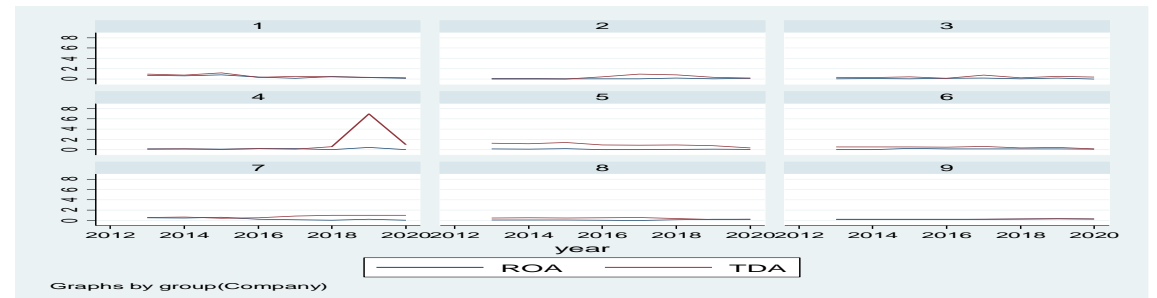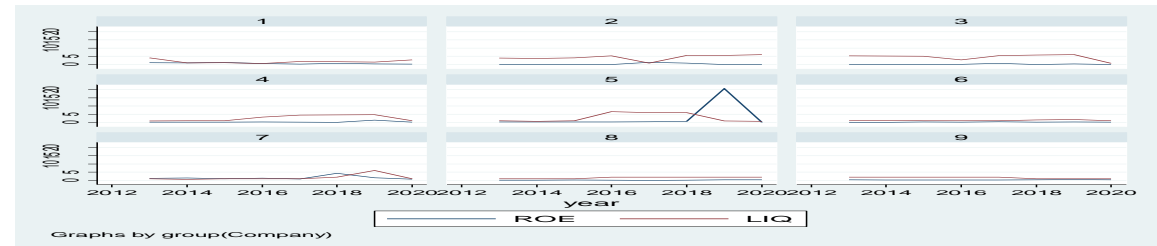## 2. The effect of capital structure on return on equity

Table 3:4 Comparative Analyses of the Models

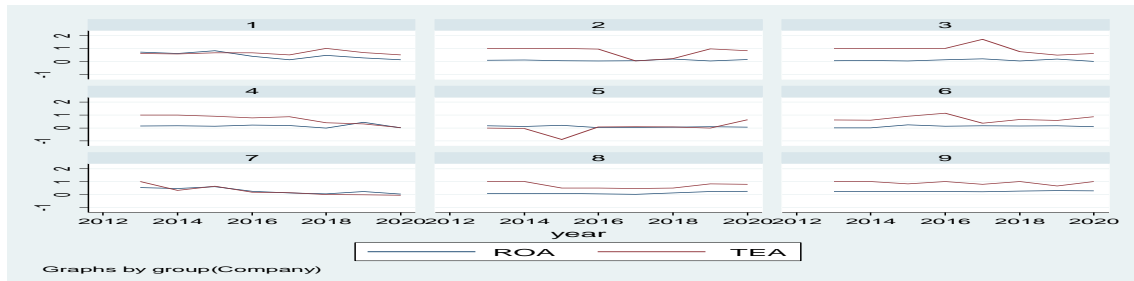| Variables	OLS -Model		FE -Model		RE- Model	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
STDA	.1400995	0.796	-.3927341	0.526	.1400995	0.795
TDE	-.0684756	0.000	-.0690476	0.000	-.0684756	0.000
TANG	.1120471	0.945	.2401115	0.905	.1120471	0.945
TDA	.1165281	0.708	.406079	0.268	.1165281	0.707
SIZE	-.2234288	0.683	-.1395598	0.816	-.2234288	0.681
CAT	.0111202	0.816	-.0426718	0.478	.0111202	0.815
FAT	-.1602958	0.153	-.1771029	0.141	-.1602958	0.148
TAT	.0015686	0.979	.0592247	0.399	.0015686	0.979
TEA	-1.373513	0.015	-.5654403	0.483	-1.373513	0.013
LIQ	-.2075154	0.082	-.3260358	0.028	-.2075154	0.077
_Cons	2.568301	0.085	2.366927	0.200	2.568301	0.080

In all three models, short term debt has insignificant relationship, total debt to equity has negatively significant relationship, and total debt to asset has insignificant relationship & Total equity to assets has negatively significant relationship in both models OLS &RE. Whereas, insignificant relationship with ROE. In all three models, tangibility & Size has insignificant relationship. In all three models, current asset turnover, fixed asset turnover &total asset turnover has insignificant relationship. Similarly, in all three models liquidity has negatively significant relationship with the ROA [50].

Figure 3:1 Trend of Profitability, Capital Structure, Liquidity and Asset Structure

Graphs by group(Company) — ROE, TDE

Graphs by group(Company) — ROE, LIQ

Graphs by group(Company) — ROA, TDA

Graphs by group(Company) — ROA, STDA

Graphs by group(Company) — ROA, FAT

Graphs by group(Company)
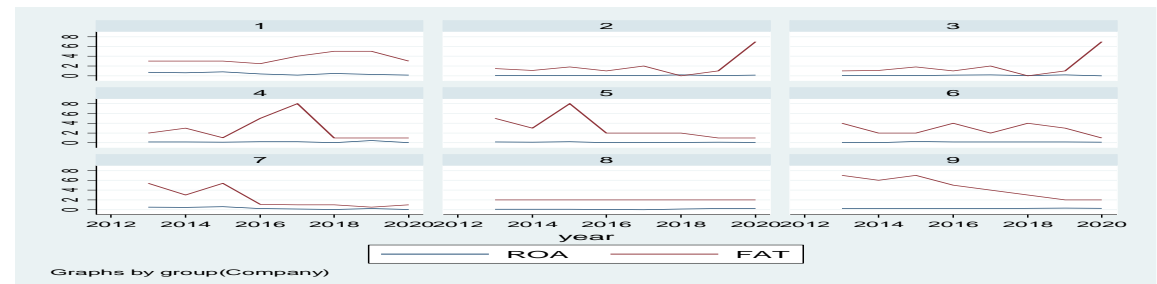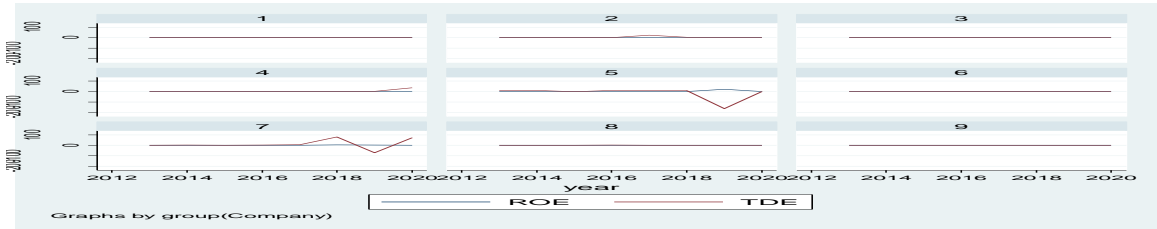
The above graph confirms the heterogeneity of the firms that their profitability varies among the firms. Since, they differ in their specific contextual factors [51].

C. Hausman Test, Research Model & Hypothesis Testing
1. Hausman test

This study used the Housman's specification test (1978) to choose between fixed and random effect model (Hausman(1978), 2016).The Hausman test for ROA P -value of Chi2 was 0.4436. Since, the $p>0.05$, the random effect is the pertinent model for ROA [52].

Hausman (1978) specification test	
	Coef.
Chi-square test value	0.4436
P-value	.

Likewise, the result of Hausman test for ROE, P- value of Chi2 was 0. Since, the $p<0.05$, the fixed effect is the pertinent model.

Hausman (1978) specification test	
	Coef.
Chi-square test value	0
P-value	.

2. Research model

This study used the following research model that was employed by the (Liargovas & Skandalis, 2012 ; Taqi, Khan, & Anwar, 2020).

$$Y=\alpha+ x1\beta1+ x2\beta2 +……+ xk\beta k +\varepsilon$$

The adapted regression model described below. Firm performance was measured using the following financial performance indicators ROA and ROE as follows;

Model- 1

ROA = 0.143+0.108 STDAit +-0.001TDEit +-0.118TANGit+0.064TDAit+-0.01 Sizeit+ 0.003CATit+0.021FATit+ -0.004TATit+0.089 TEA it+ -0.015 LIQ it+ ε

The interpretations of the simple linear regressions, with REM, are the following:

When ROAit increases with one percent, STDAit ratio will increase, in average in 0.108 percent

When ROAit increases with one percent, TDEit ratio will decrease, in average in 0.001 percent

When ROAit increases with one percent, TANGit ratio willdecrease, in average in 0.118 percent

When ROAit increases with one percent,TDAit   ratio will increase, in average in 0.064 percent

When ROAit increases with one percent, Sizeit ratio will decrease, in average in 0.01 percent

When ROAit increases with one percent, CATit ratio will increase, in average in 0.003 percent

When ROAit increases with one percent, FAT it ratio will increase, in average in 0.021 percent

When ROAit increases with one percent, TAT it ratio will decrease, in average in 0.004 percent

When ROAit increases with one percent, TEAit ratio will increase, in average in 0.089percent

When ROAit increases with one percent, LIQit ratio will decrease, in average in 0.015 percent

Model -2

ROE = 2.37 + -0.393 STDAit +-0.069TDEit +0.24TANGit +0.406TDAit+ -0.139 Sizeit + -0.043 CATit + -0.177FATit +0.059TATit + -0.565TEAit +-0.326LIQ + ε

The interpretations of the simple linear regressions, with FEM, are the following:

When ROEit increases with one percent, STDAit ratio will decrease, in average in 0.393 percent

When ROEit increases with one percent, TDEit ratio will decrease, in average in 0.069percent

When ROEit increases with one percent, TANGit ratio willincrease, in average in 0.24 percent

When ROEit increases with one percent,TDAit ratio will increase, in average in 0.406 percent

When ROEit increases with one percent, Sizeit ratio will decrease, in average in 0.406 percent

When ROEit increases with one percent, CATit ratio will decrease, in average in 0.043 percent

When ROEit increases with one percent, FAT it ratio will decrease, in average in 0.177 percent

When ROEit increases with one percent, TAT it ratio will increase in average in 0.059 percent

When ROEit increases with one percent, TEAit ratio will decrease in average in 0.565 percent

When ROEit increases with one percent, LIQit ratio will decrease in average in 0.326percent

Whereby;

- Y1= COOP financial performance measured by ROA
- Y2= COOP financial performance measured by ROE
- B0= the constant term or the intercept variables 1 to 10. β1, β2, β3, β4, β5, β6, β7, β8, β9 & β10 are the Regression coefficients
- STLA= Short Term Debt to Asset
- TDA= Total debt to asset
- TDE= Total Leverage to Equity
- TEA= Total equity to asset

- Size= Size of the firm
- TANG= Asset tangibility
- CAT= Current Asset Turnover
- FAT= Fixed Asset Turnover
- TAT= Total Asset Turnover
- LIQ= Liquidity

3. Hypothesis testing

Hypothesis	ROA		ROE	
	P-value	**Decision**	**P-value**	**Decision**
H1: There is a significant relationship between Leverage and firm performance	STDA(0.028)	Accepted	STDA(0.526)	Rejected
	TDA(0.023)	Accepted	TDA(0.268)	Rejected
	TEA(0.074)	Accepted @7%	TEA(0.483)	Rejected
	TDE(0.477)	Rejected	TDE(0.000)	Accepted
H2: There is a significant relationship between size and firm performance	0.833	Rejected	0.816	Rejected
H3: There is a significant relationship between Asset utilization and firm performance	CAT(0.454)	Rejected	CAT(0.478)	Rejected
	FAT(0.034)	Accepted	FAT(0.141)	Rejected
	TAT(0.505)	Rejected	TAT(0.399)	Rejected
H4: There is a significant relationship between Asset tangibility and firm performance	0.424	Rejected	0.905	Rejected
H5: There is a significant relationship between liquidity and firm performance	0.167	Rejected	0.028	Accepted

IV. Discussions

The result of the profitability of the cooperatives measured with return on asset indicated that short term debt to asset has positively significant relationship, total debt to equity has insignificant relationship, total debt to asset has positively significant relationship& total equity to asset has positively significant relationship with ROA. This finding matches with the firms of Latin America, Jordan, Nigeria,

Malaysia, Turkey, Tanzania &Ethiopia. But, mixed results have been found in few variables [53]. Likewise, size has negatively significant relationship. The finding of the study consistent to the Nigeria & Indiafirms (Luqman, 2017;Yameen, Farhan, & Tabash,2019). Asset tangibility has insignificant relationship. The finding matches to the Turkish firms (İltas & Demirgunes,2020). Asset utilization efficiency current asset turnover has insignificant relationship, fixed asset turnover has positively significant relationship &total asset turnover has insignificant relationship. The finding matches with the Nigerian firms. But, it has been found out mixed result in few variables (Akinleye & Olufemi Dadepo,2019)& liquidity has insignificant relationship with the ROA [54].

Likewise, the profitability measured with return on equity result shows that short term debt to asset has insignificant relationship, total debt to equity has negatively significant relationship, total debt to asset has insignificant relationship & total equity to asset has insignificant relationship with ROE. The finding matches to the Asian, Jordan, Vietnam, Turkey, Tanzania, Nigeria, Latin America and United Kingdom [55]. But, it has been found mixed results in few variables [53]. Furthermore, the empirical finding is in line with the pecking order theory that the higher the profitability of the firm, the lower the debt ratio since profitable firms used less debt. since they have sufficient retained earnings (Booth et al., 2001). Also, Asset tangibility has insignificant relationship [56]. This finding is matches with the Turkish firm (İltas & Demirgunes, 2020). Size has insignificant relationship. This finding concedes with Indian &Nigerian firm [57]. Asset utilization efficiency (current asset turnover, fixed asset turnover &total asset turnover has insignificant relationship and liquidity has negatively significant relationship with the ROE. The result concedes with Nigerian firms. But, mixed results have been found in few variables [58].

Conclusions

Over the period of the 2013-2020, the cooperative firms finance their business by an average using the long term debt. Overall result confirms that they are in highly riskier condition especially the proportion of their debt to equity. The debt burden of the cooperatives is alarming since the higher proportion of the debt may result the bankruptcy of the businesses. Specifically, based on the above model 1, the profitability measured using ROA, the cooperatives capital structures STDA, TDA& TEA has positively significant relationship with profitability. The empirical result supports the Modigliani and Miller (1963)revised capital structure trade off theory; the value of the firm should increase with higher debt ratios since interest expenses are tax deductible, and the value of the firm should increase with higher debt ratios. Likewise, asset utilization efficiency fixed asset turnover has positively significant relationship.

This confirms that the cooperatives should keep the balance between fixed asset & current asset. On another hand, the profitability measured using ROE (model 2), TDE has negatively significant relationship with ROE. The empirical results supports the pecking order theory that the higher the profitability of the firm, the lower the debt ratio since profitable firms used less debt since they have sufficient retained earnings. Thus, the study recommends the management of the cooperative firms should take adequate corrective measure to pay back their long term debt by designing the strategies of the capital structure in relation to the debt burden of particular firms to improve their equity with the proportion of their debt. Additionally, the cooperatives should finance their business using short term debt by designing the suitable strategies of the effective use of their credit in shortest time as soon as possible. Likewise, the cooperatives should keep the balance

between fixed and current asset. Hence, the government policy makers should support cooperatives in designing the debt policy of the firms.

Declaration

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