

## The Effect of Capital Structure on Credit Cooperative's Performance in Malaysia

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**Abstract:** This study aimed to examine the relationship of capital structure on credit cooperative performance in Malaysia. This study would like to address the following issues: 1) Do capital structure affect performance? 2) Does tangibility and cooperative size affect performance? Credit cooperative performance is measured using return on asset (ROA) and return on equity (ROE). This study employs a panel data technique to investigate the relationship of capital structure, tangibility and cooperative size to the most prominent credit cooperative performance for the years 2010-2014. The findings of this study showed that capital structure have a significant positive impact on credit cooperative performance. This study also indicated that cooperative performance and tangibility is negatively related, whereas cooperative size has insignificant effect on performance.

**Key words:** Capital structure • Cooperative's performance • Malaysia

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### INTRODUCTION

The seminal discourse on capital structure has been discussed by many studies but there is no generally accepted conclusion regarding the effect of capital structure on firm performance. Modigliani and Miller [1] stipulated that capital structure and choice in financing decision does not affect firm performance. However, Miller [2], Brennan and Schwart [3] did mention that capital structure and firm performance are related. The importance of capital structure is often related to the trade-off between costs of debt and equity [4] and the effect of debt to Asian economic crisis which is detrimental to firm performance [5,6]. This signifies the importance of an optimal capital structure in relation to a firm's value.

Simultaneously, the firm's manager has to ensure homogenous decisions that absolutely do not contribute to financial distress and bankruptcy. Firm managers who are able to identify and evaluate optimal capital structure would affect cost of financing and reduce its likelihood of default. A review of recent literature pertaining to cooperative capital structure

highlighted that managers have a positive influence in determining capital structure of Wine Cooperative in Portugal [7]. Cooperatives are 'equity-bound' organizations which largely rely on members fees as internal capital. Therefore, cooperatives are expected to be more leveraged than proprietary firms [8]. However, previous studies showed that cooperatives leverage is not significantly different from comparable firms in similar industries [9]. A precise evaluation on capital structure and dividend to financial performance is not only important to proprietary firms but also relevant to cooperatives especially in attracting the general public who are interested to join the cooperatives, informing cooperatives members and to guide policy makers. Yet the analysis and evaluation of capital structure to credit cooperatives is less as compared to listed companies in Malaysia. The issue of optimal capital structure in cooperatives is more important than listed companies because the main source of cooperatives capital is from the members.

In Malaysia, the cooperative movement continued to grow to 7215 cooperatives in 2009 compared to only 9 cooperatives in 1922. The number of cooperatives has

increased at an average rate of 9.4%, 4.7% of membership and share capital of 8.2%, asset of 20.8% and a gain of 17% per year. The number of cooperatives has continuously increased to 11, 871 in 2014, with total assets of RM116 billion. Malaysian cooperatives comprise a variety of clusters which include bank, credit, consumer, agriculture, housing, transportation, industrial and service. The credit cooperatives represent the second highest in total asset of RM12 million and number of members of 1.4 billion. The lending policy of credit cooperatives could guide and force these cooperatives to have optimal capital structure to ensure stability in its operations and able to generate profits from the loan given to members.

The purpose of this study is to examine the effect of capital structure, tangibility and cooperative size on cooperative performance. More clearly, we first assess the direct effect of capital structure, tangibility and cooperative size on cooperatives performance. Then we assess which component of capital structure has more effect on cooperatives performance. The structural characteristic includes cooperatives' assets size and tangibility. To the best of author's knowledge, this study is the first attempt to investigate the empirical evidence on how the capital structure influence the credit cooperatives performance in Malaysia.

The remainder of this study is organized as follows. The next section discusses the literature review. Section 3 discusses the sources of data and methodology. Section 4 reports and discusses the finding of this study. Section 4 provides the conclusion.

**Literature Review:** Since the seminal paper of Modigliani and Miller [1], the theory of capital structure and its effect on firm performance has been investigated extensively. For instance, Jensen and Meckling [4] argued that the use of capital structure can influence firm performance. Moreover the use of leverage can reduce moral hazard problems of managers, thus reduce the agency cost. Apparently the issue of capital structure is still unresolved. Some studies have argued that debt has a positive impact to firm performance; other studies found that debt has a negative impact to firm performance.

Therefore, the use of leverage in capital structure can mitigate agency cost due to conflict of interest between managers and shareholders [10], spending behavior of managers that affect cash flow [11], as well as managers not acting according to the best interest of shareholders [4]. Thus, misaligned interest of both managers and

shareholders will cause firms to have more debt than their needs in capital structure which could lead to bankruptcy [12, 10]. In a study from industrial, healthcare and energy sector in U.S. Securities Exchange Commission by Cole *et al.* [13] found that capital structure has a negative relationship with return on assets and operating return, suggesting that firms seek alternative financing, as they would sacrifice potential performance by financing with debt. Additionally, the study found that capital structure had no relationship with stock price in all three sectors, suggesting that firms wanting to finance with debt can do so without sacrificing future stock market performance. Similarly, Chadha and Sharma [14], using the data of listed Indian manufacturing companies on Bombay Stock Exchange also confirmed negative relationship between leverage and return on equity. Their result further suggested that size, age, tangibility, sales growth, asset turnover and ownership structure are significant determinants of a firm's financial performance. Mohamad and Abdullah [15] examined the impact of capital structure on companies listed in Bursa Malaysia. Their result suggested that debt to total assets ratio has a negative significant relationship to performance, measured by return on assets, return on equity and return on capital. Zeitun and Tian [16] investigated the relationship between the structure and performance of a set of Jordan firms and reported that debt level is negatively related to both accounting and market measure performance.

Alternatively, voluminous literature provides an evidence of positive relationship between debt and firm performance. A study of U.S. manufacturing firms found that debt financing accords efficiency due to less constraint by debt holders [17]. In a recent study, the review of literature that support a positive relationship between capital structure and performance includes Akinyomi [18], Saeed *et al.* [19], as well as David and Olorunfemi [20]. Akinyomi [18], using the data of Nigerian manufacturing companies, reported that capital structure is significantly positive in relation to return on asset and return on equity. Similar results are reported by Abu and Abdussalam [21] who found evidence of positive relation between capital structure and performance of Jordan listed firms. Furthermore, there are other factors that may influence firm performance. Most studies use firm asset level, growth, tangibility, tax rate and ownership structure along with capital structure ratios to examine the relationship with firm performance. This study will consider factors such as firm asset level, tangibility and growth as control variables.

Other than that, capital structure and equity may also increase risk of agency cost such as the organization's failure to service its debt (risk of default) in efforts to seek for capital, or failure to gain sufficient return on the investment made (underinvestment) [22]. In this situation, debt will have negative effect on the value of the firm. Whereas Jensen's [23] 'theory of free cash flow' premised an idea that high debt can be used to reduce the risk of managers disgoring the cash and then debt will have positive effect on the value of the firm. Myers [22] and Jensen [14] had postulated that debt will reduce unprofitable investment undertaken by the managers but at the same time will reduce the profit income from the investment that should have been done.

Cooperative, on the other hand, is deemed as bound or limited by equity since the asset ownership is limited. Therefore, cooperative has to depend more on debt financing compared to STA [9, 24]. A large amount of debt will increase the risk of business failure [25], financial hardship if the debt cannot be serviced as well as tarnishing the firm's reputation and giving indication that the firm is experiencing poor or negative financial performance [26]. However, debt that is used to generate assets, firm and income growth, will increase the profitability performance of the organization [23].

Russo *et al.* [27] had studied the effect of capital structure decision by managers in 521 agriculture cooperatives in Italy. They found that 48% of the cooperatives had showed a reduction in ratio of equity to total asset compared to investor-owned companies. Financial constraints had caused inefficiencies in the cooperatives, increase in operation cost and failure to improve their financial performance. Russo *et al.* [27] stressed that most cooperative managers in Italy receive a fixed salary, capital structure decision was made such as to avoid risk and there were less focus on improving performance. According to the agency theory, which is the principal and agent model, the decision of cooperative managers (agent) do not side with principal (cooperative members) when the cooperative members don't control or get involved in the decision-making process of the cooperative management.

Financial performance in ratio form is measured from the aspect of gaining maximum profit, which is maximum profit over asset or equity as a result of effective firm operation. The financial performance indicator can be influenced by the objective of the firm. For example, most of credit cooperative in Malaysia are not listed in Bursa

Malaysia, therefore the accounting measures are useful in the evaluation of cooperative performance. The most commonly used financial performance measure by many researchers are return on assets (ROA) and return on equity (ROE) [16,18,19,27].

In summary, findings from these studies are mixed and not consistent. In addition, the empirical evidence of capital structure in relation to cooperative in Malaysia remains unclear whether debt is good or bad for this democratic organization. Thus, further investigation to determine the systematic relationship between capital structure and cooperative performance is necessitated by the need of empirical evidence in the context of Malaysian cooperatives.

#### Data, variable and Methodology

**Data:** The data used in this study comes from Suruhanjaya Koperasi Malaysia that acts as a regulator to Malaysian cooperatives. The sample consists of 167 selected best credit cooperative for year of 2010-2014.

**Empirical Model:** To capture the relationship between debt and cooperative performance, the regression model used is as follows:

$$ROA_{it} = \beta_0 + \beta_1 DEBT_{it} + \beta_2 ETA_{it} + \beta_3 TAN_{it} + \beta_4 LnSIZE_{it} + u_{it} \quad (1)$$

$$ROE_{it} = \beta_0 + \beta_1 DEBT_{it} + \beta_2 ETA_{it} + \beta_3 TAN_{it} + \beta_4 LnSIZE_{it} + u_{it} \quad (2)$$

where ROA is the return on assets, ROE is the return on equity, DEBT is leverage, ETA is equity to total assets, LnSIZE is cooperative assets level, TAN is the cooperative tangibility and subscripts *i* and *t* index are cooperative and time, respectively. In addition, *u* represents the error term.

This study applied regressions using panel data estimators to examine the relation of cooperative financial performance to debt level and other control variables. Breusch-Pagan LM test and Hausman test were conducted to choose the model between OLS and random effect as well as between random effect and fixed effect. This test is translated into the following hypothesis:

*H<sub>0</sub>*: Cov ( $\lambda_{it}$ ,  $X_{it}$ ) = 0 (no correlation between the regressors and individual effects), accept RE

$H_A: Cov(\lambda_{it}, X_{it}) = 0$  (correlation between the regressors and individual effects), accept FE.

Table 1: Breusch-Pagan LM test and Hausman test for model 1 - ROA

Estimation Model	Chi-Sq	Probability	Accepted Model
OLS and Random Effect	88.31	0.000	Random Effect
Fixed Effect and Random Effect	2.14	0.710	Random Effect

Table 2: Breusch-Pagan LM test and Hausman test for model 2 - ROE

Estimation Model	Chi-Sq	Probability	Accepted Model
OLS and Random Effect	111.40	0.000	Random Effect
Fixed Effect and Random Effect	17.8	0.014	Fixed Effect

Table 1 reports the results of Hausman test result for ROA model where the null hypothesis (p-value > 0.05) is accepted. Table 2 report the Hausman test for ROE model where the null hypothesis (p-value < 0.05) is rejected. Thus, we accepted the random effect model for ROA and fixed effect model for ROE.

**Variables:** The selections of variables used in this study are largely guided by existing literature and the availability of data. Based on the availability of data, two accounting-based measures of firm performance were used as dependent variables which are return on asset (ROA) and return on equity (ROE) [18,19,20,28] The key explanatory variables include total debt ratio measured by total debt to total assets [13, 28] and equity to total asset ratio [29]. We allowed for the possibility that debt can be both positive and negative effect on firm performance. In addition to key explanatory variables, this study used some control variables that may affect cooperative performance, such as total asset to represent cooperative size and asset tangibility [28, 16]. Cooperative size is measured by the log of total assets of the cooperative. We expect the correlation of cooperative size on performance as likely to be positive as larger cooperatives are expected to use better machinery and better diversification in business operations. Tangibility was used as a proxy for asset structure, as measured by net fixed assets to total assets. Tangibility variables are more likely to influence firm performance if the firm has high fraction of tangible assets which can be easily monitored and can provide good collateral and thus can mitigate agency cost [30]. Conversely, a firm with high fraction of intangible assets indicates long term growth opportunities [16,31].

Table 3: Variables definition and measures

ROA	Return on assets is measured by net profit to total assets of each financial year from 2010-2014.
ROE	Return on equity is measured by net profit to total equity of each financial year from 2010-2014.
DEBT	Debt is measured by total long term debt to total assets of each financial year from 2010-2012.
LnSIZE	Natural log of cooperative total assets at the end of each financial year from 2010-2012.
TAN	Tangibility is measured by fixed tangible assets to total assets of cooperative of each financial year from 2010-2012.

Table 4: Descriptive statistics

Variable	Mean	Min	Max	Standard deviation
ROA	0.069	0.009	0.432	0.040
ROE	0.236	0.010	2.201	0.328
DEBT	0.197	0.038	2.680	0.223
ETA	0.548	0.040	1.347	0.242
TAN	0.088	0.005	0.460	0.092
LnSIZE	17.609	14.008	21.599	1.397

Note: Sample of 167, Observation, 2010-2014

Table 5: Correlation matrices and variation inflation factors (VIF)

	ROA	ROE	DEBT	ETA	TAN	LnSIZE	VIF
ROA	1						
ROE	0.312	1					
DEBT	0.332	0.144	1				1.10
ETA	-0.019	-0.612	-0.087	1			1.01
TAN	-0.006	0.068	0.185	-0.079	1	0	1.12
LnSIZE	-0.035	-0.043	0.174	0.047	-0.229	1	1.11

## Empirical Results

### Descriptive Statistic and Correlation of Variables:

Table 4 presents the summarized statistics for variables used in this study. The average return on assets and return on equity is 6.86% and 23.58% respectively. It shows that the credit cooperative in this study have a low performance. The average debt is 19.67%, which indicates that debt is higher than return on assets performance. The maximum for tangibility is 46.02%.

Table 5 shows the correlation matrixes between all variables along with variance inflation factors (VIF). The VIF values affirm the absence of multicollinearity among the variables considered since the values are well within the acceptable limits (VIF is <10 indicate no multicollinearity [32]. The result shows that there is a positive relationship between debt and tangibility, as well as between debt and cooperative size. This signifies that larger cooperatives tend to have more debt than smaller cooperatives.

**Regression Results:** Table 6 and Table 7 present the results of regression to test the relationship between cooperative capital structure and profitability, measured

Table 6: Regression results of capital structure and performance measured by ROA

Explanatory variables	Coefficient	t-value	Probability
DEBT	0.092	10.45***	0.000
ETA	0.014	2.92**	0.004
TAN	-0.060	-2.65**	0.008
LnSIZE	-0.005	-1.29	0.197
R <sup>2</sup>	0.416		
Wald test	121.45		
P-value	0.000		

Notes: \*\*\*Significant at 1% level, \*\*Significant at 10%, \*Significant at 5%

Table 7: Regression results of capital structure and performance measured by ROE

Explanatory variables	Coefficient	t-value	Probability
DEBT	0.623	5.39*	0.000
ETA	0.064	-13.92***	0.000
TAN	0.059	0.20	0.845
LnSIZE	-0.011	-0.14	0.891
R <sup>2</sup>	0.587		
F-test	54.09		
P-value	0.000		

Notes: \*\*\*Significant at 1% level, \*\*Significant at 10%, \*Significant at 5%

by ROA and ROE. According to these tables, the result indicates a significant positive relationship between debt and profitability. These results show that higher level of debt lead to increased ROA and ROE. These results are consistent with the finding of previous studies such as Grossman and Hart [12], Akinyomi [18] and Saeed *et al.* [19]. The coefficient level indicates that credit cooperative in this study used more debt than equity as their source of capital. This suggests that credit cooperative are taking on more debt to generate assets and growth [9,23,24]. Thus it supports theoretical prediction that debt is important for firm performance with less growth opportunities [11]. Credit cooperative tangibility is found to be negatively related to ROA, suggesting that cooperatives have long term growth opportunity. However, tangibility are found to be insignificant and positively related to ROE. Cooperative size is found to be insignificant and negatively related to both ROA and ROE. This signify that the sampled cooperative were not able to utilize the total assets to impact positively on their financial performance.

### CONCLUSION

This study examined the effect of capital structure in determining cooperative performance. Although many contributions have been made in identifying the relationship between capital structure and performance, this paper bridges the gap in providing the empirical evidence forced it cooperative in Malaysia. Based on

available panel dataset of credit cooperative in Malaysia and using two accounting-based measures of financial performance which are ROA and ROE, the results indicate that capital structure positively impact performance. As for control variable, tangibility is negatively related, whereas cooperative size is insignificant related to performance. The result can contribute to policy makers and cooperative by determining how cooperative performance in Malaysia is affected by capital structure. Thus cooperative would achieve the most optimal capital structure if the mix of debt-equity is optimized to maximize return to members rather than if more debt is used to fund current assets or pay dividends. Achieving an optimal capital structure would support cooperative to be more competitive, able to survive during economic difficulty and experience stable future growth. For future research, it will be of interest to further improve by studying other control variables, as well as doing the analysis for different cooperative industries in Malaysia.

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