UNLOCKING COOPERATIVE POTENTIAL: A STUDY ON CAPITAL STRUCTURES AND BUSINESS PERFORMANCE

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Abstract: Cooperatives play an important role in the Indonesian economy, but many cooperatives face challenges in improving their business performance. Optimal capital structure is believed to influence the success of cooperatives, but few studies have examined the short-term and long-term relationships between internal capital, external capital, and business volume on cooperative performance. This study aims to identify the effect of capital structure and business volume on cooperative performance, using Residual Income (SHU) or profit as the main indicator of success. The method used is Autoregressive Distributed Lag (ARDL) to analyze annual data of cooperatives in Indonesia from 2000 to 2023. The results show that internal capital and business volume significantly positively affect profit, while external capital only has an effect in the long run. The implications of these findings highlight the importance of a balance between internal and external capital as well as an increase in business volume to promote cooperative success. This study also reveals limitations related to data representation that only cover cooperatives with available financial statements and periods. Therefore, further research involving broader data and additional variables is needed to deepen the understanding of the factors affecting cooperative performance.

Keywords: Cooperative, Modal structures, Profit, Business volume, ARDL

INTRODUCTION

Cooperatives have a strategic role in strengthening the community's economy, especially in the micro, small, and medium sectors (Agil Dzikrullah & Chasanah, 2024). As entities based on the principles of solidarity and economic democracy, cooperatives are an important tool to support inclusive growth, reduce social inequality, and improve members' welfare. Based on data from the

International Cooperative Alliance (ICA), cooperatives globally have created jobs for more than 280 million people, or about 10% of the world's total working population(ICA, 2024). In Indonesia, cooperatives contribute to domestic economic growth with the number of members increasing every year (Alam et al., 2024). However, the contribution of cooperatives to the national Gross Domestic Product (GDP) is still relatively small compared to their potential (Kementrian Koperasi dan UMKM Republik Indonesia, 2024)

Cooperatives are also able to reduce classic problems in a country (Ningsih et al., 2020; Putri, 2018). Despite these important roles, many cooperatives have not been able to achieve optimal performance levels. One of the reasons is the challenges associated with capital management (Azhari & Kamaruddin, 2021; Mubarok et al., 2019; Mulyadi et al., 2023; Sianipar, 2019). Internal capital, which comes from members' savings, is often insufficient to support cooperative business development, so external capital such as bank loans or other sources of financing is required. In addition, the dynamics of cooperative operations, including business volume, play a significant role in determining the level of cooperative success (Gemina et al., 2021; Hasan & Perkasa, 2023; Khan et al., 2024; Lesmana, 2023; Susanty & Santoso, 2022). With increased competition in the market, cooperatives need to optimize their capital structure and operational performance to survive and thrive. Cooperative business volume is also a factor that is often overlooked in studies of cooperative success. Business volume, which reflects the cooperative's scale and business activities, has great potential to influence how internal and external capital can be optimally utilized (Susanty & Santoso, 2022). In terms of services provided to cooperatives, it is the main key to increase members' loyalty to cooperatives, which will have an impact on increasing the cooperative's internal capital (Hyronimus & Langga, 2022). Indirectly, members are investors who give their capital to cooperatives. The investor's goal is to increase the profits he will earn (Chasanah & Adhi, 2017).

Amidst dynamic changes in the global economy, it is increasingly important to understand how cooperatives can maximize their potential through effective capital management strategies. Previous research has shown that capital structure, both internal and external, has a significant relationship with cooperative success (Alam et al., 2024; Djemma et al., 2023; Gemina et al., 2021; Haidi et al., 2021; Khan et al., 2024; Lesmana, 2023; Pasca, 2021; Rohmansyah & Sudarijati, 2017; Sulistiowati & Kanto, 2022; Susanty & Santoso, 2022). However, all previously conducted studies used multiple regression analysis tools without considering short-term and long-term interactions. This creates a relevant research gap to be explored, especially by using Autoregressive Distributed Lag (ARDL). The advantage of ARDL is that it can estimate long-run relationships in the presence of cointegration. Another advantage of ARDL is that it can be used even if the regression is stationary at level or second or integrated (Pesaran et al., 2001).

This research aims to explore and understand how internal and external capital structures contribute to the long-term and short-term success of cooperatives. Internal capital, which includes member deposits, is a key resource for cooperatives but often faces limitations. On the other hand, external capital, such as loans from financial institutions or assistance from third parties, has the potential to overcome these limitations, although it often comes with challenges such as financial risks and administrative requirements (Mulyadi et al., 2023). Therefore, understanding the role of each type of capital in supporting cooperative performance is an important area of research.

METHODS

This study uses secondary quantitative data obtained from cooperative financial reports and official publications such as cooperative annual reports or data from government agencies related to cooperatives. The data used covers the period from 2000 to 2023 to ensure temporal linkage between the independent variables and the dependent variable.

The dependent variable in this study is Sisa Hasil Usaha (SHU), which reflects the success of cooperatives in generating economic surplus. SHU is measured in monetary units according to the cooperative's financial statements. Operational variables can be seen in Table 1 below:

Table 1. Operational of variables

Variable	Decription	Symbol	Source
Internal capital	Total member deposits recorded in the cooperative's balance sheet, reflecting direct contributions from cooperative members	*Int_cap*	Ministry of Cooperatives of the Republic of Indonesia
External capital	Total external loans or financing received by the cooperative from financial institutions or other external sources	*Ex_cap*	Ministry of Cooperatives of the Republic of Indonesia
Business volume	The total value of sales or operating income generated by the cooperative in one accounting period, used as a proxy for the cooperative's business activities.	*VU*	Ministry of Cooperatives of the Republic of Indonesia
Profit	Total cooperative profit generated by the cooperative in one accounting period	*Prof*	Ministry of Cooperatives of the Republic of Indonesia

The research procedure began with the collection of secondary data from official and valid sources. The collected data were then checked to ensure completeness and accuracy. Thereafter, the data was organized into panel data, given the temporal and cross-entity coverage of cooperatives. The research variables were formulated in the form of regression models using appropriate data analysis techniques to test the dynamic relationships between variables.

Autoregressive Distributed Lag (ARDL) Co-integration Bound Testing was introduced by Pesaran et al (2001). This approach has a number of econometric advantages over other methods. This method can be used if the variables have not been moved. Then, use the optimal number of breaks in the data generation process, or make each variable in the model have a different optimal break length. Third, meaningful and consistent results can be obtained even with a small sample size.

ARDL is used to analyze the short-term and long-term relationships between cooperative success and its determinants, such as equity capital, external capital, and business volume. This method was chosen because of its flexibility in handling data with different levels of stationary and its ability to detect long-term dynamics. An ARDL model was designed to assess the impact of these factors on cooperative success as the dependent variable. The analysis was conducted in two steps. First, we tested the short-run relationship using a lag distribution model, and second, we used cointegration techniques to estimate the long-run relationship. All analyses were conducted using E-Views 12 statistical software.

After determining the data stationarity test to be applied to the data regression model using Augmented Dickey Fuller (ADF), the decision-making rule is based on not rejecting the null hypothesis that there is no random path if all variables from the ordinal level onwards do not exist. Otherwise, the null hypothesis cannot be rejected, thus leading to a stationarity test (Dickey & Fuller, 2012). Then determine the optimal lag to be used in the next phase of the research. According to Pesaran et al. (2001) Lag selection is the second step in the ARDL model. Each variable is tested using a cointegration test before running ARDL. In the model estimation process, short-run and long-run elasticities are estimated using ARDL and ECM models. ARDL testing must be followed by classical assumption testing so that the resulting regression model can be used as a suitable predictive tool. The econometric equation for the model to be used is:

$$Prof_t = \beta_0 + \beta_1 Int\_cap_t + \beta_2 Ex\_cap_t + \beta_3 VU_t + e_t \qquad (1)$$

Where Prof = profit, Int_cap = internal capital, *Ex_cap* = external capital, *VU* = business volume, β_0 = Intercept or Constant, β_1, β_2, β_3 = Regression Coefficient, e_t = Error Term. The ARDL model equation is utilized to ascertain the profit of a cooperative, illustrating a linear relationship among profit, internal capital, external capital, and business volume.

$$\Delta Proft = \alpha_0 + \sum_{i=1}^{n} \alpha 1i \Delta Int\_cap t 1 + \sum_{i=1}^{n} \alpha 2i \Delta Ex\_cap t1 + \sum_{i=1}^{n} \alpha 3i \Delta VU t1 + \beta_1 Int\_cap_{t=1} + \beta_2 Ex\_cap_{t=1} + \beta_3 VU_{t=1}$$
$$(2)$$

where Δ denotes the lag. The coefficients (β_1-β_3) signify the long-run relationship, whereas the coefficients (α_1-α_3) represent the short-run dynamics of the model. The error correction model derived from:

$$\Delta Proft = \alpha_0 + \sum_{i=1}^{n} \alpha 1i \Delta Int\_cap t1 + \sum_{i=1}^{n} \alpha 2i \Delta Ex\_cap t1 + \sum_{i=1}^{n} \alpha 3i \Delta VU t1 + \Upsilon \, ECT_{t=1} + e_t$$
$$(3)$$

where Υ represents the parameter associated with speed adjustment, and ECT denotes the residual derived from the cointegration model as calculated in equation (2).

FINDING AND DISCUSSIONS
Descriptive Statistic
Based on the description shown in the table 2, it is found that the highest cooperative equity capital in 2015 was IDR142.65 trillion, while the lowest was IDR6.82 trillion in 2000. In 2000, all variables ranked the lowest in terms of equity capital, external capital, business volume and SHU of cooperatives. Furthermore, the most cooperative outside capital in 2023 reached IDR149.23 trillion. Finally, 2015 was the highest achievement of cooperative's volume and SHU of IDR17.32 trillion and IDR266.12 trillion.

Table 2. Statistic Descriptif Variabel

	Internal capital (IDR-thousand)	External capital (IDR-thousand)	Business volume (IDR-thousand)	Profit/SHU (IDR-thousand)
Mean	51.259.051,40	54.973.029,07	108.623.372,87	5.677.346,52
Std. Dev	40.314.926,45	41.028.615,09	67.683.277,75	3.950.446,06
Max.	142.650.992,83	149.236.744,32	266.134.619,42	17.320.663,92
Min.	6.816.950,25	12.473.404,16	23.122.224,43	694.502,00

Source: Data processed by eviews 12

Result of Econometric Analysis
Unit Root Test
The first step in estimating ARDL is to examine the stationarity of each variable that we test using Augmented Dickey Fuller (ADF). If the probability value is less than 0.05, then the unit root does not exist.

Table 3. Result of Stationer Test

Variabel	Level		First Difference		Remark
	t-statistic	Prob	t-statistic	Prob	
Int_cap	-1.7218	0.4076	-6.6010	0.000	I(1)
Ex_cap	-0.1517	0.9320	-5.1506	0.004	I(1)
VU	-1.8516	0.3477	-6.9920	0.000	I(1)
SHU	-2.5302	0.1217	-4.8298	0.001	I(1)

Source: Data processed, 2024

Table 3 shows that the variables of internal capital, external capital, business volume, and SHU are not stationary at level but stationary at first difference. Therefore, all variables are free from unit roots. After conducting a stationarity test, the next step is the cointegration test using the Johansen test. This test determines whether the variables are cointegrated. The ARDL model is appropriate if the dependent and independent variables are stationary and not initially cointegrated.

Table 4. Johansen Cointegration Test Results

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE (s)	Eigenvalue	Trace Statistic	0,05 crtitical value	Prob.**
None	0.810061	59.91331	47.85613	0.0025
At Most 1	0.490923	23.37020	29.79707	0.2283
At Most 2	0.319854	8.516748	15.49471	0.4119

Unrestricted Cointegration Rank Test (Trace)				
At Most 3	0.001676	0.036897	3.841465	0.8476
Trace test indicates no cointegration at the 0.05 level				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE (s)	Eigenvalue	Trace Statistic	0,05 crtitical value	Prob.**
None	0.810061	26.54311	27.58434	0.0027
At Most 1	0.490923	14.85345	21.13162	0.2993
At Most 2	0.319854	8.479851	15.26460	0.3320
At Most 3	0.001676	0.036897	3.841465	0.8476
Max-Eigenvalue tets indicates no cointegration at the 0.05 level				

Source: Data processed, 2024

The results presented in Table 4 show that the probability value is greater than 0.05. This indicates that no initial cointegration has occurred. This means that the ARDL model is suitable for this study. After conducting the initial cointegration test with the Johansen test, the cointegration test is continued with the bound cointegration test. The objective is to determine whether cointegration exists in the long run. The criteria are as follows: If the value of the F statistic is greater than the upper bound, then cointegration will occur.

Tabel 5. Bound Test Result

			Bound Crticial Value	
Test Stat.	Values	Significant Level	I (0)	I (1)
F-Statistic	7,852	10%	2,37	3,2
		5%	2,79	3,67
		2,5%	3,15	4,08
		1%	3,69	4,66

Source: Data processed, 2024

Based on the test results in Table 5, it is known that the F-statistic value is greater than the upper bound. Where the value of the F-statistic of 7.852 is greater than the upper bound value at the 1%, 5% and 10% significance levels in order 3.2, 3.67, 4.08 and 4.66. This means that the variables used in the study have a long-term relationship. In other words, internal capital, external capital, business volume, and SHU have long-term cointegration in Indonesia. Furthermore, ARDL testing uses a lag in the testing process. Referring to Table 6 shows that the best lag ARDL model is (1, 3, 2, 3). This means that the cooperative profit variable is on lag 1, the internal capital variable on lag 3, the external capital variable on lag 2, and the business volume on lag 3.

Table 6. Short Term Estimates

Variable	Coefficient	t-stat	P Value
D(int_cap)	0.1381***	8.6204	0.0000
D(int_cap(-1))	0.1810***	9.5093	0.0000
D(int_cap(-2))	0.0965***	4.3464	0.0025
D(ex_cap)	-0.1667***	-8.194	0.0000
D(ex_cap(-1))	0.0464***	2.8382	0.0219
D(VU)	0.0334***	5.2864	0.0007
D(VU(-1))	-0.1142***	-11.232	0.0000
D(VU(-2))	-0.0436***	-3.5503	0.0075
CointEq(-1)	0.7300***	-7.6741	0.0001

Note: ***indicate significant at 1%, **significant at 5%.

Referring to Table 6, it is known the cointEq(-1) value is 0.7300 or in the range of 0 to 1. This indicates that in the short term the model built is valid and has short-term cointegration. Furthermore, the estimation of long-term cointegration can be seen in Table 7 below.

Table 7. Long Term Estimates

Variable	Coefficient	t-stat	P Value
Int_cap	-0.0464	-1.4103	0.1961
Ex_cap	-0.0832**	-2.4229	0.0417
VU	0.1274***	5.0261	0.0010
C	-129517.3	-0.1868	0.8563

Note: ***indicate significant at 1%, **significant at 5%, *significant at 10%

The results of the analysis using the Autoregressive Distributed Lag (ARDL) method provide in-depth insight into the relationship between internal capital, external capital, business volume, and SHU as an indicator of cooperative success. Based on the long- and short-term estimation with ARDL that has been done previously, there are several findings that can be drawn. Based on Tables 6 and 7, internal capital has a significant effect on the remaining results of operations in the short term, but in the long term, it does not affect the SHU of the cooperative. Internal capital, which comes from members' savings, not only provides the basis for financial stability but also reflects members' trust in the cooperative, which in turn strengthens participation and accountability.

This research is in line with Sulistiowati and Kanto (2022), which states that internal capital has no effect in the long term. Likewise, a study conducted by Djemma et al. (2023), found that own capital has no significant effect on the acquisition of the remaining results of cooperative operations. However, several previous studies have revealed that internal capital affects the remaining results of cooperative operations using multiple regression (Haidi et al., 2021; Pasca, 2021; Rohmansyah & Sudarijati, 2017). In contrast, the effect of external capital on SHU shows more complex results. In the short term, external capital contributes positively to the increase in SHU, indicating its role as a catalyst for cooperative business expansion. However, in the long run, this effect tends to decline, which may be due to increasing interest expenses or the risk of dependence on external resources (Haidi et al., 2021; Susanty & Santoso, 2022). These findings support the view that cooperatives should manage external capital carefully to ensure long-term sustainability without compromising financial stability.

Business volume was also found to have a significant positive relationship with SHU in both the short and long term. These results highlight the importance of productive business activities in driving cooperative success. Higher business volume not only reflects operational success but also generates economic surplus that can be allocated back to members in the form of SHU. This finding is in line with previous literature that emphasizes that the sustainability of cooperatives depends on their ability to increase the scale and efficiency of business operations (Khan et al., 2024; Susanty & Santoso, 2022). However, the volume of business has no influence on SHU (Gemina et al., 2021; Rohmansyah & Sudarijati, 2017), because the smaller the volume of cooperative business, the less residual income.

Overall, the findings of this study confirm the importance of cooperatives as economic instruments that can have a broad social impact. However, the success of cooperatives is not only measured by their financial performance, but also by their contribution to social justice, poverty reduction, and the sustainability of inclusive economic development (Ningsih et al., 2020; Putri, 2018; Trisniarti et al., 2022). Policies that support cooperatives should therefore consider the social and ethical impacts of any decisions taken, ensuring that the positive outcomes of cooperatives are not only enjoyed by a few but are felt by all members and communities in a fair and equitable manner.

The results of this study make a significant contribution to the theory of cooperative capital structure and business performance. Classical theories of capital structure often distinguish between internal and external capital, focusing on their impact on the financial stability and sustainability of a business. In the context of cooperatives, these findings enrich our understanding by highlighting the role of internal capital as a more stable source of sustainability than external capital. It also suggests that cooperatives, as community-based entities, need to prioritize internal capital accumulation to avoid over-reliance on external loans, which can add to financial risks. This research strengthens the argument that cooperatives that have a balance between internal and external capital tend to be more resilient to market fluctuations and economic crises.

In addition, results showing a positive relationship between business volume and SHU add to the understanding of the importance of economies of scale in cooperatives. These findings are in line with economic theories that emphasize the relationship between production volume and cost efficiency. In the context of cooperatives, larger business volumes have the potential to reduce fixed costs per unit and increase profitability, ultimately increasing the distribution of SHUs to members. The contribution of this study to the theory of cooperative success lies in the application of a model that considers these variables simultaneously, providing a more holistic picture of the factors that affect cooperative performance.

From a practical point of view, these findings have strong implications for cooperative managers in formulating business policies and strategies. The results of the study emphasized the importance of maintaining a healthy balance between internal and external capital and increasing business volume to maximize SHU. Cooperative managers are expected to use this information to design policies that focus not only on access to external capital but also on strengthening internal capital, both through increased member participation and operational efficiency. In addition, these results underscore the need for business diversification strategies to increase cooperative business volume and, in turn, optimize income and member welfare.

CONCLUSION

This study identifies the relationship between cooperative capital structure and business performance, focusing on the role of internal capital, external capital, and business volume in determining cooperative success. Based on the results of the analysis using the ARDL model, the findings of this study show that a balanced capital structure, i.e., a mix of stable internal capital and well-managed external capital, has a positive influence on cooperative performance. In addition, the volume of business is proven to contribute significantly to increasing the Sisa Hasil Usaha (SHU), which is the main indicator of cooperative success. In a practical context, policies that lead to the strengthening of cooperatives' internal capital and business diversification should be prioritized to improve the financial resilience of cooperatives while ensuring more equitable member welfare. Therefore, another suggestion that can be made is the need to develop policies that facilitate cooperatives in accessing external capital at a more affordable cost, without compromising the basic principles of cooperatives that focus on member welfare. Further research is expected to further optimize the potential of cooperatives as inclusive and sustainable economic institutions that contribute to poverty alleviation and more equitable economic development.

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