

Modeling The Influenced Factors of Remaining Operation Results Using Multiple Linear Regression

Widiya Astuti Alam Sur, Ines Saraswati Machfiroh, Ricky Iskandar

Tanah Laut State Polytechnic, Tanah Laut, Indonesia

Article Info

Article history:

Received : 01-02-2023

Revised : 07-25-2023

Accepted : 10-20-2023

Keywords:

Assets;
Koperasi;
Liabilities;
Multiple Linear Regression;
Net Worth;
Remaining Operation Results.



ABSTRACT

The amount of Remaining Operation Results (ROR) obtained by Koperasi can reflect the health of its financial management. Many economic factors can affect the ROR of Koperasi itself. This study aims to determine the economic factors that significantly influence ROR based on a statistical model of multiple linear regression. The novelty of this research provides new analytical results that compare the most three influential factors based on previous research to show the factors significantly influencing the ROR. The quantitative data used the five years financial statements of Koperasi Sawit Makmur in 2017-2021 consists of 20 data on liabilities, net worth, assets, and ROR of Koperasi Sawit Makmur. The results show that asset variable as an excluded variable that does not affect the ROR of Koperasi with $R^2 = 0,961$. Liabilities and net worth variables can explain 96.1% of ROR, with 3.9% can be explained by assets and other variables not included in the study. Liabilities have a negative and tangible effect, and net worth has a positive and partially real influence on ROR. The factor with the most dominant influence on ROR is net worth, with an influence percentage of 63,80%. The future research is expected to provide an overview of net worth and asset determinants using related statistical methods.

Accredited by Kemenristekdikti, Decree No: 200/M/KPT/2020

DOI: <https://doi.org/10.30812/varian.v7i1.2635>

Corresponding Author:

Widiya Astuti Alam Sur,
Department of Industrial Engineering Technology, Tanah Laut State Polytechnic.
Email: widiyasur@politala.ac.id

Copyright ©2023 The Authors.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



How to Cite:

Sur, W. A. A., Machfiroh, I. S., & Iskandar, R. (2023). Modeling The Influenced Factors of Remaining Operation Results Using Multiple Linear Regression. *Jurnal Varian*, 7(1), 27-36.

This is an open access article under the CC BY-SA license (<https://creativecommons.org/licenses/by-sa/4.0/>)

A. INTRODUCTION

Koperasi has an important role for the Indonesian economy. Until now, Koperasi continue to grow and become a mainstay of the community to turn the wheels of the economy. This is reflected in data from the Kementerian Koperasi dan UKM (Kemenkop UKM) which always increases every year based on the number of active koperas, business volumes, and the number of members (Machfiroh et al., 2022).

Capital or equity is needed to establish Koperasi. The capital is some funds used to carry out Koperasi activities. The capital of Koperasi is also often referred to as net worth. It will be allocated to an asset account or assets in its operational activities. Assets can be interpreted as resources owned by an entity that are managed to produce economic benefits in the future (Kartini, 2020). Apart from assets, other financial elements quite influential in Koperasi are liabilities.

Liabilities in Koperasi are mandatory savings that must be paid by each member with a time limit (Rustiyan and Mustakim, 2018). Another name for liabilities is obligations or debts. Obligations or debts arising from past transactions or activities must be paid in the future within a predetermined period. At the end of the period, all these financial elements will be reported in the financial statement. A financial statement is a report that contains financial information that describes financial performance in a current period. The financial statement will report on Koperasi's financial development, whether Koperasi experiences profits or losses. It will determine how much the Remaining of Operating Results (ROR) are earned. ROR is net income, which will be distributed to the members or used for other purposes based on the policies in the Annual Member Meeting (AMM).

The amount of remaining business profits distributed to cooperative members is an indicator of the health of a cooperative. Therefore, Koperasi needs to know what factors cooperatives need to optimize in order to achieve prosperity for their members. Many factors can influence ROR, including the own capital, net worth, member participation, business expenses, assets, number of members, liabilities, outside capital, and business volume. Based on these factors, there need to be recommendations for cooperatives so that they can optimize factors that can have a positive influence on increasing the remaining results of the cooperative's business.

Previous studies have discussed the factors that positively and significantly affect ROR in Koperasi. The research of (Raidayani et al., 2017) show that capital, number of members, and assets positively and significantly affect the remaining operation results. In addition, (Anindyatama et al., 2019) states that member savings, member loans, and working capital together positively and significantly impact ROR.

The research (Buchari, 2020) shows that the number of members partially has no effect and is not significant on the ROR of Koperasi in the Eastern Region of Indonesia. Business volume partially has a positive and significant effect on the remaining business results of cooperatives in the Eastern part of Indonesia. The number of members and business volume has a simultaneous influence on the remaining business results of cooperatives in Eastern Indonesia. Furthermore, (Sudaryanti, 2017) researched savings and loan cooperatives, where total assets were the most dominant variable influencing ROR. Meanwhile, other variables studied, namely the number of members and external capital, have little effect on remaining business results.

Based on a survey of (Qori and Sadeli, 2021), Koperasi assets positively influence the welfare of members based on the number of remaining operation results obtained by cooperative members. Some of the studies above show the factors that positively and significantly impact the remaining results of operations include capital/net worth, assets, and mandatory savings/ liabilities of members.

Research of (Rahman, 2022) explains that capital and member participation together have a positive and significant effect on remaining business results. The t-test results show that capital and member participation has a significant effect on SHU. The contribution of capital and member participation to the remaining business results is 21.6%.

The difference between this research and the previous research is that the authors tested and proved an influence of assets, liabilities, and net worth on ROR based on the relationships from previous research. The variables used in this research are those with the highest influences on ROR obtained from previous studies. The novelty of this research is that it provides new analytical results that compare the three most influential factors based on previous research to show the factors significantly influencing the ROR. The author also analyzed how profound the influence of each independent variable is on the dependent variable.

This study then shows the effect of these three factors on the remaining results of operations using a multiple linear regression model, a linear regression model with one continuous variable and n (two or more) independent variables as (Muthahharah and Fatwa, 2021) research did before. The multiple linear regression model can show the factors that most significantly influence the remaining operation results. The author conducted the research with a Koperasi Sawit Makmur Pelaihari case study. The results of this study aimed to prove what financial elements have a positive and real influence on ROR to find out how strong the influence of the independent variables is. The contribution of this study is that it can make the right and accurate decisions in managing finances and maximize the acquisition of the remaining results of the operations of Koperasi.

B. RESEARCH METHOD

This research was conducted at Koperasi Sawit Makmur, located at Jalan A. Yani, Tanah Laut Regency, South Kalimantan. The quantitative data used the five years financial statements of Koperasi Sawit Makmur in 2017-2021 consists of 20 data on liabilities, net worth, assets, and ROR of Koperasi Sawit Makmur. Data analysis techniques in this study used descriptive statistical with a multiple regression model analysis. Regression analysis is a statistical technique for estimating the relationship among variables which have reason and result relation (Uyank & Gler, 2013). A multiple regression model uses more than one independent variable (predictor variable). The multiple regression model includes several test methods, including the F-test, t-test, correlation coefficient, coefficient of determination, and others, whose purpose is to answer the proposed hypotheses so the research can obtain appropriate and accurate

research conclusions (Pandis, 2016).

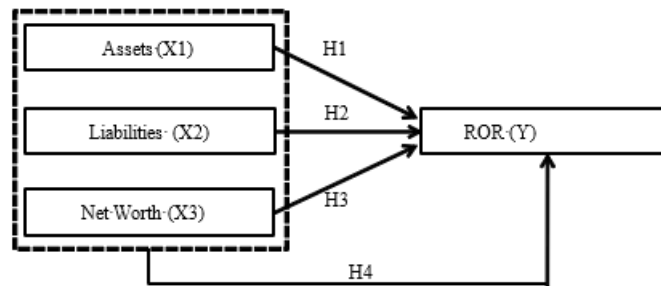


Figure 1. Conceptual Framework of the Research

Based on the conceptual framework, the variables to be tested in this research are divided into two: the independent variable and the dependent variable. The independent variable of this study consists of assets (X1), liabilities (X2), and net worth (X3), while the dependent variable is the rest of the operating results(Y). The research hypotheses in the testing process in this study are as follows:

1. $H_{10} : \beta_1 = 0$, Assets has no positive and tangible effect on the remaining operating results,
 $H_{11} : \beta_1 > 0$, Assets has a positive and tangible effect on the remaining operating results.
2. $H_{20} : \beta_2 = 0$, Liabilities has no positive and tangible effect on the remaining operating results,
 $H_{21} : \beta_2 > 0$, Liabilities has a positive and tangible effect on the remaining operating results.
3. $H_{30} : \beta_3 = 0$, Net worth has no positive and tangible effect on the remaining operating results,
 $H_{31} : \beta_3 > 0$, Net worth has no positive and tangible effect on the remaining operating results,
4. $H_{40} :$ There is no positive and tangible effect of assets, liabilities, and net worth simultaneously on the remaining operating results.
 $H_{41} :$ There is a positive and tangible effect of assets, liabilities, and net worth simultaneously on the remaining operating results.

The testing hypotheses used the following stages, using SPSS for Windows:

1. Pre-condition Test

The pre-condition test used Normality, Homogeneity, Heteroskedasticity, and Multicollinearity test

2. Analysis of the Correlation Coefficient (R)

Analysis of the correlation coefficient aims to determine the strength and weakness of the relationship between the independent variables and the dependent variable. The correlation coefficient value used in this analysis is Pearson’s correlation coefficient. The interpretation of correlation coefficient are described in Table 1 (Sugiyono, 2015).

Table 1. Interpretations of Correlation Coefficient

Correlation Coefficient	Interpretations
0,00-0,199	Very Low Correlation
0,20-0,399	Low Correlation
0,40-0,599	Moderate Correlation
0,60-0,799	Strong Correlation
0,80-1,000	Very Strong Correlation

3. Analysis of Determination Coefficient (R^2)

The coefficient of determination aims to measure the contribution of the independent variable to the dependent variable.

4. Analysis of Multiple Regression Model

Multiple regression model analysis is used to determine the effect of the independent variables on the dependent variable. The multiple regression model in this research is:

$$Y = \alpha + \beta_1x_1 + \beta_2x_1 + \beta_3x_3 + \varepsilon$$

- Y = Dependent Variable ROR
 α = Constant
 x_1, x_2, x_3 = Independent Variables Assets, Liabilities, Net Worth
 $\beta_1, \beta_2, \beta_3$ = Estimated Parameters
 ε = Error

5. T-Test

The partial t-test is to determine the effect of the independent variable on the dependent variable partially (in part). The t-test is performed by comparing the calculated t value with the table t value in the distribution table

6. F-Test

The F-test is used to carry out tests simultaneously between all independent variables on the dependent variable. The F test value can be determined by comparing the calculated F value with the table F value in the F distribution table. Analysis of variance (ANOVA) was used to obtain the F-value in this research

7. Effective and Relative Contributions

The Effective Contribution (EC) measures the contribution of an independent variable to the dependent variable in the regression analysis. The total effective contribution of each independent variable must be equal to the R-square value. The Relative contribution (RC) is a measure that shows how much contribution an independent variable makes to the square of the regression. The total value of RC must be equal to 100% or 1.

C. RESULTS AND DISCUSSION

Based on the data obtained from the Financial Statements of Koperasi Sawit Makmur for 2017-2021, a summary of the cooperative's financial data is obtained as Table 2. The table presents data about Assets, Liabilities, Net Worth and ROR from 2017 to 2021. From the summary of financial statements data in Table 2, a Pre Condition Test was carried out.

Table 2. Summary of Financial Statements of Koperasi Sawit Makmur

Years	Assets	Liabilities	Net Worth	ROR
2017	Rp 980.221.337	Rp 269.886.416	Rp 710.334.920	Rp 203.917.060
2018	Rp 1.145.224.754	Rp 312.411.160	Rp 832.813.585	Rp 231.578.754
2019	Rp 1.219.580.318	Rp 350.033.882	Rp 869.546.436	Rp 157.959.041
2020	Rp 1.069.761.596	Rp 362.149.294	Rp 707.612.302	(Rp 91.666.742)
2021	Rp 1.431.184.973	Rp 325.649.294	Rp 1.105.535.679	Rp 373.203.377

Source: Koperasi Sawit Makmur

1. Pre-Condition Test

a. Results of Normality Test

Based on the Kolmogorov-Smirnov test results of SPSS in Table 3, the Asymp value was obtained. $Sig.(2 - tailed) = 0.200 >$ significance level value $\alpha = 0.05$, which means that the data used is normally distributed. Table 3 presents the results of the normality test using Kolmogorov Smirnov Test

Table 3. Results of Kolmogorov-Smirnov Test

		Unstandardized Residual
N		5
Normal Parameters ^{a, b}	Mean	,00
	Std. Deviation	33,511,044,107
Test Statistic		,247
Asymp. Sig. (2-tailed)		,200

b. Results of Homogeneity Test

The homogeneity test value can be known by comparing the value of Sig., based on the mean with a significance level value of $\alpha = 0.05$. If the significance value $>$ the significance level value, the data used is homogeneous, and vice versa. Based on the test results, Sig's value is known. Based on Test of Homogeneity of Table 4, the value of Sig based on mean $= 0.317 > \alpha = 0.05$ so it can be concluded that the data used is homogeneous.

Table 4. Test of Homogeneity of Variances Results

		Levene Statistic	df1	df2	Sig.
Variabel	Based on Mean	1,274	3	16	,317
	Based on Median	,993	3	16	,421
	Based on Median and With adjusted off	,993	3	12,051	,429
	Based on trimmed mean	1,218	3	16	,335

c. Results of Heteroscedasticity Test

Based on the results of the heteroscedasticity test in Table 5, it can be seen that assets variables are the excluded variables. Excluded variables can occur in research variables with very little influence compared to other variables, so if these variables are excluded from the study, it will improve the research model. Because assets are the excluded variables, the next test will only use two independent variables: liabilities (X_2) and net worth (X_3).

Table 5. Results of Excluded Variables

Model	Beta in	t	Sig.	Partial Correlation	Collinearity Statistic	Tolerance
1	Assets	-b	-	-		,000

Based on the results of heteroscedasticity test of Table 5, the Assets variable is the exclude variable from the research. There is no partial colleration, and colinearity statistic between the data of assets and other variables in this research. The heteroscedasticity test is obtained with using 2 variables. Based in the heteroscedasticity test of Table 6, the results obtained Sig. of the liability variable is $0.148 > 0.05$, which means there are no symptoms of heteroscedasticity in the liability variable, and the Sig. of the net worth variable is $0.914 > 0.05$, which means that there are also no symptoms of heteroscedasticity in the net worth variable.

Table 6. Results of Heteroscedasticity Test

Model	Beta	t	Sig.
1	(Constant)	-1,385	,300
	Kewajiban	,849	,148
	Kekayaan.Bersih	,023	,914

d. Results of Multicollinearity Test

The results of the multicollinearity test can be seen from the VIF (Variance Inflation Factor) value. If the VIF value is < 10.00 , then multicollinearity does not occur in the regression analysis and vice versa. Based on the results of the multicollinearity test, it is known that the asset variable is not included in the test, indicating that the asset variable has been eliminated in this test. The VIF value of each independent variable is obtained by the VIF value of liabilities and net assets, respectively 1.020 where $1.020 < 10.00$, which means that there is no multicollinearity in the liabilities and net worth variables.

2. Analysis of the Correlation Coefficient (R)

In the analysis of the correlation coefficient, the status of the asset variable as an excluded variable does not affect the correlation test, so the results for the correlation coefficient of the fixed assets variable are there. Based on the test results in Table 7, then by interpreting the Pearson Correlation value, it can be described as follows:

1. It is known that the Pearson Correlation value between assets (X_1) and the remaining operation results (Y) is 0.610 , which means there is a strong positive correlation between assets and the remaining operation results.
2. It is known that the Pearson Correlation value between liabilities (X_2) and the remaining operation results (Y) is -0.512 , which means there is a moderate negative correlation between liabilities and operating results.
3. It is known that the Pearson Correlation between net worth (X_3) and the remaining operation results (Y) is 0.756 , which means there is a strong positive correlation between net worth and the remaining results of operations

Table 7. Pearson Correlation Coefficient

Variabel	Pearson Correlation Value to ROR
Assets	0,610
Liabilities	-0,512
Net Worth	0,756

3. Analysis of Determination Coefficient (R^2)

Based on the test results for the coefficient of determination in Table 8, it is known that the R^2 value is 0.961. Liabilities and net worth variables can explain 96.1% of the remaining operation result variable. In comparison, the remaining 3.9% can be explained by assets and other variables not included in the study.

Table 8. Results of Determination Coefficient Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,980	,961	,922	47391773,06

4. Analysis of Multiple Regression Model

Table 9. Results of Multiple Regression Mode

Variabel	Koefisien Regresi	t_{value}	Sig.
Constant	389999249,7		
Liabilities	-2,957	-4,456	0,047
Net.Worth	0,879	5,973	0,027
F_{values}	24,540		
R Square	0,961		

Based on the data obtained in Table 9, a multiple regression equation can be made, namely:

1. The Intercept obtained is 389.999.249.7, indicating that if there were no liabilities and net worth variables, the overall average ROR of Koperasi Sawit Makmur would be Rp 389.999.249,7
2. Liabilities (X_2) are obtained for (-2957) (negative value), meaning that every increase in liabilities of Rp 1 will cause a decrease in the value of ROR Rp 2957. Liability itself is something that must be paid, so the higher the value of the obligation, the higher the value that must be paid.
3. Net worth (X_3) is obtained by 0,879 (positive value), meaning that every time there is an increase in Rp. 1, - it will cause an increase in the ROR value of Rp. 0,879

5. Results of T-Test

The results of the t-test for each variable studied can be done by comparing the value of t-value with t-table with the stipulation that if the value of $t_{value} > t_{table}$, then H_0 is rejected and H_1 is accepted, which means that there is an influence between the independent variable on the dependent variable, whereas if $t_{value} < t_{table}$ then H_0 is accepted and H_1 is rejected, which means there is no influence between the independent variables on the dependent variable. The following formula was used to find out the t-table value:

$$t_{tabel} = (\alpha; n - k)$$

$$t_{tabel} = (0, 05; 5 - 2)$$

$$t_{tabel} = (0, 05; 3)$$

$$t_{tabel} = 2, 353$$

Table 10. Results of t-Test

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t
		B	Std. Error		
1	(Constant)	389999249,7	233993446,5		1,667
	Kewajiban	-2,957	,664	-,630	-4,456
	Kekayaan.Bersih	,879	,147	,844	5,973

Based on the comparison of the t_{value} with the t_{table} value of Table 10, it can be explained the effect of the assets and net worth variables on the remaining operating results partially as follows:

1. It is known that the value of t_{value} liabilities = $-4.456 < t_{tabel} = 2.353$ so that H_0 is accepted and H_1 is rejected, which means that there is no positive and tangible effect of liabilities on the remaining business results.
2. It is known that the value of t_{value} net worth = $5.973 > t_{tabel} = 2.353$, so H_0 is rejected and H_1 is accepted, which means there is a positive and tangible effect of liabilities on the remaining business results.

a. Results of F-Test

The F-test value is obtained by comparing the F_{value} of the Anova table with the F_{tabel} . The F-test criteria are if $F_{value} > F_{tabel}$, then H_0 is rejected, and H_1 is accepted, which means that there is an effect of the independent variables simultaneously on the dependent variable, whereas if $F_{value} < F_{tabel}$, then H_0 is accepted and H_1 is rejected, which means there is no effect from the independent variables simultaneously on the dependent variable. The following formula was used to find out the value of F_{tabel} .

$$F_{tabel} = (k - 1; n - k)$$

$$F_{tabel} = (2 - 1; 5 - 2)$$

$$F_{tabel} = (1; 3)$$

$$F_{tabel} = 10, 10$$

Table 11. Results of F-Test

Model		Sum of Square	df	Mean Square	F	Sig.
1	Regression	110231515667037712,0	2	55115757833518856,0	24,540	,039
	Residual	4,491,960,308,452,740,000	2	2,245,980,154,226,370,000		
	Total	114723475975490448,0	4			

Based on a comparison of the value of F_{values} with F_{tabel} in Table 11, the value of $F_{values} = 24.540 > F_{tabel} = 10.10$ so that H_0 is rejected and H_1 is accepted, which means there is a positive and tangible influence of assets, liabilities, and net worth on the remaining operating results.

6. Results of Effective and Relative Contributions

Table 12. Summary of Correlation and Regression Analysis

Ringkasan Analisis Korelasi Dan Regresi				
Variabel	Koefisien Regresi (Beta)	Koefisien Korelasi (r)	R Square	
X2	-0,630	-0,512	0,961	
X3	0,844	0,756		

Based on the Correlation and Regression Analysis Summary of Table 12, the calculation is to find the SE and SR values.

1. Results of Effective Contribution

Effective Contribution of Liabilities (X2) and Net Worth (X3) can be determined by:

$$EC = Beta \times r_{xy} \times 100\%$$

EC of Liabilities (X2) to Remaining of Operation Results (Y):

$$EC(X2) = -0,630 \times (-0,512) \times 100\% = 32,25\%$$

EC of Net Worth (X_3) to Remaining of Operation Results (Y):

$$EC(X_2) = 0,844 \times 0,756 \times 100\% = 63,80\%$$

Then, total of effective contributions:

$$\begin{aligned} EC(Total) &= EC(X_2) + EC(X_3) \\ &= 32,25\% + 63,80\% \\ &= 96,05 \end{aligned}$$

These calculations show that the effective contribution of the liability variable (X_2) to the remaining operating results (Y) is 32.25%. In comparison, the effective contribution of the net worth variable (X_3) to the remaining operating results (Y) is 63.80%. So, the net worth variable (X_3) has a more dominant influence on the remaining results of operations (Y) than the liabilities variable (X_2).

2. Results of Relative Contributions

Relative Contribution of Liabilities (X_2) and Net Worth (X_3) can be determined by:

$$RC = \frac{EC}{R_{square}}$$

RC of Liabilities (X_2) to Remaining of Operation Results (Y):

$$RC(X_2) = \frac{EC(X_2)}{R_{square}} = \frac{32,25\%}{96,10\%} = 33,55\%$$

RC of Net Worth (X_3) to Remaining of Operation Results (Y):

$$RC(X_3) = \frac{EC(X_3)}{R_{square}} = \frac{63,80\%}{96,10\%} = 66,39\%$$

Then, total of relative contributions:

$$\begin{aligned} RC(Total) &= RC(X_2) + RC(X_3) \\ &= 33,55\% + 66,39\% \\ &= 99,94 \end{aligned}$$

The results of this study show similarities with (Niswah and Septiarini, 2017) research which states that owning equity and assets does not significantly affect ROR. (Niswah and Septiarini, 2017) stated that only financing income was a factor that partially influenced ROR. However, in this study, net worth is the factor that partially influences ROR. The other factor is liabilities that do not have a significant effect, but it makes an effective and relative contribution of 63.80% and 33.55% to ROR.

This study also provides new analytical results from previous studies. The previous research showed that factors positively and significantly affect ROR, including members' net worth, assets, and liabilities. This study then compares the three influential factors based on previous research to show the factors significantly influencing the ROR. It was found that net worth is the factor that has the most significant influence on the remaining operating results, followed by liabilities and then assets.

These results provide information that several factors can simultaneously influence ROR in Koperasi. However, the net worth owned by Koperasi contributes the most to the amount of ROR obtained by cooperative members. Therefore, the thing that should be improved by Koperasi in order to provide the best results to its members is the amount of net worth.

The results of the research show that assets do not have a significant effect, while liabilities, although they have little influence, can provide an effective contribution of 32,25%. If totaled, the effective contribution of net worth and liabilities reaches 96,05% of the increase in ROR. Of course, this means that the increase in liabilities and net worth of Koperasi can make a substantial contribution; only about 3.95% of factors outside of liabilities and net worth can effectively contribute to increasing ROR.

D. CONCLUSION AND SUGGESTION

Based on the results of the research, some conclusions can be drawn that the multiple regression model conducted with $Y = 389.999.249,7 - 2,957X_2 + 0,879X_3 + \varepsilon$. Based on the model, liabilities variable (X_2) do not partially have a positive and tangible effect on the remaining operation results. Net worth (X_3) has a positive and real effect partially on the remaining operating results. Previous research provides three main factors influencing ROR in Koperasi: assets, liabilities, and net worth. This study determines net worth as the most dominant factor in determining ROR. The percentage value of the practical contribution and the relative net worth contribution were respectively 63.80% and 66.39%, while for the liability variable, it was much lower, namely 32.25% and 33.55%. At the same time, the asset (X_1) is a factor that does not dominate ROR, so it cannot be included in the multiple linear regression model. Future research is expected to provide an overview of net worth and asset determinants using related statistical methods.

DECLARATIONS

AUTHOR CONTRIBUTION

All authors contributed to the writing of this article.

FUNDING STATEMENT

-

COMPETING INTEREST

The authors declare no conflict of interest in this article.

REFERENCES

- Anindyatama, M. D., Kusmayadi, K. K., and Anugrahwati, L. M. (2019). Analisis pengaruh jumlah anggota, simpanan anggota, dan piutang anggota terhadap sisa hasil usaha pada primkopkar manunggal damatextimatex salatiga. *Jurnal Aktual Akuntansi Keuangan Bisnis Terapan (AKUNBISNIS)*, 2(2):143–164. doi: <http://dx.doi.org/10.32497/akunbisnis.v2i2.1660>.
- Buchari, I. (2020). Pengaruh jumlah anggota dan volume usaha terhadap sisa hasil usaha koperasi di wilayah indonesia bagian timur. *Management and Sustainable Development Journal*, 2(2):69–86. doi: <https://doi.org/10.46229/msdj.v2i2.159>.
- Kartini, T. (2020). Pengaruh jumlah anggota, total aset, modal sendiri, dan modal pinjaman terhadap shu pada koperasi simpan pinjam di kota bogor. *Jurnal Sosial Humaniora*, 11(1):75–86. doi: <https://doi.org/10.30997/JSH.V11I1.2350>.
- Machfiroh, I. S., Permadi, J., Sur, W. A. A., and Putri, R. P. (2022). Penilaian kesehatan koperasi pada koperasi sawit makmur berdasarkan petunjuk teknis deputy bidang perkoperasian nomor 15 tahun 2021. *Jurnal Akuntansi*, 14(2):262–274. doi: <https://journal.maranatha.edu/index.php/jam/article/view/5213>.
- Muthahharah, I. and Fatwa, I. (2021). Modeling the types of online learning media using multiple linear regression analysis. *Jurnal Varian*, 5(1):39–46. doi: <https://doi.org/10.30812/VARIAN.V5I1.1459>.
- Niswah, F. M. and Septiarini, D. F. (2017). Faktor yang mempengaruhi kenaikan dan penurunan sisa hasil usaha (shu) koperasi syariah. *Jurnal Ekonomi Syariah Teori dan Terapan*, 4(12):315537. doi: <https://doi.org/10.20473/vol4iss201712pp937-951>.
- Pandis, N. (2016). Multiple linear regression analysis. *American journal of orthodontics and dentofacial orthopedics*, 149(4):581. doi: <https://doi.org/10.1016/j.ajodo.2016.01.012>.
- Qori, S. and Sadeli, D. (2021). Pengaruh aset koperasi terhadap sisa hasil usaha (survey pada koperasi serba usaha yang aktif di kabupaten serang provinsi banten tahun 2016). *Holistik Manajemen: Jurnal Manajemen*, 1(2):42–69. doi: <https://doi.org/10.30812/holistic.v5i1.1225>.
- Rahman, J. (2022). Pengaruh permodalan dan partisipasi anggota terhadap sisa hasil usaha pada koperasi pegawai republik indonesia di kota bogor. *Karimah Tauhid*, 1(1):99–114. doi: <https://doi.org/10.30997/karimahtauhid.v1i1.7885>.
- Raidayani, R., Muhammad, S., and Faisal, F. (2017). Faktor-faktor yang mempengaruhi sisa hasil usaha (shu) pada koperasi di kabupaten aceh barat. *Jurnal Perspektif Ekonomi Darussalam (Darussalam Journal of Economic Perspec*, 3(2):101–116. doi: <https://doi.org/10.24815/JPED.V3I2.8225>.

- Rustiyan, R. and Mustakim, M. (2018). Penerapan algoritma fuzzy c means untuk analisis permasalahan simpanan wajib anggota koperasi. *Jurnal Teknologi Informasi Dan Ilmu Komputer*, 5(2):171–176. doi: <https://doi.org/10.25126/jtiik.201852605>.
- Sudaryanti, D. S. (2017). Pengaruh jumlah anggota, modal luar, dan total asset terhadap sisa hasil usaha (studi empiris pada koperasi simpan pinjam di kota tasikmalaya tahun 2016). *Ekspektra: Jurnal Bisnis dan Manajemen*, 1(2):156–172. doi: <https://doi.org/10.25139/ekt.v0i0.339>.
- Sugiyono, S. (2015). Statistika untuk penelitian.