



Analysis of Financial Ratios to Measure The Prediction Of Financial Distress In Regency/Municipal PDAM In North Sumatera Province

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ABSTRACT

This study aims to examine and analyze the effect of profitability, liquidity, and solvency on the prediction of financial distress in BUMD PDAMs in North Sumatera Province for the 2017-2021 financial year. Profitability is measured by the Return on Equity Ratio (ROE), liquidity is measured by the Current Ratio (CR), solvency is measured by the Debt to Total Assets Ratio (DAR), and financial distress is measured by the Grover method. This study uses a causal associative method with a quantitative approach. The population in this study were all PDAM BUMDs in North Sumatera Province. The sampling technique used in this study was a nonprobability sampling technique, namely purposive sampling so that a sample of 16 BUMD PDAMs was obtained. Data were analyzed using Logistic Regression with the help of Eviews 20 software. The results of hypothesis testing showed that profitability had a significant positive effect on financial distress in BUMD PDAM Regency/Municipal in North Sumatera Province. Meanwhile, liquidity and solvency have no significant effect on the condition of financial distress in Regency/Municipal PDAM BUMDs in North Sumatera Province.

Keywords: Financial Distress, BUMD PDAM, Profitability, Liquidity, Solvency

INTRODUCTION

The enactment of Law Number 23 of 2014 concerning Regional Government provides space for the Regions to form Regional Owned Enterprises (BUMD). It is regulated in Article 331 paragraph 1 and paragraph 2 that a Region can establish a BUMD where the establishment is determined by a Regional Regulation. The purpose of establishing a BUMD is specified in Article 331 paragraph 4 of Law Number 23 of 2014, namely to provide benefits in general regional economic development, to carry out public benefits in the form of the provision of goods and/or services, and to obtain profits and/or profits.

One of the characteristics of BUMD is that it is managed by using the prevalence that exists in the business world. Mulyati and Mahmud (2020) argue that Regional Owned Enterprises have operational mechanisms such as profit-oriented business unit operational mechanisms. Although the main function of BUMD is to provide goods and/or services to meet the needs of its people, BUMD also aims to generate profits/profits. Ainiyyah (2022) concluded that in general the characteristics of BUMD have social and commercial characteristics.

Municipal waterworks (PDAM) owned by the regional government is faced with a dilemma because of its existence as one of the BUMDs owned by the regional government. Ideally PDAM contributes to developing the regional economy by generating profits. However, the current phenomenon is that there are still PDAMs that have not been able to fulfill these demands. Not only have they not been able to contribute to profits, PDAMs in various regions have suffered business losses. Quoting Fajri's writing (2019) in *mediaindonesia.com*, Tjahjo said that in the last 5 years, almost 70% of BUMD PDAMs in Indonesia have experienced losses.

The phenomenon that occurs in BUMD PDAMs in North Sumatera Province is that there are indications of financial problems in several PDAMs in North Sumatera Province. Some PDAMs experienced a loss or had negative net profit in a row for the last three years, namely from the 2019-

2021 financial year. Picture 1 below is a list of PDAM BUMDs in North Sumatera Province which have experienced losses from the 2019-2021 financial year.



Picture 1. Profit/Loss of 9 BUMD PDAMs in North Sumatera 2019-2021

Through preliminary observations, there are 9 PDAMs that have shown negative net profit over the last three years. This decline in financial condition occurred in PDAM Mual Nauli, PERUMDAM Tirta Bina, PDAM Tirta Silaupiasa, PDAM Tirta Malem, PDAM Tirta Deli, PDAM Tirta Kualo, PDAM Tirta Bulian, PDAM Tirta Sari, and PDAM Tirta Ayumi. It can be seen that PDAM Tirta Deli is the PDAM with the highest negative net profit among the 9 PDAMs. Meanwhile, PDAM Tirta Sari is the PDAM with the lowest negative net profit of the 9 PDAMs.

One indicator that can be used to see the possibility of a financial distress condition is negative profits that occur in a row (Kristanti, 2019). This negative net profit can be used as an indicator of financial distress conditions provided that it occurs for at least two consecutive years (Kholidah et al, 2016); (Nugraha & Fajar, 2018) or not earning profit within 3 consecutive years (Novidianti & Hamzah, 2019). Thus, it can be said that a company is in financial distress when it experiences losses for 2-3 consecutive years.

Analysis related to financial distress can be used as an early warning of financial difficulties that occur in the company. Measurement of financial distress can be carried out using financial ratios obtained from calculating the company's financial data. Financial ratios are one of the important tools in assessing company performance which indicates the financial position in a certain period which can describe the level of company performance in the period concerned (Gumanti, 2011, Muda & Wahyuni, 2019).

Winarna et al (2017) argue that there is still little research on financial distress in the public sector when compared to research on financial distress in the private sector. However, one of the similarities of previous research related to financial distress in both the public and private sectors is the use of financial ratios. In general, research that predicts financial distress (financial distress) and bankruptcy using financial ratios concludes that financial ratios are useful for predicting a company's financial condition (Liana and Sutrisno, 2014). In line with this, Sibarani et al. (2021) states that financial distress can be seen and measured through the ratios in the financial reports.

Previous research concluded that the higher the profitability ratio, the lower the occurrence of financial distress. These results are in line with researchers who conclude that profitability has a negative effect on financial distress (Sudaryanti & Dinar, 2019); (Kartika et al., 2020); (Muien, 2022); (Kalbuana et al., 2022); (Oktari et al., 2023). Meanwhile, several previous studies revealed that profitability has a positive effect on financial distress (Liana & Sutrisno, 2014); (Minanari, 2022);

(Rahmawati & Maulana, 2022); (Haris et al., 2022); (Orbaningsih et al., 2022); (Muien, 2022); (Rachmawati & Maulana, 2022); (Edoardo & Friyan, 2022); (Maximillian & Septina, 2022); (Saputri & Santoso, 2023).

The higher the level of liquidity, the smaller the occurrence of financial distress. There are several results of previous research that are in line with this theory that liquidity has a negative effect on financial distress (Liana & Sutrisno, 2014); (Kartika et al., 2020); (Bukhori et al., 2022). In contrast, several previous studies have concluded that liquidity has a positive effect on financial distress (Utami & Dirman, 2022); (Maximillian & Septina, 2022); (Sari, 2023); (Paradise, 2023); (Dema & Prasetio, 2023).

The higher the level of solvency, the higher the occurrence of financial distress conditions. Previous research which is in line with this concluded that solvency has a positive effect on financial distress (Simanjuntak et al., 2017); (Kartika et al., 2020); (Bukhori et al., 2022); (Sadalia et al, 2019), (Taswin & Suhendra, 2022); (Saputri & Santoso, 2023). In contrast, several previous researchers concluded that solvency has a negative effect on financial distress (Fatmawati & Wahyuningtyas, 2021); (Maximillian & Septina, 2022); (Utami & Dirman, 2022); (Edoardo & Friyan, 2022); (Minanari, 2022).

LITERATURE REVIEW

Agency Theory (Agency Theory)

In agency theory, there are two parties who are bound by a contract either implicitly or explicitly, namely the principal and the agent. The principal is the party giving the mandate and the agent acts as an intermediary representing the principal in transactions with third parties (Kartika et al., 2020). In short, agency theory will emerge if business activities are not always carried out directly by the owner of the entity (principal) so that the management of business activities is left to the agent. In this study, the agents were BUMD PDAM in North Sumatera Province. Meanwhile, the principal party that gives authority and responsibility to the agent is the regional government of the Regency/Municipal BUMD PDAM concerned.

Financial Distress Prediction

According to Sudaryanti and Dinar (2019) financial distress is a precondition for a company falling into a state of bankruptcy so that information related to financial distress becomes very necessary and important. Financial distress begins when a company is unable to meet its payment schedule or when cash flow projections indicate that the company will soon be unable to meet its obligations as they fall due due to unavailability of funds to pay (Elisabeth et al., 2018). This means that the company is in an insecure position from the threat of bankruptcy or failure in the company's business.

Prediction of financial distress conditions is needed as an instrument to assist in preparing effective policies (Hrp, 2017). In this study, measurement of financial distress predictions was carried out using the Grover model. The Grover model classifies a company as bankrupt if the resulting score is equal to or less than -0.02 ($Z \leq -0.02$). Meanwhile, a company is categorized as not bankrupt if a score equal to or more than 0.01 is obtained ($Z \geq 0.01$). Grover can be calculated using the following equation (Priambodo & Pustikaingsih, 2018):

$$G = 1,650X_1 + 3,404X_2 - 0,016ROA + 0,057$$

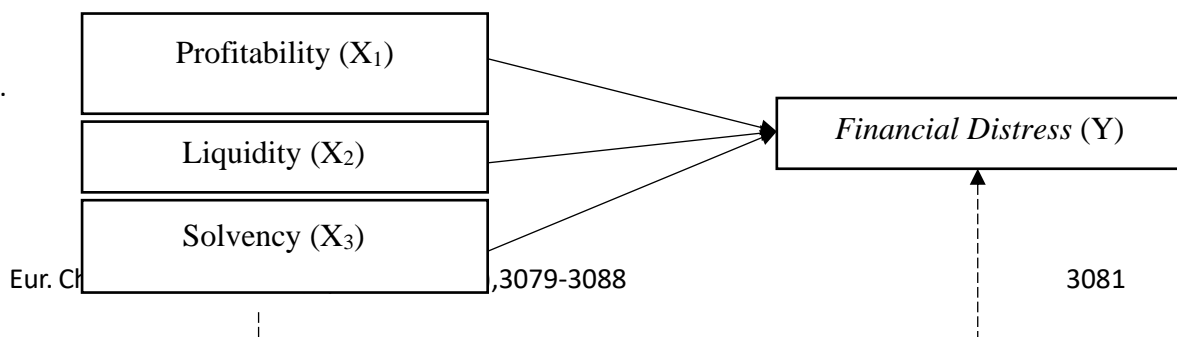
Which:

X_1 = Working Capital/Total Assets

X_2 = EBIT/Total Assets

ROA = Net Income/Total Assets

CONCEPTUAL FRAMEWORK



Picture 2 Conceptual Framework

Based on the theoretical basis and some of the results of previous studies, the conceptual framework in this study uses the variables of profitability, liquidity and solvency to see their effect on the prediction of financial distress, either partially or simultaneously.

RESEARCH METHODS

In this study, the type of research used is causal associative research. The approach used in this study is a quantitative approach. The type of data used in this research is secondary data. The population in this study were all PDAM BUMDs in North Sumatera Province. Then, in determining the number of samples used nonprobability sampling technique, namely purposive sampling. The sample selection criteria used are as follows:

- BUMD PDAM in North Sumatera Province owned by Regency and Municipal Governments.
- BUMD PDAM whose financial data can be accessed from the publication of the Ministry of PUPR.
- BUMD PDAM whose financial data contains all the information needed for the 2017-2021 financial year.

Based on the sample selection criteria, from a total population of 19 BUMD PDAMs, 16 BUMD PDAMs can be used as samples with an observation period of 5 years so that a total of 80 observations can be tested.

Data analysis technique

The data analysis method used in this study is logistic regression with the help of Eviews software. According to Hidayat and Sadewa (2020) Eviews is a Windows-based statistical analysis software that is widely used for statistical analysis and is a computational tool in the field of econometrics.

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Table 1 Descriptive Statistical

Variable	Observations	Min	Max	Mean	Std. Deviation
FD	80	0,000	1,000	0,913	0,284
Profitability	80	-0,597	0,046	-0,055	0,108
Likuidity	80	0,614	5328,353	84,235	594,376
Solvency	80	0,003	0,556	0,109	0,122

It is known that profitability has a minimum value of -0.597, while the maximum value of profitability is 0.046. The minimum value of liquidity obtained is 0.614 while the maximum value of liquidity is 5328.353. The minimum value of known solvency is 0.003 while the maximum value of solvency is 0.556.

Logistic Regression

Table 2 Logistic Regression

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	5.139064	3.295476	1.559430	0.1189
X1	28.93808	13.89350	2.082850	0.0373
X2	0.269635	0.708758	0.380433	0.7036
X3	-1.805300	5.229468	-0.345217	0.7299

A constant value of 5.14 indicates that if the values of profitability, liquidity and solvency are constant, it is predicted that BUMD PDAM Regency/Municipal in North Sumatera will experience an increase in financial distress by the value of this constant. The profitability regression coefficient value is 28.94 indicating that each time there is an addition of 1 profitability value it will increase financial distress by 28.94. Then, the value of the liquidity regression coefficient is 0.27 which indicates that every time there is an addition of 1 liquidity value it will increase the financial distress condition by 0.27. The last variable, solvency has a negative regression coefficient of -1.81 which indicates that every time there is an addition of 1 solvency value, there will be a decrease in financial distress by 1.81.

Model Feasibility Test (Hosmer and Lemeshows Goodness of Fit Test)

Table 2 Hosmer and Lemeshows Goodness of Fit Test

Goodness of Fit for Binary Logit Hosmer and Lemeshow's Test			
H-L Statistic	3.7817	Prob. Chi-sq (8)	0.8763

The Hosmer and Lemeshow's Goodness of Fit Test values obtained were 0.8763. It can be concluded that the logistic regression model used in this study is acceptable and meets the eligibility requirements of the model because the value of Hosmer and Lemeshow's Goodness of Fit Test is greater than 0.05. It can also be said that the logistic regression model used is fit because it matches the observation data.

Overall Model Test (log-likelihood)

Table 3 log likelihood value

Hannan-Quinn Criter	0.316269	Deviance	13.48141
Restr. Deviance	47.47444	Restr. log likelihood	-23.73722

It can be seen from the test results that show a decrease in the log likelihood value which indicates that the model (equation) used in this study is stated to be fit or good. It can be concluded that the addition of independent variables (X) such as profitability, liquidity, and solvency to the logistic regression model (equation) in this study makes the regression model fit or feasible.

Determination Coefficient Test (McFadden R-Squared)

Table 4 Determination Coefficient Test (Mcfadden R-Squared)

Mcfadden R-Squared	0,716
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The results of the McFadden R-Squared statistical test were obtained, namely 0.72. It can be concluded that the independent variables used in this study consisting of profitability, liquidity and solvency have an influence of 72%. It can be said that the independent variables can explain the dependent variable as much as 72%. Meanwhile, the remaining 28% is influenced by variables or other factors not included in the logistic regression model used in this study.

Hypothesis test

Wald's test

Table 5 Partial Test (Wald)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	5.139064	3.295476	1.559430	0.1189
X1	28.93808	13.89350	2.082850	0.0373
X2	0.269635	0.708758	0.380433	0.7036
X3	-1.805300	5.229468	-0.345217	0.7299

Wald test results show that:

1. The coefficient value of profitability (X_1) is positive, namely 28.94 and the Prob value. of profitability is $0.04 < 0.05$, then profitability is concluded to have a significant positive effect on financial distress.
2. Value Prob. of liquidity (X_2) is $0.70 > 0.05$, thus it can be concluded that liquidity has no significant effect on financial distress.
3. Value Prob. of solvency (X_3) is $0.73 > 0.05$, thus it can be concluded that solvency has no significant effect on financial distress.

Omnibust Test of Model Coefficient (Simultaneous Testing)

Tabel 6 Omnibust Test of Model Coefficient

LR statistic	33.99303	Avg. log likelihood	-0.084259
Prob(LR statistic)	0.000000		

It is known that the Prob value (LR statistic) of the Omnibust test is $0.000000 < 0.05$ which indicates that the variables of profitability (X_1), liquidity (X_2), and solvency (X_3) together can explain the dependent variable (financial distress). In other words, from the test results it is concluded that simultaneously the independent variables have a significant effect on financial distress.

CONCLUSION

1. Profitability has a positive and significant effect on financial distress.
2. Liquidity has no significant effect on financial distress.
3. Solvability has no significant effect on financial distress.
4. Simultaneously profitability, liquidity, and solvency have a significant effect on financial distress.

RESEARCH LIMITATIONS

1. There are limitations to accessing data because the data required in this study is included in data with limited access where only a number of parties with certain authorities can access financial data for the entire object under study.
2. There are differences in the elements of financial data from previous studies and this research. Previous research used the financial data of private companies that have gone public so that they have more comprehensive financial data, while the financial data of the object under study has simpler financial reports so that it is not possible to freely choose the financial distress prediction model to be used.
3. There was limited time in conducting this research so that the researchers only examined the BUMD PDAM Regency/Municipal in North Sumatera Province so that the results of this study could only be used to describe conditions that occurred in BUMD PDAM Regency/Municipal in North Sumatera Province.

SUGGESTION

1. Future researchers are expected to include a wider range of variables beyond the variables used in this study.
2. For companies that are categorized as healthy (not experiencing financial distress) it is recommended to use a financial distress prediction model that is considered suitable on a regular basis so that it becomes one of the actions to prevent financial distress from occurring

- in the company.
3. For companies that are still experiencing financial distress, it is recommended to evaluate the company's financial performance in advance so that the factors that cause financial distress can be identified and used as a basis for preparing future company strategies.

BIBLIOGRAPHY

- Ainiyyah, G. R. (2022). Badan Usaha Milik Daerah (BUMD) yang belum berubah Status menjadi Perumda atau Perseroda. *Notary Law Journal*, 1(2), 176-203.
- Bukhori, I., Kusumawati, R., & Meilani, M. (2022). Prediction of Financial Distress in Manufacturing Companies: Evidence from Indonesia. *Journal of Accounting and Investment*, 23(3), 588-605. Retrieved from <https://scholar.archive.org/work/ly3hb5eggzcv5fzgm4e5qzca/access/wayback/https://journal.umy.ac.id/index.php/ai/article/download/15217/pdf>
- Dema, Y., & Prastio, W. (2023). Detecting Financial Distress Through Liquidity, Leverage, And Sales Growth. *Jurnal Scientia*, 12(01), 574-577.
- Edoardo, E., & Friyan, F. (2022, August). The Influence Of Liquidity, Profitability, And Solvency Toward Financial Distress Of Consumer Goods Industry Listed In Indonesia Stock Exchange. In *Proceeding National Conference Business, Management, and Accounting (NCBMA)* (Vol. 5, pp. 237-249).
- Elisabeth, D.; Simanjuntak, A.; and Ginting, S. (2018). Corporate Social Responsibility, Auditor Opinion, Financial Distress Impact to Auditor Switching for Banking Companies in Indonesia Stock Exchange for Period of 2014 to 2017. In *Proceedings of the 1st Unimed International Conference on Economics Education and Social Science - Volume 1: UNICEES*, ISBN 978-989-758-432-9, pages 991-994. DOI: 10.5220/0009499909910994. <https://www.scitepress.org/PublicationsDetail.aspx?ID=/ZQ4uUFFTPQ=&t=1>
- Fajri, R. (2019, Agustus 28). Mendagri Miris 70 Persen PDAM di Indonesia Alami Kerugian. *Media Indonesia*. Retrieved from <https://mediaindonesia.com/politik-dan-hukum/255941/mendagri-miris-70-persen-pdam-di-indonesia-alami-kerugian>
- Fatmawati, S., & Wahyuningtyas, E. T. (2021). Dampak Rasio Keuangan Dan Pertumbuhan Perusahaan Terhadap Financial Distress Melalui Analisa Springate, Zmijewski, Grover Dan Altman Z-Score. *Accounting and Management Journal*, 5(2), 56-66.
- Firdaus, I. (2023). The Effect of Liquidity, Leverage And Company Value On Z-Score Value As A Prediction Of Financial Distress (Case Study of Companies in the Hotel Restaurant and Tourism Sector Listed on the Indonesia Stock Exchange for the 2016-2020 Period). *EPRA International Journal of Economics, Business and Management Studies (EBMS)*, 10(1), 60-68.
- Gumanti, T. A. (2011). *Manajemen Investasi: Konsep, Teori, dan Aplikasi*. Jakarta: Mitra Wacana Media.
- Haris, A., Ghozali, I., & Najmudin, N. (2022). Indicators of financial distress condition in Indonesian banking industry. *Accounting*, 8(1), 27-36.
- Hidayat, A. (2020). Pengaruh penggunaan aplikasi evIEWS terhadap kemampuan pemecahan masalah dan hasil belajar statistik. *MAJU: Jurnal Ilmiah Pendidikan Matematika*, 7(1).
- Hrp, A. I. (2017). The effect of leverage and financial distress on earnings management with good corporate governance as the moderating variable. *Academic Journal of Economic Studies*. 3(4), December 2017, pp. 86-95 <https://zbw.eu/econis-archiv/bitstream/11159/1357/1/1010611208.pdf>
- Kartika, A., Rozak, H. A., Nurhayati, I., & Bagana, B. D. (2020). Rasio keuangan sebagai Prediksi Financial Distress.
- Kholidah, A. N., Gumanti, T. A., & Mufidah, A. (2016). Analisis rasio keuangan dalam memprediksi financial distress pada perusahaan sektor industri dasar dan kimia yang terdaftar di BEI tahun 2011-2015. *BISMA: Jurnal Bisnis dan Manajemen*, 10(3), 279-291.
- Kristanti, F. T. (2019). Financial distress teori dan perkembangannya dalam konteks Indonesia. *Malang: Inteligencia Media*.
- Liana, D., & Sutrisno (2014). Analisis rasio keuangan untuk memprediksi kondisi financial distress perusahaan manufaktur. *Jurnal Studi Manajemen dan Bisnis*, 1(2), 52-62. Retrieved from <https://journal.trunojoyo.ac.id/jsmb/article/viewFile/1533/1317>.

- Maximillian, N., & Septina, F. (2022). The Effect of Profitability, Liquidity, and Solvency on Financial Distress of Textile and Garment Companies in Indonesia. *Jurnal Ecodemica: Jurnal Ekonomi Manajemen dan Bisnis*, 6(2), Retrieved from 150-161. <https://pdfs.semanticscholar.org/71bc/419cdb62570a5656976c7ddeccf6a429e83f.pdf>
- Minanari, M. (2022). The Influence of Managerial Ownership, Profitability and Leverage on Financial Distress:(Empirical Study on Property and Real Estate Companies Listed on the Indonesia Stock Exchange (IDX) 2016-2019). *International Journal of Environmental, Sustainability, and Social Science*, 3(2), 351-358. Retrieved from <https://journal keberlanjutan.com/index.php/ijesss/article/download/219/233>
- Muda, I., & Wahyuni, E. (2019). An Analysis on the Effect of Environmental Performance and the Implementation of Environmental Management System (ISO 14001) on the Issuer Financial Performance. *Calitatea*, 20(168), 113-117. https://www.srac.ro/calitatea/en/arhiva/2019/QAS_Vol.20_No.168_Feb.2019.pdf
- Muien, H. M. (2022). THE IMPACT OF FINANCIAL AND MACROECONOMIC VARIABLES ON FINANCIAL DISTRESS: EVIDENCE FROM PAKISTANI MARKET. Retrieved from <https://journals.wumardan.edu.pk/papers/129-146Muien.pdf>
- Mulyati, B., & Mahmud, T. A. (2020). ANALISIS RASIO KEUANGAN UNTUK MENGUKUR PREDIKSI FINANCIAL DISTRESS (Studi Kasus pada Salah Satu BUMD Di Provinsi Banten). *Jurnal Ilmiah Akuntansi Universitas Pamulang*, 8(2).
- Novidianti, V., & Hamzah, Z. Z. (2019). Analisis Financial Distress Menggunakan Model Zmijewski pada Perusahaan Perkebunan yang Terdaftar di Bursa Efek Indonesia Periode 2013–2017. *JURISMATA*, 1(2), 181-192
- Nugraha, A., & Fajar, C. M. (2018). Financial Distress pada PT Pania Indo Resources Tbk. *Jurnal Inspirasi Bisnis Dan Manajemen*, 2(1), 29-42.
- Oktari, S., Alfarisi, M. F., & Rahim, R. (2023). The Effect of Cash Flow, Profitability, And Leverage on Financial Distress in Listed Consumption Goods Companies. *Jurnal Impresi Indonesia*, 2(2), 101-113.
- Orbaningsih, D., Kholid, A. W. N., & Sujianto, A. E. (2022). Determinants of Financial Distress of Mining Sector Companies: Indonesia Evidence. *Journal of Accounting and Investment*, 23(3), 563-575.
- Priambodo, D., & Pustikaningsih, A. (2018). Analisis Perbandingan Model Altman, Springate, Grover, dan Zmijewski dalam Memprediksi Financial Distress (Studi Empiris pada Perusahaan Sektor Pertambangan yang Terdaftar di Bursa Efek Indonesia Periode 2012-2015). *Jurnal Profita: Kajian Ilmu Akuntansi*, 6(4).
- Rachmawati, D., & Maulana, A. D. (2022, November). Forecasting Financial Distress of Airline Company: The Impact of Financial Performance. In *Journal of International Conference Proceedings (JICP)* (Vol. 5, No. 4, pp. 85-95). Retrieved from <http://ejournal.aibpmjournals.com/index.php/JICP/article/download/1923/1753>
- Republik Indonesia. (2014). Undang-Undang tentang Pemerintahan Daerah. Sekretariat Negara, Jakarta. Retrieved from <https://peraturan.bpk.go.id/Home/Download/28013/UU%20Nomor%2023%20Tahun%202014.pdf>
- Sadalia, I., Daulay, I. E., Marlina, L., (2019). The influence of intellectual capital towards financial performance with brand value as an intervening variable. *Calitatea*, 20(168), 79-85. https://e-tarjome.com/storage/btn_uploaded/2022-05-21/1653103569_12415-English.pdf
- Saputri, N. A., & Santoso, P. R. (2023). The Influence of Profitability, RETA, Liquidity, Leverage, Company Size, and Corporate Governance on Financial Distress. *Research of Accounting and Governance*, 1(1), 1-12. Retrieved from <https://sanscientific.com/journal/index.php/rag/article/download/6/12>
- Sari, I. (2023). The Influence of Agency Costs, Liquidity and Corporate Social Responsibility on

- Financial Distress: Empirical Study on Retail Companies Listed on the Indonesia Stock Exchange 2016-2020 Period. *SCIENTIA: Social Sciences & Humanities*, 2(1), 63-75.
- Sibarani, R. Y., Irawati, N., & Muda, I. (2021). Analysis of Financial Ratio to Predict Financial Distress in the Sub Sector of Plantation Company on Indonesia Stock Exchange Period 2010-2018. *International Journal of Research and Review*, 8(1).
- Simanjuntak, C. E. B., Krist, F. T., & Aminah, W. (2017). Pengaruh rasio keuangan terhadap financial distress. *eProceedings of Management*, 4(2). Retrieved from <https://openlibrarypublications.telkomuniversity.ac.id/index.php/management/article/viewFile/1411/1345>
- Taswin, T., & Suhendra, E. S. (2022). The Influence of the Financial Health Indicators towards the Financial Distress with Risk Level Moderation: Empirical Study on Life Insurance Companies in Indonesia.
- Utami, S. W., & Dirman, A. (2022). The Effect of Institutional Ownership, Managerial Ownership, Liquidity, and Leverage on Financial Distress. *Asian Journal of Economics, Business and Accounting*, 22(21), 170-181.
- Winarna, J., Widagdo, A. K., & Setiawan, D. (2017). Financial distress of local government: A study on local government characteristics, infrastructure, and financial condition. *Global Business & Finance Review (GBFR)*, 22(2), 34-47. Retrieved from <https://www.econstor.eu/bitstream/10419/224369/1/gbfr2017-22-2-034.pdf>