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Pengaruh Pengawasan dan Sistem Pengendalian Internal Terhadap Efektivitas Penagihan Tunggakan Pelanggan Pascabayar PT PLN (Persero) UID Sumatera Utara

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Abstrak:
Latar belakang: Receivables management is essential for maintaining financial stability in a public service company, including PT PLN (Persero). In electricity billing through the postpaid system, unpaid customer obligations may develop into arrears, disrupt cash flow, weaken financial control, and affect revenue recovery.
Tujuan : This study aims to examine the effect of supervision and internal control systems on the effectiveness of postpaid customer arrears collection at PT PLN (Persero) UID North Sumatra.
Metode penelitian: This study used a quantitative approach with an associative research design. Primary data were collected through questionnaires distributed to 34 employees involved in supervision, internal control, and arrears collection activities. Secondary data were obtained from supporting company documents. The sample was determined using saturated sampling. Data were analyzed using descriptive statistics, validity and reliability tests, classical assumption tests, multiple linear regression, t-test, F-test, coefficient of determination, and bootstrap testing with IBM SPSS Statistics 31.
Hasil penelitian: The results indicate that supervision has a positive but insignificant partial effect on collection effectiveness, while the internal control system has a positive and significant partial effect. Simultaneously, both variables significantly affect collection effectiveness and explain 63.8% of its variation.
Kesimpulan: Collection effectiveness is more strongly supported by a structured internal control system than by supervision alone. Supervision should be followed by evaluation, corrective action, and continuous monitoring to improve arrears collection performance.

Kata kunci: Electricity billing; Financial control; Public service company; Receivables management; Revenue recovery

Pendahuluan

Receivables management is an important aspect of maintaining corporate financial stability, particularly in public service companies such as PT PLN (Persero). In a postpaid customer system, customers use electricity first and make payments after a certain usage period. This condition creates trade receivables that must be properly managed so that they do not develop into arrears or uncollectible receivables. Receivables that are not collected effectively may obstruct company cash flow, increase the risk of uncollectible receivables, and reduce the effectiveness of corporate financial management (Dahlia, 2021; Khairudin et al., 2022).

The effectiveness of postpaid customer arrears collection is directly related to the company's ability to convert claims into cash receipts. In PT PLN (Persero) UID North Sumatra, postpaid customer arrears still indicate problems that require attention. Based on supporting company data for the 2020–2023 period, arrears fluctuated from Rp10,159,168,766 in 2020 to Rp869,853,190 in 2021, then increased to Rp1,832,232,027 in 2022 and Rp3,904,656,057 in 2023. This condition indicates that the collection process has not operated consistently and optimally.

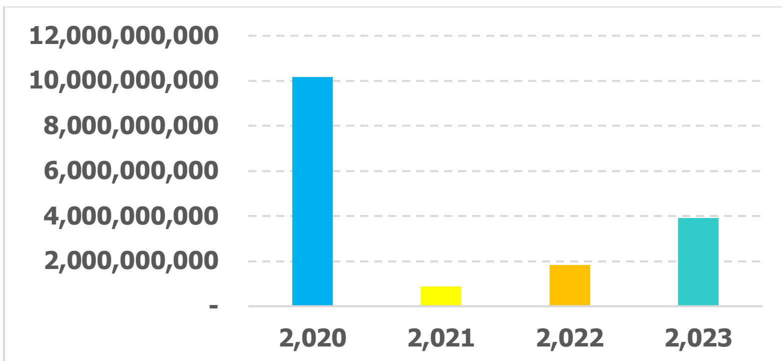

Figure 1. Postpaid Customer Arrears at PT PLN (Persero) UID North Sumatra, 2020-2023

Collection effectiveness is not determined solely by the existence of collection procedures, but also by internal organizational factors that support the implementation of those procedures. Two important factors in this process are supervision and the internal control system. Supervision is needed to ensure that collection activities are directed toward established targets and organizational performance, while the internal control system is needed to support clear procedures, risk assessment, reliable information, and continuous monitoring of receivables management (Committee of Sponsoring Organizations of the Treadway Commission [COSO], 2013; Chen et al., 2024; Hermawan, 2023; Supraja, 2019).

Several previous studies show that supervision, internal control, receivables management, and collection effectiveness are related to organizational performance. Supraja (2019) showed that the effectiveness of the supervisory function supports local government financial performance. Rizkina et al. (2021) showed that collection effectiveness contributes to achieving organizational revenue. In the context of PT PLN, Dahlia (2021) found that suboptimal receivables control may lead to uncollectible receivables. Redaputri and Apriansyah (2022) explained that postpaid electricity arrears may be affected by late payment charges, payment socialization, limited collection personnel, and communication with customers. Lubis et al. (2024) also showed that resolving electricity arrears requires an integrated approach involving customer awareness, payment applications, company strategies, and customers' economic conditions.

In addition to studies that directly discuss PT PLN, recent studies also emphasize that receivables management and collection effectiveness are closely related to internal control, information systems, risk assessment, collection procedures, and monitoring. Hasanah et al. (2024) found that information systems, internal control, risk assessment, and internal audit support accounts receivable collection effectiveness. Chen et al. (2024) showed that COSO-based internal control is related to accounts receivable management, while Hermawan (2023) confirmed that internal control contributes to receivables management. Asqolani et al. (2023) also highlighted the importance of internal control in public-sector receivables management. Other studies show that effective receivables collection requires an adequate internal control system, receivables information system, structured collection procedures, billing control, and cash receipt control (Geraldin & Wijaya, 2023; Oktariani et al., 2025; Wardani & Syarif, 2023; Yuliyanto et al., 2023). These findings strengthen the argument that postpaid customer arrears collection should be examined not only from the customer side, but also from internal organizational factors, particularly supervision and internal control systems.

Although previous studies have discussed receivables control, electricity arrears, and collection effectiveness, studies that specifically examine the effect of supervision and the internal control system on the effectiveness of postpaid customer arrears collection at PT PLN (Persero) UID North Sumatra remain relatively limited. The scientific novelty of this article lies in the empirical examination of these two internal organizational factors in relation to postpaid customer arrears collection. Therefore, this article aims to analyze the partial and simultaneous effects of supervision and the internal control system on the effectiveness of postpaid customer arrears collection at PT PLN (Persero) UID North Sumatra.

Studi Literatur

Theoretical Foundation

This study is grounded in Agency Theory, which explains the relationship between the party granting authority and the party receiving authority to carry out organizational operations. In this relationship, there is potential for divergent interests, information asymmetry, and the risk of deviation. Therefore, supervisory and control mechanisms are required to ensure that organizational activities run in accordance with established objectives, policies, and procedures (Jensen & Meckling, 1976). In the context of postpaid customer arrears collection, supervision and the internal control system function as mechanisms to reduce the risk of deviation, increase accountability, and support collection effectiveness.

Supervision

Supervision refers to an organizational control activity used to ensure that work implementation remains aligned with standards, targets, and expected performance. In the collection process, supervision is not only related to monitoring activities, but also to evaluating deviations, identifying obstacles, and ensuring that corrective actions are carried out when collection performance does not meet expectations. Supraja (2019) showed that the effectiveness of the supervisory function supports financial performance, indicating that supervision has an important role in maintaining organizational accountability and performance achievement. In this study, supervision is measured through four indicators: setting supervisory standards, measuring activity implementation, comparing results with standards, and taking corrective action.

Internal Control System

The internal control system is a process designed to provide reasonable assurance that organizational objectives can be achieved through operational effectiveness and efficiency, reliable reporting, and compliance with applicable policies (COSO, 2013). In this study, the internal control system is measured based on the five COSO components: control environment, risk assessment, control activities, information and communication, and monitoring. In the context of postpaid customer arrears collection, internal control must be supported by accurate receivables information, proper authorization, clear procedures, segregation of duties, and consistent monitoring of collection activities.

Recent studies show that internal control systems have a close relationship with receivables management. Chen et al. (2024) explained that COSO-based internal control can support more effective accounts receivable management. Hermawan (2023) found that internal control contributes to receivables management, while Asqolani et al. (2023) showed that internal control is important in managing receivables in the public sector. Oktariani et al. (2025) also found that an effective receivables internal control system can help minimize uncollectible receivables. Therefore, a sound internal control system is needed to ensure that receivables management and collection activities are conducted in an orderly, measurable, and monitorable manner.

Effectiveness of Postpaid Customer Arrears Collection

The effectiveness of postpaid customer arrears collection refers to the company's success level in collecting customer obligations that have exceeded the payment due date. Effective collection demonstrates the company's ability to convert arrears into cash receipts, reduce problematic receivables, and carry out collection processes in a timely and efficient manner. In the context of PLN, receivables control, collection strategy, and arrears management are important because delayed customer payments may affect cash inflow, liquidity, and the risk of uncollectible receivables (Dahlia, 2021; Katiandagho et al., 2025; Khairudin et al., 2022; Redaputri & Apriansyah, 2022). In this study, collection effectiveness is measured through four indicators: timeliness of collection, collection success rate, reduction of receivables arrears, and efficiency of the collection process.

The effectiveness of receivables collection is also related to accurate information, clear collection procedures, risk control, and receivables collectability. Hasanah et al. (2024) showed that information systems, internal control, risk assessment, and internal audit support accounts receivable collection effectiveness. Wardani and Syarif (2023) explained that accounts receivable accounting information systems and internal control systems are related to receivables collectability. Geraldin and Wijaya (2023) showed that receivables collection procedures require an adequate internal control system, while Yuliyanto et al. (2023) emphasized that COSO-based internal control supports billing and cash receipt processes. Therefore, postpaid customer arrears collection effectiveness is not only influenced by collection activities, but also by the quality of systems, procedures, information, and internal control that support the process.

Previous Studies

Previous studies are used as an empirical basis to explain the position of this study. Supraja (2019) showed that the effectiveness of the supervisory function supports local government financial performance. Rizkina et al. (2021) found that collection effectiveness supports the achievement of organizational revenue. In the context of PT PLN, Dahlia (2021) found that suboptimal receivables control may give rise to uncollectible receivables. Redaputri and Apriansyah (2022) showed that postpaid electricity arrears are influenced by late payment charges, payment socialization, limited human resources, and communication with customers. Lubis et al. (2024) explained that electricity arrears management requires an integrated approach involving customer awareness, economic conditions, payment applications, and company strategies.

Several recent studies also strengthen the relevance of internal control and receivables management in explaining collection effectiveness. Hermawan (2023), Chen et al. (2024), and Oktariani et al. (2025) showed that internal control has an important role in receivables management and in minimizing uncollectible receivables. Hasanah et al. (2024), Wardani and Syarif (2023), Geraldin and Wijaya (2023), and Yuliyanto et al. (2023) further showed that receivables collection effectiveness is supported by information systems, internal control, structured collection procedures, billing processes, and cash receipt controls. Based on these previous studies, the present study focuses on examining the effect of supervision and the internal control system on the effectiveness of postpaid customer arrears collection at PT PLN (Persero) UID North Sumatra.

Conceptual Framework

Based on the theoretical foundation and previous studies, the conceptual framework of this study describes the relationship between Supervision (X1), the Internal Control System (X2), and the Effectiveness of Postpaid Customer Arrears Collection (Y). Supervision functions to ensure that the collection process is conducted according to standards, while the internal control system functions to create procedures, information, segregation of duties, and monitoring that support the smooth operation of collection activities. The relationship among the variables is presented in Figure 2.

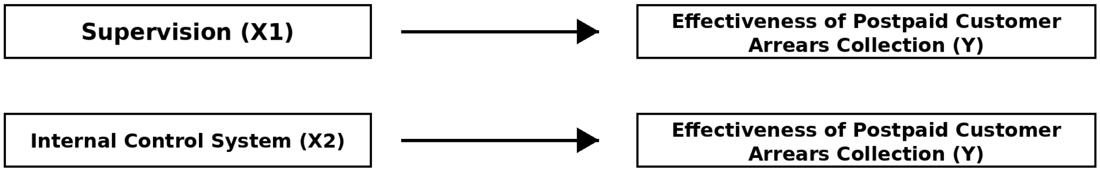

Figure 2. Conceptual Framework of the Study

Hypotheses
Based on the theoretical review and conceptual framework, the hypotheses of this study are as follows: H1, Supervision has an effect on the Effectiveness of Postpaid Customer Arrears Collection; H2, the Internal Control System has an effect on the Effectiveness of Postpaid Customer Arrears Collection; and H3, Supervision and the Internal Control System simultaneously have an effect on the Effectiveness of Postpaid Customer Arrears Collection.

Metode Penelitian

Research Approach
This study used a quantitative approach with an associative research design. The quantitative approach was selected because the study examined relationships among variables using numerical data and statistical analysis, while the associative design was used to analyze the effect of supervision and the internal control system as independent variables on the effectiveness of postpaid customer arrears collection as the dependent variable.

Location, Population, Sample, and Sampling Technique
This study was conducted at PT PLN (Persero) UID North Sumatra. The population consisted of employees involved in supervision, internal control system, and postpaid customer arrears collection activities. The sampling technique used was a saturated sampling technique, in which all members of the population were included as the research sample. The number of respondents in this study was 34. Primary data were obtained by distributing questionnaires to respondents, while secondary data were obtained from company supporting documents related to postpaid customer arrears and the collection process.

Research Instrument and Data Collection
The research instrument was developed based on the indicators of each variable. The supervision variable was measured using indicators of supervisory standard setting, measurement of activity implementation, comparison of results with standards, and corrective action. The internal control system variable was measured using indicators of control environment, risk assessment, control activities, information and communication, and monitoring. The effectiveness of postpaid customer arrears collection variable was measured using indicators of collection timeliness, collection success rate, reduction of receivables arrears, and efficiency of the collection process. All questionnaire statements were measured using a 1-to-5 Likert scale.

Table 1. Operational Definition of Variables

Variable	Indicator	Scale
Supervision (X1)	Setting supervisory standards, measuring activity implementation, comparing results with standards, and taking corrective action	Likert

Variable	Indicator	Scale
Internal Control System (X2)	Control environment, risk assessment, control activities, information and communication, and monitoring	Likert
Effectiveness of Postpaid Customer Arrears Collection (Y)	Collection timeliness, collection success rate, reduction of receivables arrears, and efficiency of the collection process	Likert

Data Analysis Technique

Data analysis was conducted using IBM SPSS Statistics 31 through descriptive statistics, data quality testing, classical assumption testing, multiple linear regression analysis, hypothesis testing, and bootstrap testing (Putra, 2025). Descriptive statistics were used to describe respondent characteristics and response tendencies for each research variable. Data quality was examined using validity and reliability tests. An item was declared valid when the Corrected Item-Total Correlation value was greater than 0.30, while an instrument was declared reliable when Cronbach's Alpha was greater than 0.60.

Classical assumption testing included normality, multicollinearity, and heteroscedasticity tests. The normality test was used to examine residual distribution, the multicollinearity test was evaluated using Tolerance and Variance Inflation Factor values, and the heteroscedasticity test was conducted using the Glejser test. Multiple linear regression was used to examine the effect of Supervision (X1) and Internal Control System (X2) on the Effectiveness of Postpaid Customer Arrears Collection (Y), with the model $Y = a + b1X1 + b2X2 + e$. Hypothesis testing was conducted using the coefficient of determination, F-test, t-test, and bootstrap test. Bootstrap testing was used to strengthen coefficient testing because the residual normality assumption was not fulfilled.

Hasil

Descriptive Statistics of Respondent Characteristics

Table 2 summarizes the characteristics of the main study respondents, consisting of 34 commercial division employees at PT PLN (Persero) UID North Sumatra.

Table 2. Characteristics of Main Study Respondents

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	23	67.65
	Female	11	32.35
Age	25-35 years	3	8.82
	36-45 years	18	52.94
	>45 years	13	38.24
Length of Service	6-10 years	3	8.82
	>10 years	31	91.18

Instrument Testing

Before being used in the main study, the instrument was tested through a pilot test involving 22 respondents. The pilot test results showed that several items were invalid; therefore, those items were removed from the final instrument. After the invalid items were removed, all final items had Corrected Item-Total Correlation values greater than 0.30 and were declared valid.

Table 3. Summary of Pilot Test Results and Instrument Reliability

Variable	Initial Items	Invalid Items	Final Items	Final Cronbach's Alpha	Status
Supervision (X1)	12	X1_B3, X1_C3	10	0.891	Reliable
Internal Control System (X2)	15	X2_A3, X2_B3, X2_C3, X2_D3	11	0.971	Reliable
Effectiveness of Postpaid Customer Arrears Collection (Y)	12	Y_A3, Y_C3, Y_D3	9	0.873	Reliable

In the main study involving 34 respondents, all final items were again declared valid because they had Corrected Item-Total Correlation values greater than 0.30. The reliability test also showed that all variables were reliable, with Cronbach's Alpha values of 0.842 for Supervision, 0.848 for Internal Control System, and 0.861 for Effectiveness of Postpaid Customer Arrears Collection.

Descriptive Statistics of Variables

Descriptive statistics were conducted to obtain a general description of respondents' answer tendencies for each research variable. The results show that the Supervision (X1) variable had a minimum value of 4.00, a maximum value of 5.00, a mean value of 4.6324, and a standard deviation of 0.33730. The Internal Control System (X2) variable had a minimum value of 3.82, a maximum value of 5.00, a mean value of 4.6043, and a standard deviation of 0.36424. Meanwhile, the Effectiveness of Postpaid Customer Arrears Collection (Y) variable had a minimum value of 3.56, a maximum value of 5.00, a mean value of 4.5196, and a standard deviation of 0.40176. These findings indicate that all variables were categorized as very high, while the relatively low standard deviation values show that respondents' answers tended to be consistent.

Data Quality Testing

Data quality testing was conducted to ensure that the final instrument used in the main study met validity and reliability criteria. Testing was conducted on 34 respondents using the Corrected Item-Total Correlation value for the validity test and the Cronbach's Alpha value for the reliability test. An item was declared valid when the Corrected Item-Total Correlation value was greater than 0.30, while the instrument was declared reliable when the Cronbach's Alpha value was greater than 0.60.

Table 4. Summary of Validity and Reliability Test Results in the Main Study

Variable	Number of Final Items	Range of Corrected Item-Total Correlation	Cronbach's Alpha	Status
Supervision (X1)	10	0.336-0.667	0.842	Valid and reliable
Internal Control System (X2)	11	0.376-0.770	0.848	Valid and reliable
Effectiveness of Postpaid Customer Arrears Collection (Y)	9	0.471-0.786	0.861	Valid and reliable

Based on Table 4, all items in each variable had Corrected Item-Total Correlation values greater than 0.30 and were therefore declared valid. Cronbach's Alpha values for all variables were also greater than 0.60; consequently, the research instrument was declared reliable and suitable for further analysis.

Classical Assumption Testing

Table 5. Summary of Classical Assumption Test Results

Test	Indicator	Result	Criterion	Conclusion
Normality	Kolmogorov-Smirnov Sig.	0.012	Sig. > 0.05	Not normally distributed
	Shapiro-Wilk Sig.	< 0.001	Sig. > 0.05	Not normally distributed
Multicollinearity	Tolerance (X1, X2)	0.255	Tolerance > 0.10	No multicollinearity
	VIF (X1, X2)	3.918	VIF < 10	No multicollinearity
Heteroscedasticity	Glejser Sig. for Supervision (X1)	0.463	Sig. > 0.05	No heteroscedasticity
	Glejser Sig. for Internal Control System (X2)	0.668	Sig. > 0.05	No heteroscedasticity

Based on Table 5, the classical assumption tests show mixed results. The residual normality test produced a Kolmogorov-Smirnov significance value of 0.012 and a Shapiro-Wilk significance value of < 0.001. Since the number of respondents in this study was 34, the Shapiro-Wilk test was used as the primary reference. Because the significance value was less than 0.05, the residuals were not normally distributed. Therefore, hypothesis testing was strengthened using the bootstrap approach.

The multicollinearity test shows that both independent variables, namely Supervision (X1) and Internal Control System (X2), had a Tolerance value of 0.255 and a VIF value of 3.918. These results meet the criteria of Tolerance > 0.10 and VIF < 10, indicating that the regression model did not suffer from multicollinearity.

Furthermore, the heteroscedasticity test using the Glejser method shows a significance value of 0.463 for Supervision (X1) and 0.668 for Internal Control System (X2). Since both values were greater than 0.05, the regression model did not indicate heteroscedasticity. Overall, the regression model met the assumptions of multicollinearity and heteroscedasticity, while the normality assumption was not fulfilled; therefore, the bootstrap test was used to strengthen the hypothesis testing results.

Multiple Linear Regression Analysis

Table 6. Multiple Linear Regression Analysis Results

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.353	.601		.587	.561
	X1_mean	.124	.255	.104	.486	.630
	X2_mean	.780	.236	.708	3.309	.002

The regression equation obtained is:

$$Y = 0.353 + 0.124X1 + 0.780X2 + e$$

This equation shows that the regression coefficient of Supervision (X1) is positive at 0.124, while the regression coefficient of Internal Control System (X2) is positive at 0.780. This means that improvements in supervision and the internal control system tend to be followed by increased effectiveness of postpaid customer arrears collection.

Coefficient of Determination (R^2)

Table 7. Coefficient of Determination Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.799[a]	.638	.615	.24931

The R Square value of 0.638 indicates that Supervision and Internal Control System explain 63.8% of the variation in the Effectiveness of Postpaid Customer Arrears Collection, while the remaining 36.2% is explained by other variables outside the research model.

F-test (Simultaneous Test)

Table 8. F-Test Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.400	2	1.700	27.347	<,001[b]
	Residual	1.927	31	.062		
	Total	5.326	33			

The F-test results show an F-value of 27.347 with a significance value of < 0.001. This indicates that Supervision (X1) and Internal Control System (X2) simultaneously have a significant effect on the Effectiveness of Postpaid Customer Arrears Collection (Y).

t-test (Partial Test)

Table 9. t-Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.353	.601		.587	.561
	X1_mean	.124	.255	.104	.486	.630
	X2_mean	.780	.236	.708	3.309	.002

The t-test results show that Supervision (X1) does not have a significant effect on the Effectiveness of Postpaid Customer Arrears Collection because the significance value is 0.630 > 0.05. Conversely, the Internal Control System (X2) has a significant effect because the significance value is 0.002 < 0.05.

Bootstrap Test

Table 10. Bootstrap Test Results

Model		B	Bootstrap[a]				
			Bias	Std. Error	Sig. (2-tailed)	BCa 95% Confidence Interval	
						Lower	Upper
1	(Constant)	.353	-.019	.556	.539	-.838	1.331
	X1_mean	.124	-.002	.182	.489	-.260	.491
	X2_mean	.780	.006	.167	.002	.372	1.112

a. Unless otherwise noted, bootstrap results are based on 5000 bootstrap samples

Because the residuals were not normally distributed, hypothesis testing was strengthened using the bootstrap approach. The bootstrap results show that Supervision (X1) remained insignificant, with a significance value of 0.489 and a 95% BCa interval ranging from -0.260 to 0.491. Meanwhile, Internal Control System (X2) remained significant, with a significance value of 0.002 and a 95% BCa interval ranging from 0.372 to 1.112.

Pembahasan

The Effect of Supervision on the Effectiveness of Postpaid Customer Arrears Collection

The results show that Supervision (X1) does not have a significant effect on the Effectiveness of Postpaid Customer Arrears Collection (Y). Although the regression coefficient is positive at 0.124, the t-test significance value of 0.630 and bootstrap significance value of 0.489 indicate that this effect is not statistically strong enough. This finding indicates that supervision has not yet produced a direct impact on collection effectiveness. Supervision may have been implemented; however, if it is not followed by evaluation, follow-up, and measurable corrective action, its impact on collection outcomes becomes limited. Thus, the first hypothesis, which states that Supervision has an effect on the Effectiveness of Postpaid Customer Arrears Collection, is not supported.

The Effect of Internal Control System on the Effectiveness of Postpaid Customer Arrears Collection

The results show that the Internal Control System (X2) has a significant effect on the Effectiveness of Postpaid Customer Arrears Collection (Y), with a t-test significance value of 0.002 and a bootstrap significance value of 0.002. The regression coefficient of 0.780 indicates a positive relationship, meaning that better implementation of the internal control system tends to be followed by higher effectiveness in postpaid customer arrears collection. This finding shows that the internal control system plays an important role in supporting the collection process through clear procedures, segregation of duties, receivables risk management, accurate information, and continuous monitoring.

This result strengthens Hermawan (2023), who found that internal control contributes to receivables management. It is also in line with Hasanah et al. (2024), who explained that receivables collection effectiveness can be supported by information systems, internal control, risk assessment, and internal audit. In addition, Oktariani et al. (2025) showed that an effective receivables internal control system can help minimize uncollectible receivables. Thus, the second hypothesis is supported.

The Simultaneous Effect of Supervision and Internal Control System on the Effectiveness of Postpaid Customer Arrears Collection

The F-test results show that Supervision and Internal Control System simultaneously have a significant effect on the Effectiveness of Postpaid Customer Arrears Collection, with an F-value of 27.347 and a significance value of < 0.001. The R Square value of 0.638 indicates that the two independent variables explain 63.8% of the variation in collection effectiveness. These results indicate that although Supervision does not have a significant partial effect, the research model remains significant when Supervision is analyzed together with the Internal Control System.

This finding is supported by Wardani and Syarif (2023), who showed that accounts receivable information systems and internal control systems are related to receivables collectability. Geraldin and Wijaya (2023) also emphasized that receivables collection procedures in service companies require adequate internal control support. In addition, Yuliyanto et al. (2023) showed that COSO-based internal control supports billing and cash receipt processes. These findings confirm that collection effectiveness is influenced not only by supervision, but also by internal control, information systems, collection procedures, billing processes, and continuous monitoring. Thus, the third hypothesis is supported.

Overall, these findings indicate that internal control is the dominant factor in explaining collection effectiveness, while supervision becomes more meaningful when supported by structured procedures, accurate information, and continuous monitoring. This result confirms that arrears collection is not only a monitoring activity, but also a controlled organizational process that requires an adequate internal control system.

This study has several limitations. First, the study was conducted only at PT PLN (Persero) UID North Sumatra; therefore, the results may not fully represent other PLN units with different customer characteristics and operational conditions. Second, the number of respondents was limited to 34 employees, which may affect the generalizability of the findings. Third, the study used questionnaire-based data, so respondents' perceptions may influence the results. Fourth, the research model only examined supervision and the internal control system, while other factors such as customer compliance, human resource quality, information system effectiveness, coordination among work units, and customers' economic conditions were not included in the model.

Kesimpulan

Based on the research results, it can be concluded that supervision does not have a significant partial effect on the effectiveness of postpaid customer arrears collection at PT PLN (Persero) UID North Sumatra, indicating that supervision alone is not sufficient when it is not followed by evaluation, follow-up, and measurable corrective actions. The internal control system has a significant partial effect on collection effectiveness, which shows that clear procedures, proper segregation of duties, sound risk management, accurate information, and continuous monitoring are important in supporting the collection process. Simultaneously, supervision and the internal control system have a significant effect on the effectiveness of postpaid customer arrears collection, with both variables explaining 63.8% of the variation in collection effectiveness. The contribution of this study lies in providing empirical evidence that the effectiveness of postpaid customer arrears collection is more strongly supported by a structured and continuous internal control system than by supervision alone. Therefore, PT PLN (Persero) UID North Sumatra needs to strengthen internal control in the collection process and ensure that supervision is followed by periodic evaluation, corrective action, and more directed use of collection information.

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