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Village Financial Accountability in Indonesia's Border Region: Evidence from North Central Timor

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ABSTRACT

This study examines the associations between budget transparency, village officials' capacity, Siskeudes utilization, BPD oversight effectiveness, and perceived village financial accountability in the border region of North Central Timor Regency, Indonesia. Data were collected from 90 respondents across 31 villages in seven subdistricts and analyzed using multiple linear regression with village-level cluster-robust standard errors. The regression model was jointly significant, with an adjusted R^2 of 0.711. Budget transparency and village officials' capacity were not significantly associated with perceived village financial accountability. In contrast, Siskeudes' utilization and BPD oversight effectiveness were positively and significantly associated with perceived village financial accountability. BPD oversight effectiveness exhibited the largest standardized coefficient among the predictors. These findings indicate that digital financial administration and institutional oversight were more consistently associated with perceived village financial accountability than the other governance attributes within the sampled villages. This study extends empirical evidence on village financial governance to the Indonesia–Timor-Leste border region.

ABSTRAK

Penelitian ini menganalisis hubungan transparansi anggaran, kapasitas aparatur desa, pemanfaatan Sistem Keuangan Desa (Siskeudes), efektivitas pengawasan BPD, dan persepsi akuntabilitas keuangan desa di wilayah perbatasan Kabupaten Timor Tengah Utara, Indonesia. Data dikumpulkan dari 90 responden di 31 desa di tujuh kecamatan dan dianalisis menggunakan regresi linier berganda dengan cluster-robust standard errors *pada tingkat desa. Model regresi signifikan secara keseluruhan dengan nilai* adjusted R^2 sebesar 0,711. Secara individual, transparansi anggaran dan kapasitas aparatur desa tidak berhubungan *secara signifikan dengan persepsi akuntabilitas keuangan desa. Sebaliknya, pemanfaatan Siskeudes dan efektivitas pengawasan BPD berhubungan positif dan signifikan dengan persepsi akuntabilitas keuangan desa. Efektivitas pengawasan BPD memiliki koefisien terstandardisasi terbesar di antara prediktor dalam model. Temuan ini menunjukkan bahwa administrasi keuangan digital dan pengawasan kelembagaan berhubungan lebih konsisten dengan persepsi akuntabilitas keuangan desa dibandingkan dengan atribut tata kelola lainnya pada desa-desa yang diteliti. Penelitian ini memperluas bukti empiris mengenai tata kelola keuangan desa dalam konteks wilayah perbatasan Indonesia–Timor-Leste.*

1. INTRODUCTION

The enactment of Law No. 6 of 2014 on Villages substantially expanded the authority and fiscal responsibilities of the Indonesian village governments. Through the Village Fund Program, villages receive direct transfers to support public services, local development, community empowerment, and poverty reduction. In 2024, the national Village Fund allocation reached IDR 71 trillion (Aurindah & Arham, 2024). However, greater fiscal authority also increases the need for credible accountability, which extends beyond administrative compliance to include the obligation to explain and justify the use of public resources (Bovens, 2007). Accordingly, the developmental benefits of fiscal decentralization depend partly on whether village governments can ensure transparent, properly documented, and accountable financial management practices.

Despite strengthening village autonomy and participation, the Village Law has exposed persistent differences in administrative competence, information access, oversight capacity, and community engagement (Antlöv et al., 2016; World Bank, 2020). Village-fund governance involves interconnected processes of planning, budgeting, implementation, recording, reporting, supervision, and public justification. Weaknesses in any of these processes can undermine accountability, even when formal procedures are present. Previous studies consequently emphasize the importance of human-resource capacity, internal control, risk management, information systems, and stakeholder oversight in village financial administration (Bawono et al., 2020; Diansari et al., 2023; Ginting et al., 2023).

Recent developments in the North Central Timor Regency illustrate the urgency of these challenges. In November 2025, a regional media report citing a Regional Inspectorate audit indicated potential state losses of approximately IDR 103 billion in village fund management across the regency's 182 villages during 2015–2024 (Amsikan, 2025). In December 2025, second-stage Village Fund disbursements were temporarily suspended for 130 villages, approximately 71.43% of the total, following the new Ministry of Finance requirements. Low-budget absorption and incomplete accountability documentation were identified as contributing administrative constraints (Ciompah, 2025). Although these reports do not establish financial misconduct in every affected village, their scale suggests that administrative, reporting, and oversight weaknesses extend beyond isolated incidents of financial misconduct. These challenges are compounded by the regency's limited fiscal autonomy and strong dependence on intergovernmental transfers (Nalle et al., 2022).

Such challenges may be particularly pronounced in geographically peripheral border areas. This study examines 31 villages across seven subdistricts of North Central Timor Regency, adjacent to the Oecusse enclave of Timor-Leste. Although all sampled villages are located in Indonesia and governed by its public finance system, geographical remoteness, uneven infrastructure, limited connectivity, and restricted administrative support may affect the local implementation of national governance requirements (Badan Pusat Statistik Kabupaten Timor Tengah Utara [BPS TTU], 2024). The region is also characterized by cross-border kinship networks and informal economic activities that shape local socioeconomic relations (Nalle et al., 2025; Oki & Babulu, 2021). These characteristics do not inherently imply weak accountability but establish an institutionally distinct setting that warrants further empirical investigation.

Institutional theory provides a useful framework for understanding this. Formal rules and organizational structures may be adopted to satisfy institutional expectations without being fully integrated into everyday practices (Meyer & Rowan, 1977). Research on policy–practice decoupling similarly demonstrates that formal commitments can diverge from implementation when administrative capacity, monitoring, or operational support are inadequate (Bromley & Powell, 2012). In village financial governance, transparency requirements, personnel qualifications, financial information systems, and oversight bodies may contribute little to accountability when information remains inaccessible, administrative competencies are inconsistently applied, systems are poorly integrated, or oversight lacks meaningful follow-up. These implementation gaps may be especially relevant where standardized national requirements operate under the geographical and institutional constraints of a peripheral border region.

This study examines four governance attributes that represent distinct dimensions of village financial accountability. Budget transparency concerns stakeholders' access to financial information; village officials' capacity reflects the administrative knowledge and practical skills required for financial management; Siskeudes utilization reflects respondents' assessment of practical system use and its immediate enabling conditions in village financial administration, recording, and reporting; and oversight by the Village Consultative Body (*Badan Permusyawaratan Desa*, BPD) represents institutional scrutiny of village financial decisions. The effectiveness of Siskeudes depends on information quality, system reliability, user capability, and organizational support (Indriani et al., 2020). Collectively, these attributes encompass informational, organizational, technological, and oversight dimensions of village governance (Mukaddar et al., 2021; Amanu et al., 2025). They are analyzed as separate direct determinants rather than mediating, moderating, or interacting mechanisms.

Although previous studies have identified several determinants of village fund accountability in Indonesia, limited attention has been paid to international border regions as institutionally relevant contexts. Therefore, the principal research gap is not merely the inclusion of established predictors within a single regression model. Rather, it concerns whether commonly recognized governance attributes exhibit similar empirical relevance when implemented in a geographically peripheral and administratively constrained border environment. Geographical remoteness, uneven infrastructure, limited administrative support, and strong informal relationships may influence the translation of formal governance arrangements into substantive accountability. These conditions inform the interpretation of the estimated direct relationships but are not modeled as statistical moderators.

Against this background, this study examines the associations between budget transparency, village officials' capacity, Siskeudes utilization, BPD oversight, and perceived village financial accountability across 31 border villages in North Central Timor Regency. Its contributions are primarily contextual and empirical. First, it extends the evidence on Indonesian village financial governance to an underrepresented international border setting. Second, it compares the empirical relevance of informational, organizational, technological, and oversight attributes within a shared institutional environment. Third, it applies the distinction between formal adoption and substantive implementation to interpret accountability relationships under peripheral border conditions. Rather than proposing a new theory, the study refines the understanding of how established governance attributes are associated with perceived financial accountability in an institutionally distinctive setting.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

2.1. Institutional Theory and Village Financial Accountability

Institutional theory explains how formal rules, administrative procedures, normative expectations, and informal constraints shape organizational behavior and financial accountability (Surachman, 2020; Budiadnyana et al., 2026). In Indonesian village governance, accountability emerges from the interactions among national regulations, district supervision, administrative norms, community expectations, and local social relations. Therefore, its effectiveness depends not simply on the existence of governance arrangements but on their substantive implementation in routine financial management.

Organizations may adopt formal structures to maintain legitimacy without integrating them into everyday practices, a phenomenon known as institutional decoupling (de Bree & Stoopendaal, 2020; Permatasari et al., 2024). Accordingly, budget disclosure, officials' qualifications, financial information systems, and oversight bodies do not automatically ensure accountability unless they support accessible information, effective administration, meaningful scrutiny, and corrective actions. This distinction is particularly relevant in border villages, where geographical remoteness, limited infrastructure, restricted administrative support, and embedded social relations may widen the gap between formal compliance and substantive implementation of the law.

Within this framework, budget transparency, village officials' capacity, Siskeudes utilization, and Village Consultative Body oversight represent informational openness, organizational resources, technology-enabled administration, and institutional scrutiny. The empirical model estimates their direct associations with perceived village financial accountability, accounting for respondents clustered within villages. Border setting serves as an institutional context rather than a statistical moderator, and the analysis does not test mediation, moderation, interaction, or complementarity among the four governance attributes.

2.2. Agency Relationships and Institutional Oversight

Agency theory explains how institutional oversight can strengthen village financial accountability by addressing information asymmetry between citizens and village officials (Nor et al., 2025). Citizens delegate authority to village governments to manage public resources; however, officials typically possess superior information regarding budget planning, expenditure, procurement, and financial reporting. This imbalance, combined with potentially divergent interests, creates agency risks involving moral hazards, selective disclosures, and unobservable administrative discretion (Araral, 2026; Bergh et al., 2019).

Transparency and oversight reduce these risks by improving access to financial information and requiring officials to justify their decisions. However, formal reporting alone cannot resolve information asymmetry unless budget information is timely, understandable, and accessible. Effective accountability also requires credible monitoring, identification of irregularities, and institutional mechanisms capable of addressing reported problems (Vian, 2020).

In Indonesian village governance, the Village Consultative Body (*Badan Permusyawaratan Desa*, or BPD) represents community interests by examining budget implementation, requesting clarification, and monitoring the consistency between approved plans, expenditures, and reported outcomes. These activities reduce officials' informational advantages and strengthen their scrutiny. Evidence indicates that effective oversight, participatory budgeting, and community involvement can improve the efficiency, transparency, and accountability of village fund management (Ardiputra et al., 2025). However, oversight effectiveness may be constrained by limited financial literacy, restricted access to records, weak independence, and kinship or patron–client relationships, particularly in border villages.

Therefore, the formal establishment of the BPD should not be equated with substantive oversight of the police. Its contribution to accountability depends on reliable information, active financial scrutiny, community engagement, and follow-up of identified problems. Agency theory explains why oversight is necessary, whereas institutional theory clarifies why formally established arrangements may not function effectively. Accordingly, this study examines the direct relationship between BPD oversight effectiveness and perceived village financial accountability without assuming moderation or interaction with other governance determinants.

2.3. Budget Transparency and Village Financial Accountability

Budget transparency concerns the disclosure and accessibility of information on village budgets, expenditure, and development activities. By reducing information asymmetry between village officials and citizens, accessible financial information enables communities and oversight institutions to scrutinize budget implementation (Indriasih & Sulistyowati, 2022). However, transparency differs conceptually from accountability: the former concerns information disclosure and accessibility, whereas the latter requires officials to explain, justify, and take responsibility for financial decisions.

Formal disclosure does not necessarily produce substantive accountability when budget information remains difficult to access, understand, or use. This distinction may explain why previous studies report mixed findings, including an insignificant relationship between transparency and village financial accountability (Suhartini et al., 2025). In the border villages of North Central Timor, geographical remoteness, limited communication channels and administrative capacity, and close social relationships may further constrain meaningful public scrutiny. Although these conditions are treated as contextual boundaries rather than statistical moderators, transparency is expected to strengthen accountability by reducing information asymmetry and facilitating oversight.

H1: Budget transparency is positively associated with perceived village financial accountability in the border villages of North Central Timor, Indonesia.

2.4. Village Officials' Capacity and Village Financial Accountability

Village officials' capacity encompasses the knowledge, technical skills, and practical competence required to manage budgets, administer transactions, operate financial systems, interpret regulations, and prepare reliable financial reports. Institutionally, competent officials can translate formal requirements into effective administrative practices, thereby improving the accuracy of reporting, regulatory compliance, and financial accountability. Evidence from 689 Indonesian village officials confirms that administrative competence significantly contributes to village fund accountability (Diansari et al., 2023).

However, formal qualifications and training do not guarantee effective financial management when operational guidance, technological infrastructure, managerial support, or opportunities to apply acquired skills are inadequate. Research in Banten and West Java found that village government competence did not significantly influence accountability under such structural constraints (Setiyawati et al., 2025). Similar limitations may arise in border villages in North Central Timor, where access to training, technical assistance, and specialized personnel remains uneven. Nevertheless, stronger practical competence is expected to improve perceived financial accountability, with contextual constraints treated as explanatory boundaries rather than mediating or moderating variables.

H2: Village officials' capacity is positively associated with perceived village financial accountability in the border villages of North Central Timor, Indonesia.

2.5. Siskeudes Utilization and Village Financial Accountability

The Village Financial System (*Sistem Keuangan Desa*, or Siskeudes) supports village financial management through standardized budgeting, transactions recording, and reporting. Its effective utilization can strengthen accountability by improving reporting consistency, reducing administrative errors, and maintaining traceable, financial records. Evidence from Indonesian village governments indicates that financial system implementation contributes positively to accountability, transparency, and administrative performance (Aligarh et al., 2025).

However, formal adoption does not guarantee effective implementation, particularly when technical capacity, infrastructure, and organizational support are limited. Accordingly, this study conceptualizes Siskeudes utilization as a composite assessment encompassing practical system use, perceived ease of operation, perceived usefulness, and the availability of infrastructure and training support (Kesa et al., 2024). In the border villages of North Central Timor, these dimensions collectively capture respondents' assessments of the system's application and immediate enabling conditions. Effective utilization is therefore expected to strengthen perceived village financial accountability.

H3: Siskeudes utilization is positively associated with perceived village financial accountability in border villages in North Central Timor, Indonesia.

2.6. BPD Oversight and Village Financial Accountability

The Village Consultative Body (*Badan Permusyawaratan Desa*, or BPD) represents community interests and monitors village government activities. From an agency perspective, effective oversight reduces information asymmetry by examining budget implementation, requesting clarification, and identifying discrepancies between approved plans and actual expenditures. Evidence from Indonesia indicates that stronger oversight and community participation improve financial transparency, administrative accountability, and village fund management (Ardiputra et al., 2025).

However, the formal existence of BPD does not ensure effective oversight, which depends on access to financial information, budget literacy, institutional independence, and the capacity to address identified problems. In North Central Timor's border villages, geographical isolation, limited technical support, and strong kinship networks may further constrain independent scrutiny. Nevertheless, active monitoring, community representation, and demands for financial clarification are expected to strengthen perceived village financial accountability.

H4: *BPD oversight effectiveness is positively associated with perceived village financial accountability in border villages in North Central Timor, Indonesia.*

3. RESEARCH METHOD

3.1. Research Design

This study employed a cross-sectional explanatory survey to examine the associations between budget transparency, village officials' capacity, utilization of the Village Financial System (*Siskeudes*), effectiveness of the Village Consultative Body (*Badan Permusyawaratan Desa*, BPD) oversight, and perceived village financial accountability. A quantitative design was appropriate because this study aimed to assess whether differences in these governance attributes were statistically associated with variations in accountability perceptions across village governments in an international-border setting (Hair et al., 2019).

The theoretical framework combines institutional and agency theories. Institutional theory explains why formally established governance arrangements do not necessarily translate into substantive accountability practices, while agency theory highlights information asymmetry, monitoring, and answerability in relationships between village officials and stakeholders. These perspectives informed the specification of four direct relationships between the independent and dependent variables. Because the study employed a cross-sectional observational design, the estimated relationships are interpreted as statistical associations rather than definitive causal effects.

Although the village government constitutes the substantive organizational unit of interest, the empirical observations were obtained from individual respondents representing village-level governance actors. The resulting data therefore have a clustered structure, with multiple respondents nested within the same village. This structure was explicitly incorporated into statistical inference through village-clustered robust standard errors (Abadie et al., 2023).

3.2. Population, Study Area, and Sampling Technique

The analytical sample comprised 31 villages distributed across seven subdistricts: Bikomi Nilulat, Bikomi Utara, Insana Utara, Naibenu, Mutis, Miomafo Barat, and Musi. These subdistricts were selected because they represent the institutional and geographical characteristics relevant to the research setting, including proximity to the international border, varying infrastructure conditions, differences in administrative accessibility, and cross-border socioeconomic interaction.

Village selection followed a purposive sampling strategy, which allowed the researchers to identify cases and participants with characteristics directly relevant to the research objectives (Campbell et al., 2020). Eligible villages were required to be located within the Indonesia–Timor-Leste border region, receive Village Fund allocations, and have village officials or BPD representatives directly involved in financial planning, administration, reporting or oversight.

The respondents included village heads, village secretaries, village financial officers, and BPD chairpersons or members. Village heads and secretaries were prioritized because of their direct responsibilities in village financial management, while financial officers and BPD representatives were included when available and relevant to the selected village's governance arrangements. Consequently, not all respondent categories were represented in every village.

A total of 90 respondents participated in the survey. Twenty-eight villages contributed three respondents each, while three villages contributed two respondents each. Accordingly, the 90 individual observations were nested within 31 village clusters. Each respondent was assigned a village identification code to preserve the link between individual responses and the corresponding village while maintaining confidentiality. Figure 1 presents the seven sampled subdistricts and their geographical position relative to the Oecusse enclave; individual village locations are not separately mapped.

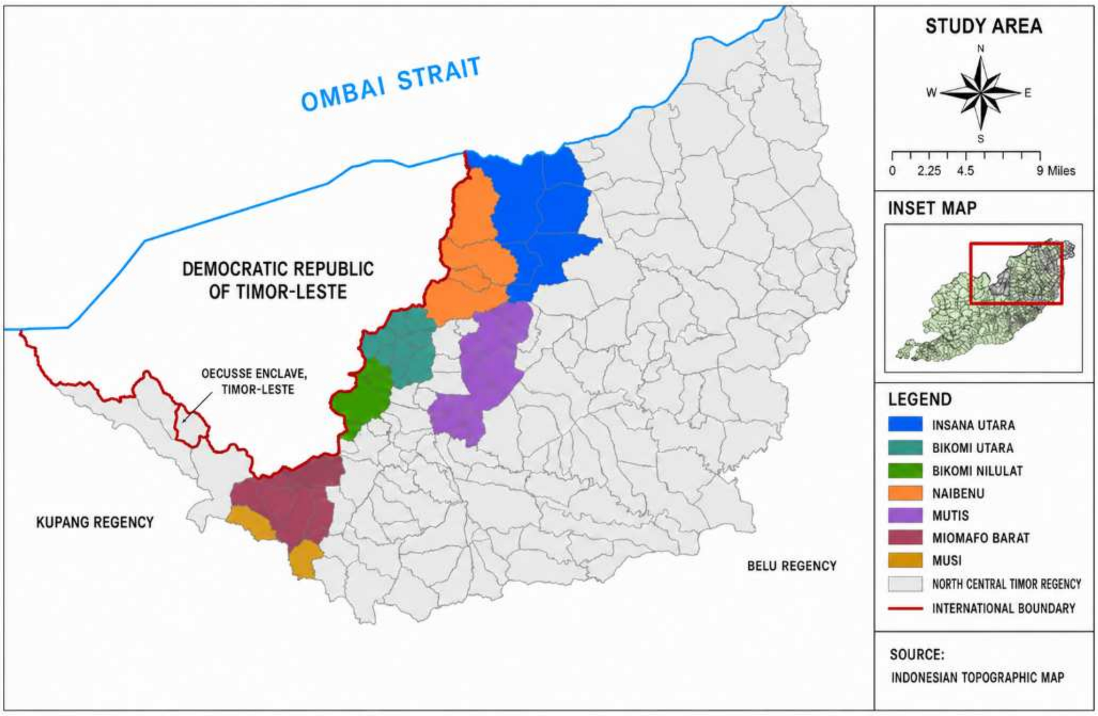

Figure 1.
Study Area and Seven Sampled Subdistricts in the Indonesia–Timor-Leste Border Region, North Central Timor Regency, Indonesia
Source: Authors' map design using ArcGIS and the Indonesian Topographic Map (2026).

3.3. Operational Definition and Measurement of Variables

The study included four independent variables and one dependent variable. Budget transparency, village officials' capacity, Siskeudes utilization, and BPD oversight effectiveness were the explanatory variables, while perceived village financial accountability was the outcome variable.

All variables were measured using a four-point Likert scale ranging from 1 = strongly disagree to 4 = strongly agree. Each construct was represented by four questionnaire items. Composite scores were calculated by summing the corresponding item responses, yielding a theoretical score range of 4–16 for each variable. The use of multiple indicators and composite scores follows the established measurement principles for operationalizing latent or multidimensional concepts in social research (DeVellis, 2012).

The dependent variable captures respondents' assessments of financial accountability practices, rather than an independently constructed archival accountability index. Although administrative documents were consulted to understand the institutional setting and contextualize the findings, they were not incorporated into the regression model as objective outcome measures. The operational definitions and measurement indicators are listed in Table 1.

Table 1. Operational Definitions and Measurement of Research Variables

Variable	Operational definition	Measurement indicators	Scale	References
Budget Transparency, X1	The extent to which village financial information is disclosed, accessible, understandable, and consistently communicated to relevant stakeholders.	X1.1: Openness of village budget and financial information. X1.2: Accessibility of financial information through available communication channels. X1.3: Clarity and completeness of disclosed information. X1.4: Frequency and consistency of information disclosure.	Four-point Likert scale; four items; composite score: 4–16.	(Rakhman, 2019; Kairupan & Mantiri, 2020)
Village Officials' Capacity, X2	Respondents' assessment of the technical, administrative, and regulatory competencies of village	X2.1: Technical competence in village financial management. X2.2: Understanding relevant financial regulations and administrative procedures.	Four-point Likert scale; four items; composite score: 4–16.	(Rosari & Manabulu, 2020; Zahra & Ariani, 2023; Susilowati et al., 2020)

	officials involved in financial management.	X2.3: Ability to prepare financial reports accurately and promptly. X2.4: Skills in using administrative and financial management systems.		
Siskeudes Utilization, X3	Respondents' assessment of the practical use of the Village Financial System and its immediate enabling conditions in routine village financial administration, recording and reporting.	X3.1: Frequency and consistency of Siskeudes use. X3.2: Perceived ease of operating the system. X3.3: Perceived usefulness of financial administration and reporting. X3.4: Availability of infrastructure and training support for system utilization.	Four-point Likert scale; four items; composite score: 4–16.	(Dewila, 2025; Indriani et al., 2020; Bawono et al., 2020)
BPD Oversight Effectiveness, X4	Respondents' assessment of the effectiveness of the Village Consultative Body in monitoring, reviewing, and questioning village financial management.	X4.1: Intensity of BPD oversight of the village budget. X4.2: Independence and objectivity of oversight activities. X4.3: Communication and coordination with village-government officials. X4.4: Capacity to review financial documents and accountability reports.	Four-point Likert scale; four items; composite score: 4–16.	(Hasibuan & Sitompul, 2024; Amanu et al., 2025)
Perceived Village Financial Accountability, Y	Respondents' assessed the extent to which village financial management complies with procedures, produces timely reports, maintains adequate documentation, and communicates financial implementation outcomes.	Y1: Compliance with applicable financial procedures and regulations. Y2: Timeliness of financial and accountability reporting. Y3: Completeness of the supporting financial documentation. Y4: Disclosure of information concerning the use of village funds.	Four-point Likert scale; four items; composite score: 4–16.	(Uzochukwu et al., 2018; Okitsu & Edwards Jr., 2017; Anggareka, 2024)

Source: Authors' compilation based on cited studies and the research questionnaire.

The Siskeudes construct was operationalized as a composite measure encompassing practical system use and its immediate enabling conditions, which include the following four indicators: frequency and consistency of use, perceived ease of operation, perceived usefulness, and availability of infrastructure and training support. These indicators reflect the questionnaire items used in the original survey and were retained to preserve consistency with the data collected (Indriani et al., 2020).

Budget transparency and perceived accountability were considered conceptually related but distinct constructs. Transparency refers to the availability, accessibility, clarity, and regularity of financial information, whereas accountability encompasses procedural compliance, reporting timeliness, documentation, and answerability concerning financial management. Nevertheless, the partial conceptual proximity between information disclosure and accountability was considered when interpreting empirical findings.

3.4. Data Collection Procedures

Primary data were collected through structured questionnaires administered to eligible village officials and BPD representatives from 31 selected villages. The questionnaire covered respondents' assessments of budget transparency, village officials' capacity, Siskeudes utilization, BPD oversight effectiveness, and village financial accountability.

The questionnaires were directly distributed to the respondents. When necessary, the researchers clarified the meaning of individual questions without directing participants toward particular responses. The survey sought information from officials and oversight representatives with direct knowledge of village budgeting, financial administration, and reporting and monitoring activities.

Secondary documents, including village budgets, budget realization reports, accountability reports, and other available administrative materials, were reviewed to understand the village financial management procedures and contextual conditions. These documents served as supplementary contextual information and were not converted into independent quantitative accountability indicators.

Because the explanatory and dependent variables were obtained from the same questionnaire, the study acknowledges the possibility of common method bias, which may arise when measurement characteristics shared across variables influence the observed relationships (Jordan & Troth, 2020). To reduce this risk during data collection, participation was voluntary, respondent confidentiality was emphasized, and the questionnaire items were formulated to distinguish the substantive dimensions of the respective constructs. Nevertheless, common method variance cannot be entirely excluded and should be considered when interpreting the findings.

3.5. Data Analysis Technique

Data analysis began with the examination of questionnaire completeness, item coding, and consistency between item-level responses and composite variable scores. Subsequently, descriptive statistics were used to summarize the distributions of the research variables.

Instrument validity was evaluated using item–total correlations, and internal consistency was assessed using Cronbach's alpha. A coefficient of approximately 0.70 or higher was considered indicative of acceptable reliability, although the interpretation also considered the number of indicators and conceptual coherence of each construct (DeVellis, 2012; Hair et al., 2019).

Each construct was measured using four questionnaire items, and composite scores were calculated by summing the responses to those items.

The regression coefficients were estimated using ordinary least square regression. However, because multiple respondents originated from the same village, the observations could not be assumed to be fully independent. Therefore, statistical inference was based on village-clustered robust standard errors across 31 village clusters. This adjustment allows regression disturbances to be correlated among respondents from the same village, while accounting for the clustered structure of the sample (MacKinnon et al., 2023).

$$x_{1I} = \sum_{J=1}^{4} x1_{IJ}$$

$$x_{2I} = \sum_{J=1}^{4} x2_{IJ}$$

$$x_{3I} = \sum_{J=1}^{4} x3_{IJ}$$

$$x_{4I} = \sum_{J=1}^{4} x4_{IJ}$$

$$Y_i = \sum_{J=1}^{4} Y_i$$

where i denotes an individual respondent and j denotes the corresponding questionnaire item.
The main empirical model is specified as follows:

$$Y_{iv} = \beta_0 + \beta_1 BT_{iv} + \beta_2 VOC_{iv} + \beta_3 SIS_{iv} + \beta_4 BPD_{iv} + \varepsilon$$

Where:

Y_{iv} = Perceived Village Financial Accountability,
BT = Budget Transparency,
VOC = Village Officials' Capacity,
SIS = Siskeudes utilization,

BPD	=	BPD oversight effectiveness,
β_0	=	Constant
β_1–β_4	=	regression coefficients
ε	=	Error term
i	=	Individual respondent
v	=	Village cluster

A finite-sample correction was applied to the cluster-robust covariance estimator, and coefficient-level hypothesis tests were evaluated using 30 clusters of degrees of freedom. The overall statistical significance of the model was assessed using a cluster-robust Wald test. The coefficient of determination and adjusted coefficient of determination were used to describe the explanatory performance of the regression models.

Multicollinearity was evaluated using the variance inflation factor. In addition, standardized regression coefficients were examined to compare the relative magnitude of the estimated associations across the explanatory variables (Hair et al., 2019). Accordingly, any statement concerning the strongest predictor is based on standardized coefficients, rather than a direct comparison of unstandardized coefficients.

Hypotheses were assessed at the 5% significance level. A statistically significant coefficient indicates that the corresponding explanatory variable is associated with perceived village financial accountability after accounting for other predictors and within-village clustering. A statistically significant overall model does not imply that all individual explanatory variables are statistically significant.

Because the research design was cross-sectional and relied on respondents' perceptions, the results were interpreted as associations within the observed sample. The model does not test for mediation, moderation, interaction effects, or causal mechanisms beyond the four specified direct relationships.

3.6. Ethical Considerations

Participation in the survey was voluntary, and respondents were informed of the research purpose before completing the questionnaire. Respondents were assured that the information provided would be used exclusively for academic purposes and that their identities would not be disclosed in published results.

Village identification codes were used solely to organize the dataset and account for clustered sampling structures. The analysis does not disclose the identities of individual respondents or attribute specific accountability assessments to identifiable villages. Research access and data collection were conducted in coordination with the relevant local government and village authorities in the study area.

4. DATA ANALYSIS AND DISCUSSION

4.1. Respondent Characteristics and Village-Level Clustering

Table 2. Respondent Characteristics and Village-Level Clustering

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	63	70.0
	Female	27	30.0
Age	25–35 years	29	32.2
	36–45 years	42	46.7
	≥46 years	19	21.1
Education	Elementary school	7	7.8
	Junior high school	31	34.4
	Senior high school	39	43.3
	Diploma	5	5.6
	Bachelor's degree	8	8.9
Length of service	1–5 years	21	23.3
	6–10 years	42	46.7
	≥11 years	27	30.0
Village clusters	Villages with three respondents	28	90.3[a]
	Villages with two respondents	3	9.7[a]
Sample coverage	Total respondents	90	–
	Total villages	31	–
	Total subdistricts	7	–

Source: Processed primary data, 2026

Note: Respondent percentages were calculated using 90 respondents as the denominator. [a]Village cluster percentages were calculated using 31 villages as the denominator.

The sample predominantly comprised men (70.0%), respondents aged 36–45 years (46.7%), senior high school graduates (43.3%), and individuals with 6–10 years of service (46.7%). These characteristics describe the respondents' demographic profiles and professional experience but do not directly establish financial management competence or statistical representativeness.

Twenty-eight villages contributed three respondents each, and three villages contributed two respondents each. Because respondents from the same village may share institutional conditions and governance practices, the regression analysis employed village-clustered robust standard errors to account for potential within-village dependencies.

4.2. Instrument Validity, Reliability, and Measurement Considerations

Item–total correlations and Cronbach's alpha were used to evaluate the item consistency and construct reliability. The results are shown in Table 3.

Table 3. Summary of Instrument Validity and Reliability

Variable	Number of items	Item–total correlations	Cronbach's alpha	Assessment
Budget Transparency (X1)	4	0.660–0.885	0.791	Acceptable
Village Officials' Capacity (X2)	4	0.705–0.821	0.753	Acceptable
Siskeudes Utilization (X3)	4	0.669–0.819	0.714	Acceptable
BPD Oversight Effectiveness (X4)	4	0.696–0.833	0.778	Acceptable
Perceived Village Financial Accountability (Y)	4	0.662–0.917	0.824	Acceptable

Source: Processed primary data, 2026.

Table 3 shows that all item–total correlations exceeded 0.60, while Cronbach's alpha coefficients ranged from 0.714–0.824. These values indicate acceptable internal consistency but do not independently establish construct unidimensionality or discriminant validity (DeVellis, 2012; Hair et al., 2019). Supplementary heterotrait–monotrait diagnostics exceeded 0.90 for several construct pairs, indicating a potential overlap among the measured governance attributes.

Siskeudes utilization was measured as a composite construct incorporating practical system use, perceived ease of operation, perceived usefulness, infrastructure, and training support. Accordingly, its estimated association reflects respondents' overall assessment of system utilization and its immediate enabling conditions. Transparency and accountability were distinguished by their measurement focus: transparency emphasizes information disclosure and accessibility, whereas accountability encompasses procedural compliance, reporting, documentation, and financial accountability.

Because all variables were measured using the same questionnaire, common method bias cannot be excluded despite confidentiality safeguards and item differentiation. A supplementary Harman single-factor diagnostic indicated that the first factor explained 49.75% of the total variance, close to the conventional 50% heuristic; the observed associations therefore warrant cautious interpretation (Jordan & Troth, 2020).

4.3. Regression Diagnostics and Village-Clustered Inference

Regression diagnostics assessed residual normality, heteroscedasticity, and multicollinearity. Because the study used cross-sectional data with multiple respondents nested within the same villages, the primary dependence concern was within-village correlation rather than serial correlation. Table 4 presents the diagnostic results.

Table 4. Summary of Regression Diagnostics

Diagnostic	Variable/statistic	Result	Assessment
Residual normality	Jarque–Bera statistic	24.836	Normality rejected
	Probability	0.000004	
	Skewness	−0.547	Slightly left-skewed
	Kurtosis	5.329	Relatively heavy-tailed
Heteroskedasticity	Chi-square probability	0.9648	No evidence of heteroskedasticity
Multicollinearity	Budget Transparency	2.816	Acceptable
	Village Officials' Capacity	3.884	Acceptable
	Siskeudes Utilization	4.379	Acceptable
	BPD Oversight Effectiveness	4.217	Acceptable
Cluster structure	Number of village clusters	31	Clustered inference required
	Respondents per village	2–3	–

Source: Processed primary data, 2026

Table 4 shows that the Jarque–Bera test rejected the null hypothesis of residual normality (JB=24.836, p<0.001). This departure was primarily reflected in the kurtosis value of 5.329, which exceeded the normal distribution benchmark of 3, and a skewness value of −0.547. Therefore, the residual distribution was relatively heavy-tailed and slightly left-skewed.

Residual non-normality does not automatically bias OLS coefficient estimates but may reduce the accuracy of conventional statistical tests in finite samples. Accordingly, statistical inference was not based solely on conventional OLS standard errors. The clustered data structure was also considered because respondents from the same village may share institutional conditions, administrative procedures, and governance experiences.

The heteroscedasticity test produced a chi-square probability of 0.9648, providing no evidence of unequal residual variance. Variance inflation factors ranged from 2.816 to 4.379, indicating no severe multicollinearity, although correlations among the governance constructs should still be considered when interpreting individual coefficients (Hair et al., 2019).

Because the 90 observations were nested within 31 villages, statistical inference employed village-clustered robust standard errors with a finite-sample correction. This approach allows the residuals to be correlated among respondents within the same village while assuming independence across villages. The coefficient tests used 30 cluster degrees of freedom, and the overall significance of the model was assessed using a cluster-robust Wald test (Abadie et al., 2023; MacKinnon et al., 2023).

This strategy provides a more appropriate basis for inference than the conventional OLS standard errors under the observed data structure. However, clustered standard errors do not restore the residual normality. Given the limited number of clusters and non-normal residuals, the results should be interpreted with caution. In a supplementary village-level sensitivity analysis, BPD oversight remained significant, whereas the Siskeudes association became marginal (p = 0.0517).

4.4. Multiple Linear Regression Analysis

Multiple linear regression was used to examine the associations between budget transparency, village officials' capacity, Siskeudes utilization, BPD oversight effectiveness, and perceived village financial accountability. Because the 90 respondents were nested within 31 villages, the statistical inference was based on village-clustered robust standard errors. The estimation results are shown in Table 5.

Table 5. Multiple Linear Regression Results with Village-Clustered Robust Standard Errors

Variable	Coefficient	Clustered SE	t-statistic	p-value	Standardized β
Constant	2.194415	0.715348	3.067620	0.0045	–
Budget Transparency	−0.112929	0.109362	−1.032612	0.3100	−0.118
Village Officials' Capacity	−0.026895	0.103747	−0.259241	0.7972	−0.027
Siskeudes Utilization	0.368256	0.125718	2.929230	0.0064	0.363
BPD Oversight Effectiveness	0.625735	0.122762	5.097134	<0.001	0.648
Model statistics					
Observations	90				
Village clusters	31				
R-squared	0.724085				
Adjusted R-squared	0.711101				
Conventional F-statistic	55.76652			<0.001	
Cluster-robust Wald F-statistic	77.029		(F(4,30))	<0.001	

Source: Processed primary data, 2026

Note: Hypothesis testing was based on village-clustered robust standard errors. The conventional F-statistic was provided for comparison.

The multiple linear regression estimation presented in Table 5 produces the following equation:

VFA = 2.194415 – 0.112929BTiv – 0.026895VOCiv + 0.368256SISiv + 0.625735BPDiv + ε

Table 5 shows that budget transparency (B=−0.112929, p=0.3100) and village officials' capacity (B=−0.026895, p=0.7972) had negative but statistically insignificant coefficients. Therefore, these estimates provide insufficient evidence that either variable is associated with perceived village financial accountability. Conversely, Siskeudes utilization (B=0.368256, p=0.0064) and BPD oversight effectiveness (B=0.625735, p<0.001) were positively and significantly associated with accountability. The standardized coefficient for BPD oversight (β=0.648) exceeded that for Siskeudes utilization (β=0.363), indicating that BPD oversight had the strongest relative association among the predictors. Overall, the findings suggest that operational financial-management systems and active institutional oversight were more consistently associated with perceived village financial accountability than budget transparency and village officials' capacity within the sampled border villages.

4.5. Simultaneous Testing

The conventional OLS F-test produced an F-statistic of 55.767 ($p<0.001$), indicating that the regression model was statistically significant. However, because the respondents were nested within 31 villages, the primary assessment of joint significance relied on the cluster-robust Wald test, which yielded $F(4,30)=77.029$ ($p<0.001$).

This result rejects the null hypothesis that the coefficients of budget transparency, village officials' capacity, Siskeudes utilization, and BPD oversight effectiveness are all equal to zero. Therefore, the model was statistically significant. However, joint significance does not imply that all independent variables are individually significant; only Siskeudes utilization and BPD oversight effectiveness demonstrated significant associations with perceived accountability.

4.6. Coefficient of Determination (R^2)

The regression model produced an R^2 of 0.724 and an adjusted R^2 of 0.711, indicating that the explanatory variables accounted for approximately 71.1% of the observed variation in perceived village financial accountability after adjusting for the number of predictors.

However, this value reflects the in-sample model fit rather than the causal explanatory power. Because all variables were measured using the same questionnaire, the observed association may be influenced by common method variance and conceptual overlap among constructs. The remaining variation reflects unmeasured factors and other differences not captured by the model.

5. DISCUSSION

5.1. Budget Transparency and Village Financial Accountability

Budget transparency had a negative but statistically insignificant association with perceived village financial accountability ($B=-0.113$, $p=0.310$; standardized $\beta=-0.118$). Thus, H1 was not supported. Because the coefficient was statistically indistinguishable from zero, its negative sign should not be interpreted as evidence that transparency reduces accountability. The result instead indicates that the measured variation in budget transparency did not have an independent association with perceived accountability after controlling for other governance attributes and within-village dependence.

Agency theory suggests that financial disclosure can reduce information asymmetry by enabling citizens and oversight actors to examine public resource use. However, disclosure alone may not generate accountability unless the information is accessible, understandable, timely, and connected to opportunities for scrutiny and participation (Harrison & Sayogo, 2014; Taufiqurokhman & Almuqsith, 2025). From an institutional perspective, the result is consistent with, but does not directly demonstrate, the possibility of decoupling between formal disclosure requirements and their substantive use in village governance. Budget information may be formally published to satisfy administrative requirements without necessarily becoming part of routine questioning, evaluation, and corrective actions (de Bree & Stoopendaal, 2020; Androniceanu, 2021).

Previous studies on local and peripheral governance suggest that differences in access to information, public capacity, and hierarchical social relations may influence whether formal transparency becomes effective public scrutiny (Nurdin & Grydehøj, 2014; Noak, 2024). These factors offer possible contextual interpretations rather than explanations established by the present data. The study did not directly measure public financial literacy, citizen participation, patron–client relations, or the substantive use of disclosed information. Therefore, it cannot determine whether these mechanisms account for the insignificant coefficient or whether they condition the transparency–accountability relationship.

This finding has limited but relevant policy implications. Transparency initiatives should emphasize not only the publication of budget information but also its clarity, accessibility, and connection to institutional channels through which stakeholders can request explanations. The significant associations of Siskeudes utilization and BPD oversight found elsewhere in the model also suggest the value of considering transparency alongside routine financial administration and active oversight. However, because the study did not test the interaction or complementary effects, it cannot conclude that combining these mechanisms will necessarily strengthen accountability. Further research should directly examine whether citizen capacity, participation, and oversight conditions shape the relationship between budget disclosure and substantive accountability.

5.2. Village Officials' Capacity and Village Financial Accountability

Village officials' capacity was negatively but insignificantly associated with perceived village financial accountability (B=−0.027, p=0.797, standardized β=−0.027). Consequently, H2 is not supported. This finding does not demonstrate that capacity undermines accountability or that competence is irrelevant to accountability. Rather, the measured capacity score showed no independent association with accountability after accounting for budget transparency, Siskeudes utilization, BPD oversight, and clustering of respondents within villages.

The respondent characteristics provide relevant context for interpreting these findings. Most participants had completed senior high school (43.3%) or junior high school (34.4%), while only 5.6% held diplomas and 8.9% held bachelor's degrees. Meanwhile, 46.7% had served for 6–10 years, and 30.0% had at least 11 years' experience. This profile indicates that substantial professional experience was not necessarily accompanied by advanced, formal education. However, because education and length of service were not included as explanatory variables, their contribution to the statistically insignificant capacity coefficient could not be established.

This finding is consistent with Sanusi and Riyadi (2023), who also reported no significant association between village officials' competence and accountability in village fund management. By contrast, Cahyani et al. (2022) identified a significant relationship between officials' competence and village financial management. These contrasting findings suggest that the contribution of administrative competence may vary across institutional settings and does not necessarily emerge as an independent direct association in every model.

In the present study, officials' capacity encompassed regulatory knowledge, administrative skills, reporting competence, and the ability to operate financial systems. Some of these attributes overlap with Siskeudes' utilization, which was significantly associated with perceived accountability. Ningsih and Anggraeni (2023) found that Siskeudes partially mediated the relationship between village officials' competence and accountability in village fund management. Their finding suggests that competence may become more consequential when applied through routine financial-management systems. However, because the present model did not test mediation, this explanation remains a theoretical possibility rather than an empirically established mechanism.

Border setting also provides a relevant institutional context. The distribution of respondents across 31 villages in seven subdistricts indicates that village financial management occurs in administratively diverse local environments. Differences in access to technical assistance, infrastructure, and organizational support may influence how officials apply their skills. However, these conditions were not assessed as independent explanatory variables and, therefore, cannot be identified as the causes of the observed insignificant association.

Friday et al. (2022) suggest that administrative competence becomes more effective when supported by adequate internal controls and organizational procedures. Similarly, Boufounou et al. (2024) emphasize the importance of institutional conditions in translating individual capabilities into public financial management performance. From an institutional perspective, formally recognized competence may not translate into substantive accountability unless applied through organizational arrangements that support financial recording, reporting, oversight, and corrective action.

These findings suggest that capacity-building initiatives in border villages should extend beyond formal training programs. Continuous technical assistance, practical application within Siskeudes workflows, and coordination with BPD oversight are warranted. Nevertheless, their independent effectiveness remains untested because technical assistance and infrastructure were not modeled separately, and interactions between officials' capacity and oversight mechanisms were not examined.

5.3. The Role of Siskeudes Utilization in Supporting Village Financial Accountability

Regression estimates using village-level cluster-robust standard errors indicate that the utilization of the Village Financial System (Siskeudes) is positively and significantly associated with perceived village financial accountability (B = 0.368, p = 0.006, standardized β = 0.363). This finding supports H3 and suggests that respondents who report more favorable assessments of Siskeudes utilization also tend to perceive higher levels of financial accountability. However, because the analysis relies on cross-sectional survey data, this relationship should be interpreted as a statistical association rather than evidence of causality. Nevertheless, the association was less robust in the supplementary village-level sensitivity analysis, where its statistical significance became marginal (p = 0.0517); accordingly, the finding should be interpreted with appropriate caution.

This finding is consistent with Mega et al. (2022), who identified a positive relationship between Siskeudes utilization and village financial accountability in East Bolaang Mongondow Regency. The present study observed a similar association in a different institutional setting: border villages in North Central Timor Regency. This consistency suggests that digital financial systems may support accountability when incorporated into routine administrative activities, including transaction recording, documentation, and financial reporting. Nevertheless, this study did not directly measure improvements in reporting quality or recording accuracy, nor did it assess reductions in financial irregularities.

In this study, Siskeudes' utilization extends beyond the frequency of application use. The construct encompasses practical system use, perceived ease of operation, perceived usefulness, and the availability of infrastructure and training support. Accordingly, the positive regression coefficient reflects respondents' combined assessment of system utilization and its immediate enabling conditions rather than the independent contribution of any individual component. Ariyanto et al. (2022) similarly demonstrate that system quality, information quality, and trust in technology are associated with Siskeudes usage, user satisfaction, and perceived benefits.

From an institutional perspective, the findings indicate that governance mechanisms embedded in routine administrative practices may be more strongly associated with perceived accountability than arrangements adopted primarily to satisfy formal requirements. Siskeudes provides an administrative framework linking financial management activities with standardized recording and reporting procedures. Similarly, Kesa et al. (2024) reported that information quality, system quality, and service quality are associated with user satisfaction and the quality of village governance. However, this study did not examine whether system quality, user satisfaction, or oversight mediates or moderates the relationship between Siskeudes utilization and accountability.

The border village context provides additional considerations for interpreting these findings. Geographical conditions and potential differences in operational support across villages may influence the consistency of system utilization, although these factors were not measured independently. Alam (2025) highlighted the relevance of digital access, user capabilities, and individual performance to the quality of village financial reports. Accordingly, strengthening Siskeudes utilization in border areas may require continuous technical assistance, improved operational skills, and adequate supporting infrastructure. These recommendations represent policy implications informed by the study's findings and relevant literature rather than evidence that all such constraints were present in the sampled villages.

5.4. The Role of BPD Oversight in Supporting Village Financial Accountability

The regression results using village-level cluster-robust standard errors indicate that the effectiveness of Village Consultative Body (*Badan Permusyawaratan Desa*, BPD) oversight is positively and significantly associated with perceived village financial accountability ($B = 0.626$, $p < 0.001$). The BPD oversight also has the largest standardized coefficient among the independent variables included in the model. Accordingly, H4 is supported. This finding indicates that respondents who perceive BPD oversight as more effective also tend to report higher levels of village financial accountability. However, because this study relies on cross-sectional survey data, the result represents a statistical association and should not be interpreted as evidence of causality.

This finding is consistent with agency theory, which conceptualizes oversight as a mechanism for reducing information asymmetry between village governments as managers of public resources and communities as the principals from whom their authority is derived. Within the village-government structure, the BPD provides an institutional channel through which financial explanations can be requested, budget and accountability documents can be scrutinized, and concerns regarding village-government decisions can be raised. Therefore, the contribution of the BPD to accountability depends not merely on its formal existence, but also on the intensity, independence, objectivity, and capacity with which it performs its oversight functions.

This finding is supported by evidence from previous studies. Matiin and Amirudin (2023) demonstrated that the BPD participates in deliberations on the draft village budget and receives village-government accountability reports. Aditiya et al. (2025) similarly found that the role of the BPD can strengthen the relationship between the quality of village officials and the quality of village financial management. These findings support the argument that effective oversight requires substantive BPD involvement in village financial processes rather than merely its formal inclusion in the governance structure.

In the context of the 31 border villages in North Central Timor Regency, the strong association between BPD oversight and accountability may indicate the particular relevance of oversight mechanisms that operate close to village government processes, especially where geographical conditions and administrative support may vary across locations. The BPD potentially serves as an institutional bridge between communities and village governments by providing a channel through which explanations regarding budget utilization can be requested by the community. Nevertheless, this study did not directly measure the participation of customary leaders, patron–client relations, the political independence of the BPD, BPD access to Siskeudes data, or other forms of informal oversight. Therefore, these factors should be treated only as possible contextual explanations requiring further investigation rather than as empirical findings of the present study. For example, the case study evidence reported by Ishaka and Hidayat (2025) suggests that the effectiveness of Village Fund oversight may be shaped by interactions among administrative practices, local power relations, and social accountability. Although relevant as a contextual comparison, such evidence cannot be directly generalized to the villages examined in this study.

Although BPD oversight has the largest standardized coefficient in the model, this result is insufficient to establish BPD as the universally "most dominant determinant" of village financial accountability. This comparison applies only to the model specification, constructs, sample, and research period examined in this study. Moreover, BPD oversight and accountability were measured using the same questionnaire, which means that the possibility of common method bias cannot be entirely excluded. A more proportionate implication is that efforts to strengthen village accountability in border areas should give greater attention to BPD oversight capacity through training in reviewing village budgets and budget realization reports, timely access to financial information, and clearly defined procedures for following up on oversight findings. These measures should be understood as policy recommendations derived from the observed associations and supporting literature rather than as interventions whose causal effectiveness has been established in this study.

5.5. Synthesis of Findings and Theoretical Implications

The findings reveal that village governance mechanisms differ in their association with perceived financial accountability. Budget transparency and village officials' capacity were not statistically significant after accounting for the other predictors, whereas Siskeudes utilization and BPD oversight were positively and significantly associated with accountability. BPD oversight also had the largest standardized coefficient. These results suggest that operational administrative mechanisms and institutional oversight are more empirically relevant in the sampled border villages.

Institutional and agency theories provide complementary explanations for this pattern. From an institutional perspective, formal compliance does not necessarily produce substantive organizational outcomes. Dick and Coule (2020) demonstrate that organizations may implement regulatory procedures without achieving their intended objectives. Although their research focuses on nonprofit organizations, it offers a conceptual basis for understanding the potential gaps between formal governance arrangements and substantive accountability. Agency Theory complements this perspective by explaining how oversight can reduce information asymmetry between village officials and stakeholders entitled to demand accountability.

Digital systems may strengthen accountability when they are embedded in routine administrative processes. Agostino et al. (2022) argue that the relationship between digitalization and public accountability depends on how information is generated, interpreted, and used in organizations. Similarly, Purnamasari et al. (2024) found that information systems and internal controls are associated with village performance accountability in Indonesia. These studies support the observed association between Siskeudes utilization and perceived accountability. However, the present study did not test whether Siskeudes mediates officials' capacity or interacts with the BPD oversight.

BPD oversight provides an institutional channel for scrutinizing village financial decisions and requesting explanations from the village head. Putri et al. (2023) highlighted the importance of internal control, accountability, transparency, and participation in strengthening Indonesian village governance. Their findings provide contextual support for the present results but do not establish that BPD oversight causes higher accountability in the sampled villages. Likewise, a larger standardized coefficient indicates only the relative strength of association within this model rather than the universal superiority of BPD oversight.

The nonsignificant coefficients for transparency and officials' capacity should not be interpreted as evidence that these factors are unimportant or detrimental. Potential discrepancies between formal compliance and actual practice remain theoretical, as they were not directly measured. Similarly, the border setting represents the institutional context of the study rather than a tested moderator, as no comparison with non-border villages was conducted. Therefore, this study contributes contextual and empirical evidence that digital financial administration and institutional oversight are more consistently associated with perceived accountability in the sampled border villages.

6. CONCLUSION, IMPLICATIONS, SUGGESTIONS, AND LIMITATIONS

This study examined the associations between budget transparency, village officials' capacity, Siskeudes utilization, and BPD oversight with perceived financial accountability among 90 respondents from 31 border villages in North Central Timor Regency, Indonesia. Regression analysis using village-level cluster-robust standard errors showed that transparency and officials' capacity were not significantly associated with accountability, whereas Siskeudes utilization and BPD oversight were positively and significantly associated. BPD oversight had the largest standardized coefficient within the model, although this finding establishes neither universal superiority nor a causal relationship.

Theoretically, Institutional and Agency Theories offer complementary perspectives on the differences between formal governance arrangements, administrative implementation, and institutional oversight. Empirically, this study extends research on village financial accountability to the Indonesia–Timor-Leste border region, demonstrating that digital financial administration and BPD oversight are more consistently associated with perceived accountability. However, any gap between formal procedures and actual practices remains a theoretical interpretation rather than an empirically tested mechanism.

Village governments and the North Central Timor Regency administration should promote consistent Siskeudes utilization, provide technical assistance, and strengthen BPD capacity to scrutinize budgets and accountability reports. Transparency initiatives should prioritize accessible and understandable information, while capacity development should address practical administrative requirements. Future research could employ longitudinal or mixed-methods designs, compare border and non-border villages, and examine mediation, moderation, or interactions among governance mechanisms.

The study is limited by its cross-sectional design, reliance on perceptual measures, potential common method bias, and a limited number of village clusters. Accountability was not assessed using objective financial records, while Siskeudes utilization was measured as a composite construct encompassing system use and its immediate enabling conditions, preventing separate assessment of individual dimensions. Supplementary diagnostics indicated potential overlap among several constructs, and the village-level Siskeudes estimate was marginal, warranting caution regarding discriminant validity and inferential robustness. Furthermore, border characteristics and broader institutional conditions were not measured independently. Accordingly, the findings represent sample-specific statistical associations and should not be directly generalized to all border regions of Brazil.

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