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Trust and Security in Digital Payments: An Analysis of Mobile Banking Usage for Public Services

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ABSTRACT

This study aims to examine the influence of perceived security and trust on the use of mobile banking for public service payments, viewed through the lens of internal control. A quantitative approach was employed, with data collected via Google Forms questionnaires. The sample consisted of 113 respondents selected through purposive sampling specifically, mobile banking users who have utilized the service to make public service payments. Data were analyzed using SmartPLS 4, involving the assessment of both measurement and structural models. The results indicate that perceived security does not have a significant effect on the use of mobile banking. Conversely, trust has a positive and significant impact on the use of mobile banking for public service payments. These findings suggest that user confidence in service reliability, information accuracy, and the alignment of services with expectations plays a crucial role in fostering the use of mobile banking. From an internal control perspective, these results underscore the importance of maintaining reliable transaction processes, providing clear information, and ensuring the protection of user data. Although perceived security was not found to have a significant effect in this study, security remains a vital component in the provision of digital banking services.

Kewords: Internal control, Mobile banking, Perception of security, Public service payments, Trust

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1. INTRODUCTION

The advancement of digital technology has made it increasingly easy for the public to conduct financial transactions via mobile banking (Ahmadi Danyali, 2018). This service allows users to make various payments without needing to visit the payment location in person for instance, payments for public services such as BPJS (social security), electricity, taxes, and other bills. Sugiharto et al. (2021) and Sari et al. (2021) discuss the use of digital technology in financial services, while Thottoli et al., (2023) examine the evolution of digital financial services. This convenience has made mobile banking a preferred choice for people to handle their daily payments. When using mobile banking, perceptions of security and trust are crucial. The perception of security relates to a user's confidence that their transactions and personal data are protected, while trust pertains to the belief that the service functions effectively and is reliable. Gita and Juliarsa (2021) as well as Madhyastha (2022) explore factors associated with the use of

digital services and user trust. It is necessary to investigate these two factors to understand their relationship with the use of mobile banking for public service payments.

Previous research has yielded inconsistent findings regarding the influence of security and trust on the use of mobile banking. In 2024, Widodo and Ariandi found that security and trust have a positive impact on the use of mobile banking services. Conversely, a 2022 study by Cahyaningtyas and Witono indicated that security does not always have a direct effect on usage. Meanwhile, Sharma and Sharma (2019) found that trust positively influences the use of mobile banking. These divergent results suggest that the impact of security and trust warrants further investigation, particularly within the context of public service payments. While some prior studies have examined mobile banking usage in a general sense, its application for public service payments remains an area that requires further exploration. Such payments encompass a wide range of public needs, making transaction security and trust in the service critically important. Sriwardhani (2021) have addressed issues related to management and oversight within the public sector. In this study, the use of mobile banking is also examined in relation to internal control specifically regarding the safeguarding of transaction security and the support of payment accountability. The novelty of this research lies in its focus on testing perceptions of security and trust concerning the use of mobile banking for public service payments, analyzed through the lens of internal control.

This study includes respondents from South Jakarta, Central Jakarta, and East Jakarta. These three areas were selected as the scope of the research because they are locations where respondents meeting the study's criteria could be successfully reached. The selected respondents are mobile banking users who have utilized the service to pay for public services. This experience is essential, as it enables respondents to provide answers based on their actual usage. Focusing on these areas ensures that the study centers on users who possess experience relevant to the research topic. Given these issues, this study aims to determine the influence of perceived security and trust on the use of mobile banking for public service payments. It seeks to address how perceived security affects mobile banking usage, how trust influences such usage, and the combined effect of both factors. The study employs a quantitative approach, collecting data via questionnaires from users who have made public service payments through mobile banking. The collected data is analyzed using the SmartPLS 4 software to examine the relationships between perceived security, trust, and mobile banking usage. The findings are expected to provide insight into the role of security and trust in the use of mobile banking for public service payments.

Mobile banking is a digital banking service that allows customers to perform various transactions such as fund transfers and bill payments via their mobile phones. This service offers convenience and efficiency in meeting the public's diverse payment needs, including those for public services and essential daily requirements (Sugiharto et al., 2021; Sari et al., 2021). Ease of use is also a factor that can influence the adoption of technology and the utilization of digital services (Malta & Rusdianti, 2023; Cao et al., 2025). In this study, the use of mobile banking is focused on the payment of various bills and public service-related expenses, such as electricity, BPJS (national health insurance) contributions, taxes, mobile phone credit/data, and internet or Wi-Fi subscription fees. Perception of security refers to a user's belief that their personal data and transactions are protected against the risk of misuse. Security is paramount because mobile banking involves sensitive personal financial information. Data protection and user education are essential components in maintaining the security of such services (Watini et al., 2024). Furthermore, the protection of transactions and information can influence user comfort when utilizing digital services (Gita & Juliarsa, 2021; Sari et al., 2021).

Meanwhile, trust represents a user's conviction that a service is reliable and capable of meeting their expectations. In the context of mobile banking, trust is fostered when a service processes transactions effectively, provides clear information, and supplies accurate transaction records. A positive user experience can also strengthen a customer's confidence in continuing to use the service. Conversely, transaction disruptions or inaccurate information can diminish user trust in digital banking services. Consequently, trust is a critical aspect to consider when examining the use of mobile banking for paying various bills and public services (Madhyastha, 2022; sharma & sharma, 2019). In this study, the use of mobile banking refers to the utilization

of such services for making public service payments. This usage may be linked to perceptions of security, trust, ease of use, and perceived benefits (Fahrudi et al., 2023; Sugiharto et al., 2021). Digital payments can also enhance efficiency and the traceability of transactions, as payment information is recorded electronically (Suryanto & Dai, 2025; Rusdianti et al., 2022). From the perspective of internal control, the recording and protection of information are vital for mitigating the risks of errors and misuse (Sopanah et al., 2025; Rusdianti, 2026). In this research, internal control serves as a conceptual lens for the discussion, rather than as a variable tested directly.

Previous research presents mixed findings regarding the influence of perceived security and trust on the use of mobile banking. Gita and Juliarsa (2021), Widodo and Ariandi (2024), and Fahrudi et al. (2023) found that security and trust do influence the use of mobile banking. Conversely, Cahyaningtyas and Witono (2022) indicated that security does not always have a direct impact on usage. These divergent findings highlight the need for further investigation, particularly concerning the use of mobile banking for public service payments. In the context of public service payments, perceived security relates to a user's confidence in the protection of their data and transactions, while trust pertains to the belief that the service is reliable. Both aspects warrant examination, as digital payments require secure transactions and traceable records. Consequently, an internal control perspective is employed to address the importance of information protection, transaction reliability, and the mitigation of risks such as misuse when using mobile banking for public service payments.

2. METHODS

This study employs a quantitative approach to examine the influence of perceived security and trust on the use of mobile banking for public service payments. Data were collected via an online questionnaire distributed through Google Forms between May and July 2026. The study focuses on mobile banking users in South Jakarta, Central Jakarta, and East Jakarta who have utilized the application to make payments for public services. Sampling was conducted using a purposive sampling technique, where respondents were selected based on criteria aligned with the research objectives specifically, mobile banking users who have used the service to pay for public services. A total of 113 respondents met the criteria and were included in the data analysis.

The research instrument consisted of a questionnaire utilizing a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire covered three variables: perceived security as the first independent variable (X1) with its respective indicators; trust as the second independent variable (X2) with five indicators; and the use of mobile banking as the dependent variable (Y) with seven indicators. The collected data were then analyzed using SmartPLS 4 to examine the relationships between the variables under study.

Data analysis is conducted by evaluating the measurement model (outer model) and the structural model (inner model). The evaluation of the outer model includes assessing outer loadings, construct reliability (via Cronbach's Alpha, rho_A, and composite reliability), convergent validity (via Average Variance Extracted/AVE), and discriminant validity (using the Heterotrait-Monotrait Ratio/HTMT). Subsequently, the inner model is evaluated using R-square, F-square, and Variance Inflation Factor (VIF) values. Hypothesis testing is performed by examining path coefficients, t-statistics, and p-values derived from the SmartPLS analysis.

3. RESULTS

This study utilizes data from 113 respondents who met the research criteria. Respondent characteristics are presented based on age, gender, occupation, type of public service payment, and the mobile banking service used most frequently. Subsequently, the data were analyzed

using the SmartPLS 4 software to evaluate the quality of the measurement model, the structural model, and the research hypotheses.

Table 1. Characteristics of Respondents by Age

Age Group	Number of people	Percentage (%)
17 – 20 years old	7	6,2
21 – 30 years old	65	57,5
31 – 40 years old	14	12,4
41 – 50 years old	9	8,0
51 – 60 years old	16	14,2
61 – 70 years old	2	1,8
Total	113	100

Source: Primary data processed, 2026

Based on Table 1, the majority of respondents fall into the 21–30 age group, accounting for 65 individuals (57,5%). The remaining respondents consist of those in the 51–60 age group 16 individuals (14,2%), the 31–40 age group 14 individuals (12,4%), the 41–50 age group 9 individuals (8,0%), the 17–20 age group 7 individuals (6,2%), and the 61–70 age group 2 individuals (1,8%).

Table 2. Characteristics of Respondents by Gender

Gender	Number of people	Percentage (%)
Female	76	67,3
Male	37	32,7
Total	113	100

Source: Primary data processed, 2026

Based on Table 2, there are 76 female respondents (67,%) and 37 male respondents (32,7%). Thus, female respondents constitute the largest group in this study.

Table 3. Characteristics of Respondents Based on Occupation

Employment	Number of people	Percentage (%)
Student/College Student	19	16,8
Employee / Staff Member	57	50,4
Housewife	10	8,8
Enterpriser	22	19,5
Pensionary	3	2,7
Other professions (Teacher/Doctor)	2	1,8
Total	113	100

Source: Primary data processed, 2026

Based on Table 3, the majority of respondents are employees, accounting for 57 individuals 50,4%. Furthermore, 22 respondents (19,5%) are self-employed, and 19 respondents (16,8%) are students. Meanwhile, there are 10 homemakers (8,8%), 3 retirees (2,7%), and 2 respondents (1,8%) with other occupations.

Table 4. Characteristics of Respondents Based on Type of Payment for Public Services

Payment Type	Number of people	Percentage (%)
Mobile Credit/Internet Data	87	77,0
Internet/ WiFi	67	59,3
Electricity (PLN)	61	54,0
Tuition Fees / University Studies	21	18,6
PDAM	16	14,2
Vehicle Tax	11	9,7
Train/plane tickets	3	2,7
PBB	1	0,9
Insurance	1	0,9

Source: Primary data processed, 2026

Based on Table 4, the most common type of payment made by respondents via mobile banking is for mobile phone credit or internet data, involving 87 individuals 77,0%. This is followed by internet/Wi-Fi payments, made by 67 individuals (59,3%), and electricity (PLN) payments, made by 61 individuals (54,0%). Other types of payments involve a smaller number of respondents. Since respondents could select more than one type of payment, the percentages in the table do not necessarily add up to 100%.

Table 5. Characteristics of Respondents Based on the Mobile Banking Service Most Frequently Used

Mobile Banking	Number of people	Percentage (%)
BCA Mobile/ MyBCA	72	63,7
BRImo	3	2,7
Livin' by Mandiri	22	19,5
BNI Mobile Banking/ Wondr by BNI	10	8,8
CIMB OCTO Mobile	2	1,8
Permata Bank	1	0,9
BYOND by BSI	2	1,8
Jenius	1	0,9
Total	113	100

Source: Primary data processed, 2026

Based on Table 5, the mobile banking service most frequently used by respondents is BCA Mobile/MyBCA, utilized by 72 individuals 63,7%. This is followed by Livin' by Mandiri, used by 22 individuals (19,5%), and BNI Mobile Banking/Wondr by BNI, used by 10 individuals (8,8%). Meanwhile, other mobile banking services are used by a smaller number of respondents. The measurement model (outer model) is evaluated to assess the validity and reliability of the research indicators. This evaluation includes outer loadings, construct reliability, convergent validity, and discriminant validity.

Table 6. Outer Loading Test Results

Variable	Indicator	Outer Loading
Perception of Security (X1)	I feel that my personal data is secure when using mobile banking.	0,906
	I feel that the mobile banking system has good security.	0,943
	I feel that public service payment transactions made via mobile banking are well protected.	0,900
	I feel that the risk of account misuse in mobile banking is quite low.	0,690
	I find the security features in mobile banking easy to understand and use.	0,853
	I feel secure when making payments for public services via mobile banking.	0,902
	I believe mobile banking can be effectively used for public service payment transactions.	0,896
	I believe the information displayed on mobile banking is accurate and trustworthy.	0,921
Trust (X2)	I feel comfortable using mobile banking for various payment transactions.	0,903
	I believe that mobile banking services can be used whenever they are needed.	0,872
	I believe mobile banking provides a service that meets user expectations.	0,914

Use of Mobile Banking (Y)	I frequently use mobile banking for public service payments.	0,888
	I choose to use mobile banking because it is more practical than making payments in person.	0,915
	I feel that using mobile banking helps make the payment for public services easier.	0,902
	I intend to continue using mobile banking for public service payments in the future.	0,930
	I prefer paying for public services via mobile banking over other methods.	0,892
	I am willing to recommend using mobile banking to others	0,874
	I feel that the use of mobile banking makes the process of paying for public services more efficient.	0,938

Source: Primary data processed, 2026

Table 7. Results of Reliability and Construct Validity Testing

Variable	Cronbach's Alpha	Rho A	Composite Reliability (rho C)	AVE
Perception of Security (X1)	0,934	0,947	0,949	0,756
Trust (X2)	0,945	0,946	0,958	0,821
Use of mobile banking	0,963	0,964	0,970	0,821

Source: Primary data processed, 2026

Table 7 shows that all variables have Cronbach's Alpha, rho_A, and composite reliability values above 0,70. The AVE values for all variables are also greater than 0,50. These results indicate that the constructs possess good internal consistency and meet the general criteria for convergent validity.

Table 8. Results of the Heterotrait-Monotrait Ratio (HTMT) Test

Relationships Between Variables	Nilai HTMT
Trust – Use of Mobile Banking	0,962
Perception of Security – Trust	0,953
Perception of Security – Use of Mobile Banking	0,848

Source: Primary data processed, 2026

Based on Table 8, the HTMT value between perceived security and mobile banking usage is 0.848, which is below the common threshold of 0.90. Conversely, the HTMT values between perceived security and trust 0,953 and between trust and mobile banking usage 0,962 exceed this threshold. Therefore, discriminant validity for these two pairs of constructs has not been fully established. The structural model inner model is evaluated to determine the extent to which independent variables explain the dependent variable, the magnitude of the effect of each variable, and whether any issues regarding collinearity exist.

Table 9. R-Square Test Results

Variable	R-Square
Use of Mobile Banking (Y)	0,845

Source: Primary data processed, 2026

An R-square value of 0,845 indicates that perceptions of security and trust account for 84,5% of the variation in mobile banking usage, while the remaining 15,5% is attributable to factors outside the research model.

Table 10. F-Square Test Results

Relationships Between Variables	F-Square
Perception of Security (X1) – Use of mobile banking (Y)	0,009

Trust (X2) – Use of mobile banking (Y)	1,165

Source: Primary data processed, 2026

The F-square value indicates that the perception of security has a very small effect size (0,009), whereas trust has a large effect size (1,165). These results demonstrate that trust makes a stronger contribution to explaining the use of mobile banking within the research model.

Table 11. VIF Test Results

Relationships Between Variables	VIF
Perception of Security (X1) – Use of mobile banking (Y)	5,508
Trust (X2) – Use of mobile banking (Y)	5,508

Source: Primary data processed, 2026

The VIF value of 5,508 for both variables indicates potential collinearity, as it exceeds the conservative threshold of 5. Consequently, the results regarding the influence of each variable should be interpreted with caution.

Table 12. Hypothesis Testing Results

Relationships Between Variables	Path Coefficient	T-Statistic	P-Value	Information
Perception of Security (X1) – Use of mobile banking (Y)	-0,088	1,051	0,293	Not significant
Trust (X2) – Use of mobile banking (Y)	0,998	11,911	<0,001	Significant

Source: Primary data processed, 2026

The test results indicate that the perception of security does not have a significant effect on the use of mobile banking, as the p-value of 0,293 is greater than 0.05. Conversely, trust has a positive and significant effect, with a p-value below 0,001.

Table 13. Model Fit Test Results

Indicator	Saturated Model	Estimated Model
SRMR	0,050	0,050
d_ULS	0,426	0,426
d_G	0,599	0,599
Chi-square	350,898	350,898
NFI	0,869	0,869

Source: Primary data processed, 2026

The SRMR value of 0,050 falls below the common threshold of 0,08, while the NFI value of 0.869 has not yet reached the benchmark of 0,90. Consequently, the model fit evaluation indicates that not all indicators meet the commonly used reference values.

4. DISCUSSION

The research results indicate that the perception of security does not have a significant effect on the use of mobile banking for public service payments. A path coefficient of -0.088, with a p-value of 0.293, suggests that there is insufficient statistical evidence to claim that the perception of security influences the use of mobile banking. Furthermore, this negative coefficient cannot be interpreted as security reducing usage, given that the effect is not statistically significant. From an internal control perspective, security remains essential for protecting data, securing account access, and mitigating the risk of fraudulent transactions. However, the adoption of mobile banking may also be linked to other factors such as trust, ease of use, and user habits—which were not directly examined in this study.

Conversely, trust has a positive and significant impact on the use of mobile banking, with a path coefficient of 0.998 and a p-value of less than 0.001. These findings suggest that trust—

encompassing the reliability of the service, the accuracy of information, and the alignment of the service with user expectations is associated with the use of mobile banking. The F-square value further indicates that trust has a larger effect size compared to the perception of security. From an internal control perspective, system reliability, clarity of information, and the ability to trace transaction records are critical aspects for fostering user confidence when making payments.

An F-square value of 0,845 demonstrates that the model possesses a high capacity to explain the variance in mobile banking usage. Nevertheless, these results should be interpreted in conjunction with other test outcomes. The Heterotrait-Monotrait (HTMT) ratio 0,953 between the perception of security and trust, and 0,962 between trust and mobile banking usage exceeds the common threshold of 0,90. Additionally, a Variance Inflation Factor (VIF) value of 5,508 points to potential collinearity. These findings serve as a caveat when interpreting the relationships between variables, as discriminant validity for certain construct pairs has not been fully established.

Overall, the research findings indicate that trust is a variable with a significant influence on the use of mobile banking, whereas perceived security does not show a statistically significant effect. From the perspective of internal control, security remains a crucial aspect of data protection and the management of transaction risks. However, this study measures user perceptions and does not directly assess the effectiveness of a bank's internal controls. Therefore, the findings are intended to provide an understanding of the relationship between perceived security, trust, and mobile banking usage, rather than to draw conclusions regarding the effectiveness of internal controls at any specific bank.

4. CONCLUSION

Based on the research findings, trust plays a significant role in the use of mobile banking for public service payments. User trust—encompassing the reliability of the service, the accuracy of information, and the alignment of the service with expectations—can foster the sustained use of mobile banking. Meanwhile, the perception of security was not found to have a statistically significant impact on the use of mobile banking within the scope of this study. This does not imply that security is unimportant; rather, it suggests that, in the context of this research, respondents' perceptions of security were not a determining factor in their use of mobile banking.

These findings underscore the importance of maintaining user trust through reliable services, clear information, and traceable transaction processes. From an internal control perspective, such efforts must be supported by robust transaction security and the protection of user data. Future research could incorporate a more diverse group of respondents and include additional variables that may influence the use of mobile banking, thereby providing a broader understanding of the subject

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