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# THE ADOPTION OF CARDLESS CASH WITHDRAWAL USING EXTENDED UTAUT MODEL

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## ABSTRACT

**Background:** Digital transformation became one of the strategies in the banking industry to keep up with changes in consumer behavior. Cardless Cash Withdrawal (CCW) was one of the bank innovations for digital transformation, where customers could withdraw cash at Automated Teller Machines (ATMs) without bringing or using a debit card.
**Purpose:** This study aimed to find factors influencing the behavioral intention and use behavior of CCW in Jabodetabek with the extended Unified Theory of Acceptance and Use of Technology (UTAUT) model.
**Design/methodology/approach:** This study used a non-probability sampling method to sample 155 mobile banking users from Jabodetabek who aware of CCW. The results which were processed using Structural Equation Model with Partial Least Square (SEM-PLS) showed that (insert the findings)
**Findings/Result:** Performance expectancy and facilitating conditions positively and significantly affected the behavioral intention of using CCW. Meanwhile, the factors that had a positive and significant effect on the use behavior of CCW were facilitating conditions and behavioral intention.
**Conclusion:** External factors has a stronger impact when individuals use CCW. Therefore, as long as users have adequate surrounding conditions when withdrawing cash, they are more likely to use CCW.
**Originality/value (State of the art):** This study has adapted the combination of variables for extended UTAUT with different research objects compared to previous studies. Earlier research examined mobile and internet banking (Martins et al. 2014; Oliveira et al. 2014), while this study focuses on services provided in mobile banking. Previous research by Ye et al. (2020) combined the UTAUT model with perceived risk and individual intention to examine their influence on behavioral intention and attitude towards using new transportation modes in China. However, this study integrates perceived risk with the UTAUT model to examine the acceptance factors of cardless cash withdrawal features in Jabodetabek based on behavioral intention and use behavior.

**Keywords:** behavioral, cardless cash withdrawal, mobile banking, SEM-PLS, UTAUT

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## INTRODUCTION

Technology adoption and continuous improvement are two of the most crucial things as the era develops and scientific knowledge advances. The banking industry is one of the industries that actively adapt their service to new technologies. This ensures that the banking industry remains relevant and keeps growing (Nambiar & Bolar, 2022). In recent times, information has spread more quickly and using a smartphone as a more advanced communication technology has led to people visiting bank branches less frequently (Singh & Srivastava, 2020). Mobile banking is an application that sets an example of technological advancement in the banking industry and serves as an alternative for customers to carry out transactions conveniently.

The use of mobile banking in Indonesia has significantly increased in 2022. Bank Indonesia, the central bank of Indonesia, stated that the volume of mobile banking transactions grew by 67.87% yoy from the beginning of 2022 to May 2022 compared to the same period in 2021. The rise in internet access and mobile phone ownership is a crucial factor driving the growth of mobile banking in Indonesia. Data from Badan Pusat Statistik (BPS) shows that 66.48% of Indonesia's population over five years old already had access to the internet for the past three months in 2022. Data from BPS also stated that 67.88% of Indonesia's population over five years old already own a cellphone in 2022.

Customers can access various banking services through mobile banking, such as checking balance transactions, making fund transfers, paying bills, and managing their finances (Zhou, 2012). The availability of Quick Response Code Indonesian Standard (QRIS) also facilitates users to make digital payments conveniently. Despite the increasing use of digital payment methods, there are times when cash is still necessary, as it remains a widely accepted and preferred medium of exchange for goods and services (Ali et al. 2021). According to Katadata, the volume of cash withdrawals using debit cards in Indonesia increased by 11.59% yoy in February 2022 compared to February 2021. This increment was also followed by the escalated amount of debit cards that Bank Indonesia recorded grew by 6.49% in the same period.

Debit card usage is increasing, but cardholders also face security risks (Liu et al. 2010). Cardholders can become targets of crimes such as card cloning, PIN disclosure, and others (Sankhwar & Pandey, 2016). Skimming could be added as one of the security risks for skimmer able to read and record the victim's data from the debit card.

One of the bank's innovations through the development of mobile banking to remove the friction points in the customer journey was the launching of Cardless Cash Withdrawals (CCW). With CCW, cash withdrawals have become more convenient and easy as it only require a smartphone and the mobile banking application provided by the banking service used by the customer (Istrate, 2014). This feature helped customers to avoid getting their debit cards cloned and skimmed (Nambiar & Bolar, 2022). But, the lack of knowledge about the benefits of CCW makes customers hesitant to use it. Many users perceive CCW transactions as complex technology, and their perception of their ability to utilize this technology may influence their intentions (Ali et al. 2021).

Technology Acceptance Model (TAM) is one of the models used to examine the technology acceptance of individuals, as demonstrated in the research conducted by Rosiana et al. (2020). TAM was also used by Bonang and Fitriyah (2021) and Ali et al. (2021) to study the factors influencing individuals' decisions to use CCW. Both studies extended TAM, consisting of perceived usefulness and perceived ease of use with perceived risk. Meanwhile, this study aims to investigate the factors influencing the adoption of CCW with the extended UTAUT model, consisting of performance expectancy, effort expectancy, social influence, facilitating condition, and perceived risk. The use of UTAUT is due to the fact that numerous research studies have utilized UTAUT to analyze the adoption of mobile banking and related services, such as Martins et al. (2014), Oliveira et al. (2014), Afshan & Sharif (2015), Bhatiasevi (2015), Savić & Pešterac (2019), and Jadil et al (2021). Therefore, this study used the extended UTAUT model to analyze the behavioral intention and use behavior of CCW.

## METHODS

This research was conducted in March 2023 – May 2023. Non-probability, specifically purposive sampling, was used in this research because there are specific sample selection criteria (Sugiyono, 2013). The primary data in this research was gathered through

an online questionnaire and the secondary data was collected from relevant literature. The criteria were mobile banking users in Jabodetabek (Jakarta, Bogor, Depok, Tangerang, and Bekasi) who were aware of the availability of CCW within mobile banking. The minimum sample size for this study was determined based on Hair et al. (2021), which considers the minimum path coefficient value and significance level as the determining factors. This study assumes a minimum significant path coefficient of 0.2 with a significance level of 5%. The mentioned values are integrated into the following formula.

For a significance level of 5%:

$n_{min} > (2{,}468/|Pmin|)^2$

$n_{min} > (2{,}468/0{,}2)^2 = 154{,}505 \approx 155$

Therefore, the minimum sample size obtained was 155 respondents. This research utilized the partial least squares structural equation modeling (PLS-SEM) approach for hypothesis testing due to its ability to evaluate latent variable (Babin et al. 2008). The hypotheses are formulated based on the theoretical review as follows:

H1: Performance expectancy positively and significantly affects the behavioral intention to use CCW. This hypothesis is supported by previous studies done by Bhatiasevi (2015), Ye et al. (2020), and Abbad (2021).

H2: Effort expectancy positively and significantly affects the behavioral intention to use CCW. This hypothesis is supported by previous studies done by Bhatiasevi (2015), Ye et al. (2020), and Abbad (2021).

H3: Social influence positively and significantly affects the behavioral intention to use CCW. This hypothesis is supported by previous studies done by Bhatiasevi (2015), Savić & Pešterac (2019), and Ye et al. (2020).

H4: Facilitating conditions positively and significantly affects the behavioral intention to use CCW. This hypothesis is supported by previous studies done by Afshan & Sharif (2015) and Patil et al. (2020).

H5: Perceived risk positively and significantly affects the behavioral intention to use CCW. This hypothesis is supported by previous studies done by Alifiardi (2019) and Sentanu et al. (2020).

H6 Facilitating conditions positively and significantly affects the use behavior of CCW. This hypothesis is supported by previous studies done by Oliveira et al. (2014), Abbad (2021), and Jadil et a. (2021).

H7 Behavioral intention positively and significantly affects the use behavior of CCW. This hypothesis is supported by previous studies done by Bhatiasevi (2015), Patil et al. (2020), and Abbad (2021).

Extending UTAUT is a way to adjust the model to fit their specific research context. Perceived risk was added to the model as an extended version of UTAUT suggested by Savić dan Pešterac (2019). This research consists of endogenous and exogenous variables. Table 1 presents the operational definitions of the variables, including performance expectancy, effort expectancy, social influence, facilitating conditions, and perceived risk as exogenous variables. Additionally, behavioral intention and use behavior are considered as endogenous variables.

## RESULTS

### Characteristics of Respondents

There were a total of 155 respondents, with 80.65% of them female. All respondents were 18 years old or older, and the majority fell within the age range of 18–25, belonging to Generation Z. It can be interpreted that Generation Z is more active in keeping up with the latest technological advancements. This aligns with the statement made by Bhala et al. (2021) that Generation Z is more skilled in using technology (tech-savvy) and are digital natives.

### Outer Model Evaluation

The reflective measurement model was evaluated by considering convergent validity, reliability, and discriminant validity. Convergent validity is assessed using outer loading values, considered valid if they are 0.70 or higher. However, outer loadings within the range of 0.40 to 0.70 can still be considered in the model if they contribute to the model's validity and have an average variance extracted (AVE) value above 0.50 (Hair et al. 2017). After calculating the outer loadings, it was found that SI2, SI3, and FC5 had outer loading values below 0.70, resulting in AVE values

below 0.50. Therefore, indicators SI2, SI3, and FC5 were dropped to ensure the model meets the criteria, as shown in Figure 2.

Table 2 displays the AVE values, one of the requirements for convergent validity. Additionally, Table 2 provides information on Cronbach's alpha and composite reliability values to measure internal consistency reliability. Table 2 shows that all variables in this study are valid as they have AVE values greater than 0.50. The standard for a variable to be considered reliable is to have Cronbach's alpha and composite reliability values of at least 0.70 (Hair et al. 2017). Therefore, the variables in this study are deemed reliable and consistent.

Table 1. Variables of operational definitions

| Variable | Definition | Indikators |
|---|---|---|
| Performance Expectancy (Venkatesh et al. 2003) | The degree to which individuals believe that using the system can contribute to enhancing job performance (Venkatesh et al. 2003). | The speed of CCW (PE1)<br>The smoothness of CCW (PE2)<br>The accuracy of CCW (PE3)<br>The effectiveness of CCW (PE4) |
| Effort Expectancy (Venkatesh et al. 2003) | The level of ease obtained when using the system (Venkatesh et al. 2003). | Easy to learn (EE1)<br>Easy to use (EE2)<br>Practicality (EE3)<br>Easy to type the phone number dan OTP code (EE4)<br>The display is clear and easy to understand (EE5) |
| Social Influence (Venkatesh et al. 2003) | The level of trust in which others' opinions about a system can influence an individual's behavior towards a new system or technology (Venkatesh et al. 2003). | Recommendation from relatives and friends (SI1)<br>Recommendation from the bank (SI2)<br>Information from the bank related to the benefits (SI3)<br>Many people around use CCW (SI4)<br>Others look faster and easier when withdrawing money using CCW (SI5) |
| Facilitating Conditions (Venkatesh et al. 2003) | The level of individual perception regarding the resources and support available to use the technology (Venkatesh et al. 2012). | Internet availability (FC1)<br>Compatible smartphone specifications (FC2)<br>Feel at ease in both quiet and busy queue conditions (FC3)<br>The availability of CCW in ATM (FC4)<br>Customer service availability (FC5) |
| Perceived Risk (Featherman dan Pavlou 2003) | Individuals' perceived uncertainty regarding the potential negative consequences when using a service (Featherman and Pavlou, 2003). | CCW operates smoothly without any issues (PR1)<br>CCW eliminates the risks of the card being swallowed, damaged, or left behind (PR2)<br>Avoid skimming (PR3)<br>Strong security system (PR4)<br>Feel secure when entering the username and PIN in mobile banking (PR5) |
| Behavioral Intention (Venkatesh et al. 2003) | The likelihood of individuals engaging in a specific behavior (Yi et al. 2006). | Intend to use CCW in the future (BI1)<br>Intend to use CCW in daily life (BI2)<br>Intend to use CCW more often (BI3) |
| Use Behavior (Venkatesh et al. 2003) | The frequency of individuals using information technology (Venkatesh et al. 2012). | Consistently using CCW (UB1)<br>Using CCW more often than the debit card (UB2)<br>Recommend CCW to others (UB3) |

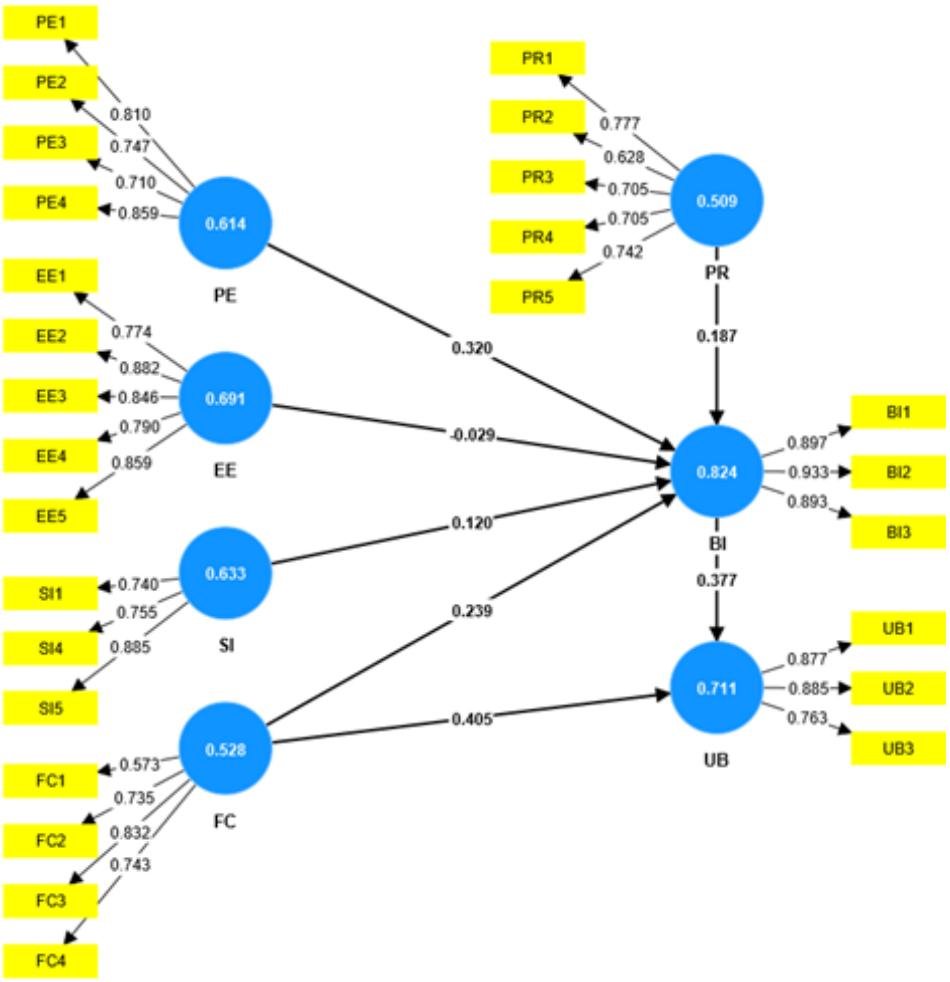


Figure 2. Model and outer loading after dropping

Table 2. Value of Cronbach's Alpha, AVE, and Composite Reliability

| Variables | AVE | Cronbach's Alpha | Composite Reliability |
|---|---|---|---|
| Performance Expectancy (PE) | 0.614 | 0.791 | 0.864 |
| Effort Expectancy (EE) | 0.691 | 0.888 | 0.918 |
| Social Influence (SI) | 0.633 | 0.728 | 0.837 |
| Facilitating Conditions (FC) | 0.528 | 0.707 | 0.815 |
| Perceived Risk (PR) | 0.509 | 0.758 | 0.837 |
| Behavioral Intention (BI) | 0.824 | 0.893 | 0.933 |
| Use Behavior (UB) | 0.711 | 0.796 | 0.880 |

**Inner Model Evaluation**

The coefficient of determination (R-square) can be examined to evaluate the inner model. R-square provides information about the strength of the model's predictive ability, indicating the influence of exogenous variables on the endogenous variable (Hair et al. 2017). Table 3 presents the R-square values for the behavioral intention and use behavior variables. According to Chin (1998), R-square values fall into different categories: values above 0.67 are considered strong, values above 0.33 are considered moderate, and values of 0.19 are considered weak. Based on these categories, the R-square values in this study fall into the moderate category.

Furthermore, hypothesis testing is conducted by performing bootstrapping to obtain the original sample values of path coefficients, T-statistics, and P-values. The magnitude of the original sample values ranges from -1 to 1. The original sample values indicate the influence of variables, so the larger and closer a value is to 1, the stronger and more positive the influence of the independent variable on its dependent variable (Hair et

al. 2017). The same applies in the opposite direction. Moreover, a variable is considered to have a significant influence if its T-statistic value is greater than 1.960, using a confidence level (alpha) of 95%, and its P-value is less than 0.05.

Table 4 informs that four out of seven hypotheses have a positive and significant influence, so those four hypotheses could be accepted. The positive and significant effects of facilitating conditions and behavioral intention on use behavior suggest that both internal factors, such as intention, and external factors, such as the surrounding conditions influence the utilization of CCW. The external factor has a stronger impact when individuals use CCW. This is shown in Table 4 by the original sample, and T-statistics values of H6 are greater than H7. Therefore, as long as users have adequate surrounding conditions when withdrawing cash, such as ATMs, smartphones, and internet connection availability, they are more likely to use CCW. Although external factors have a strong influence, internal factors also play a role in individuals' decision-making when using CCW. However, this study found that external factors have a more substantial influence than internal factors. It is also known that performance expectancy and facilitating conditions influence individual's intention to use CCW. Among these variables, individuals' expectations regarding the performance of CCW have a stronger impact than their surrounding conditions when withdrawing cash. This is supported by Table 4, which shows that the original sample and T-statistic values of H1 are greater than H4. Further explanation regarding each hypothesis result is as follows:

**Effect of performance expectancy on behavioral intention (H1)**

The bootstrapping results in Table 4 indicate that performance expectancy positively and significantly impacts the behavioral intention to use CCW among mobile banking users in Jabodetabek. Therefore, this hypothesis is accepted. These findings align with the study conducted by Ye et al. (2020), which also found a positive and significant influence of performance expectancy on behavioral intention. In the context of this research, it can be inferred that the higher users' perceptions of the benefits, usefulness, and expected performance of CCW, the greater their likelihood of having a strong intention to use CCW.

**Effect of effort expectancy on behavioral intention (H2)**

The second hypothesis is one of the three hypotheses that were not supported in this study. Based on Table 4, this hypothesis is rejected because effort expectancy does not significantly influence behavioral intention, as indicated by the T-statistic, P-value, and original sample values not meeting the standards. Therefore, it can be interpreted that although users perceive CCW as easy to use and requires minimal effort, they need more than these factors to influence their intention to adopt and use CCW. The convenience and ease of cash withdrawal are one of the most recognized benefits based on questionnaire responses. However, respondents' perceptions of these benefits are not strong enough to form the intention to use CCW. The bootstrapping results for this hypothesis are consistent with the findings of Afshan and Sharif (2015) in their study.

**Effect of social influence on behavioral intention (H3)**

Based on the bootstrapping results, this hypothesis is not accepted due to the T-statistic and P-value failing to meet the criteria, indicating that the influence of social influence is not significant in shaping behavioral intention. Therefore, having more people around that use CCW and social support from them has a weak potential to influence individuals' intention to use CCW. Oliveira et al. (2014) found similar results in their study on the adoption of mobile banking. The study stated that the reason why social influence does not have a significant impact on behavioral intention is that transactions related to mobile banking are personal and confidential. There is no need to show them to others or try to impress others to ensure security.

Table 3. Value of R-square

| Dependent Variable | R-square | Percentage (%) |
|---|---|---|
| Behavioral Intention (BI) | 0.478 | 47.8 |
| Use Behavior (UB) | 0.477 | 47.7 |

Table 4. Result of bootstrapping

| | Original Sample | T-statistic | P-values | Result | |
|---|---|---|---|---|---|
| H1: PE→ BI | 0.320 | 2.629 | 0.009 | Significant | Accepted |
| H2: EE → BI | -0.029 | 0.211 | 0.833 | Not significant | Rejected |
| H3: SI → BI | 0.120 | 1.490 | 0.137 | Not significant | Rejected |
| H4: FC → BI | 0.239 | 2.060 | 0.040 | Significant | Accepted |
| H5: PR → BI | 0.187 | 1.498 | 0.135 | Not significant | Rejected |
| H6: FC → UB | 0.405 | 5.117 | 0.000 | Significant | Accepted |
| H7: BI → UB | 0.377 | 4.462 | 0.000 | Significant | Accepted |

note: Performance Expectancy (PE); Effort Expectancy (EE); Social Influence (SI); Facilitating Conditions (FC); Perceived Risk (PR); Behavioral Intention (BI); Use Behavior (UB)

**Effect of facilitating conditions on behavioral intention (H4)**

This hypothesis is accepted because the values of original sample, T-statistic, and P-value meet the criteria. This hypothesis states that facilitating conditions positively and significantly influence the behavioral intention to use CCW. The acceptance of this hypothesis indicates that the more capable and supportive the resources for individuals, such as internet access, smartphone compatibility, and ATM availability, the greater the individual's interest in using CCW when withdrawing cash. This hypothesis is also supported by the research findings of Patil et al. (2020), Savić and Pešterac (2019), and Afshan and Sharif (2015), which focus on the adoption of mobile banking and mobile payment.

**Effect of perceived risk on behavioral intention (H5)**

Based on the bootstrapping results, the T-statistic value and P-value for this hypothesis do not meet the criteria to be considered significant, leading to the rejection of the hypothesis. This indicates that individuals in this study tend not to consider risk as a primary factor when deciding to use CCW. Therefore, although individuals feel they can avoid various performance and security risks when using CCW, it does not significantly influence their intention. The results obtained in this study may differ from previous research conducted by Sentanu et al. (2020) and Alifiardi (2019), who found that perceived risk has a positive and significant effect on behavioral intention. However, Sohn et al. (2016) reported similar results regarding perceived risk's non-significant influence on behavioral intention.

**Effect of facilitating conditions on use behavior (H6)**

The hypothesis, which stated that facilitating conditions have a positive and significant effect on the use behavior of CCW, is supported by the bootstrapping analysis presented in Table 4. This finding is consistent with the research conducted by Jadil et al. (2021), which suggests that facilitating conditions are the most prominent factor in shaping an individual's use behavior in the context of mobile banking adoption. When applied to the context of this study, the acceptance of this hypothesis implies that the availability of resources required for cash withdrawal using CCW increases the likelihood of individuals to continue using CCW compared to other cash withdrawal methods.

**Effect of behavioral intention on use behavior (H7)**

The bootstrapping results in Table 4 indicate that there is a positive and significant effect of behavioral intention on the use behavior of CCW. This finding is consistent with the research conducted by Martins et al. (2014) and Bhatiasevi (2015) in the context of mobile banking adoption. Therefore, the greater the individual's intention to use CCW, the higher the frequency of CCW usage as an option for cash withdrawal.

**Managerial Implications**

Based on the calculation of outer loadings and hypothesis testing, it is found that performance expectancy has a positive and significant impact on the behavioral intention to use CCW. PE4 and PE1 are the indicators with the highest outer loading values, indicating that the effectiveness and speed of cash withdrawal are the strongest considerations for mobile banking users to use CCW. A recommendation to the bank is to improve the OTP code system, as in

some instances, it takes a long time for the code to be delivered to the user's smartphone. Additionally, banks can consider using QR codes at ATMs to enhance the effectiveness and speed of CCW usage. Furthermore, facilitating conditions are found to have a positive and significant impact on the behavioral intention and use behavior of CCW. FC3 is the indicator with the highest outer loading value, indicating that the convenience of cash withdrawal in quiet and crowded conditions has the strongest contribution as a consideration for respondents to use CCW. A recommendation in this regard would be to add more ATMs that provide CCW to reduce queues and waiting times.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

Based on hypothesis testing using the extended UTAUT model, it is found that performance expectancy and facilitating conditions positively and significantly impact the behavioral intention to use CCW. It was found that performance expectancy had the biggest magnitude to influence the behavioral intention of others to use CCW. Additionally, facilitating conditions and behavioral intention positively and significantly impact CCW's use behavior with facilitating conditions had the biggest impact.

### Recommendations

This study has several limitations, such as its scope. Future research could consider adding or using other variables such as trust and user experience, to understand better the levels of trust and user experiences related to CCW. Furthermore, conducting a comparative study of CCW adoption rates among banks in Indonesia through case studies would provide valuable insights. Additionally, considering the dynamic nature of CCW use where individuals may switch from using to not using and vice versa, future research should utilize panel data analysis to analyze behavioral changes.

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