# Determinants of Mobile Banking Adoption Among Customers of Agricultural Development Bank

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## Abstract

*The study sought to analyse the determinants of mobile banking adoption among bank customers of Agricultural Development Bank. Explanatory design of quantitative approach was used. A simple random sampling technique was used to select 420 respondents of which 380 successfully responded yielding a 90% response rate. Questionnaire was the main data collection instrument used and the data collected are analyzed using Structural Equation Modeling. The study found that communication, pursuance, perceived risk, perceived usefulness and transaction speed as the significant determinants of mobile banking adoption. In addition, respondents identify poor internet connectivity and high service charges as the main challenges associated with mobile banking. Therefore, it is recommended that Agricultural Development Bank should ensure speed and cost efficiency in its mobile banking service. Furthermore, mobile banking departments activities need to be closely supervised and audited in evaluating the developments, expansions and challenges of services rendering.*

**Keywords:** *Mobile banking, Agricultural Development Bank, Customers, Structural Equation Modeling*

## 1. Introduction

The ever advancement of information technology and its intrusion into the financial sector all over the globe has considerably affect how customers are served and operations are carried out. This is also well said for the emergence of mobile phones. According to Khan (2016), the upsurge in electronic commerce activities worldwide and the demand for financial resources transfers make mobile banking an important aspect of e-commerce and very critical in its implementation. The enormous advancement of information technology and communication systems is leading to expansions usage of technological means by organizations and individuals alike. This is revealed in the increase internet use as a key means of communication together with others like mobile phones in online marketing, mobile marketing and many others (Lucky & Eisenberg, 2006). One major aspect of development in the field of idea, process or product marketing is mobile marketing which is a tool of electronic marketing. Electronic marketing, according to Alsamydai and Rudaina (2012), refers to the use of interactive wireless media in the provision of data about the product and/or services to generates value. Marous (2018) states that many organizations use mobile marketing to keep in constant touch with their customers and facilitate trading and this includes banking institutions. It is also expected, as per Forbes (2018), that 50.8% of global population will be online in 2019, either using mobile devices or others. This kind of service is an innovative way of offering services to customers as it requires a basic knowledge of the customers, interaction experiences, and changes the usual ways of trading between customers and banks. The customers' adoption of mobile banking services depends on certain motivating which includes but not limited to communication, ease of use, security and privacy, pursuance, transaction speed, and perceived usefulness. These motivating factors the study affirms have positive influences on the adoption of mobile banking services. Also, individual desires, knowledge, resistance to innovation, habit and

experience are considered as impending factors affecting the adoption of mobile banking services. Yu (2014) defines electronic banking as the electronic channel customers use to access their accounts and make transactions. One current achievements of technology in the banking industry is mobile banking, as it helps serve numerous banks' customers at almost the same time. Staying relevant in competitive environment by been cost effective, developing more innovative ideas and process, possible time savings, gaining easier access coupled with higher service speed are lists of benefits and advantages which mobile banking presents to customers.

This makes it imperative for bank managers to try and fetch for factors leading to mobile-based banking services adoption among their customers. Again, finding significant elements of mobile banking services' adoption provides appropriate development and advancement of innovative ideas of a number of mobile banking services and faster utilization of these solutions for the benefit of both the banks and users. A full usage of mobile and smart phones offers banks the opportunity to absorb potential customers in a competitive environment and improves their profitability by the introduction of the mobile banking services which serves customers' needs and helps in limiting problems of traditional banking. Ghana as an infant in electronic commerce and banking have a long way to reach the appreciable rank. The emergence of modern technology in these aspects has offered new arena of exchanging and processing information, tools and proper infrastructures together with the possible procedures in introducing an advance technology for banking services. The experiences of developed countries and the growth of electronic banking services helps in predicting the evolving and increasing process of banking services in Ghana to some level. The current commercial banking operational methods and their insufficiency in providing new banking services, has caused for the need to establish the required infrastructures, which is glaringly noted. In view of this certain costly investment have been made in the banking system to make available mobile banking and other modern banking services to customers (Vafaei, 2009).

The development of wireless telecommunication technology results in increasing advancements in mobile trading as an application for dealings (Siau, 2003). Mobile banking is one common type of mobile commerce, which offers customers the chance to perform banking activities anywhere through a simple and available channel (Todavchych, 2012). Though this service recognizes as a newly established and emerging system within the country, it may encounter an important problem in the development process which may not be acceptance by users. Thus, it is essential to undertake research work which aimed at examining the influential factors that impact consumer adoption of mobile banking services of Agricultural Development Bank.

## 2. Research Methodology

The research design employed in this study was explanatory research design of the quantitative approach. This design aimed to examine the cause-and-effect relationship between variables. In this case, the study sought to explain the bases of mobile banking adoption among the customers of Agricultural Development Bank. The main data collection tool used is a structured questionnaire, and the analysis is predominantly quantitative. The population of interest for this study consists of all Agricultural Development Bank customers in Ghana, excluding corporate bodies. The estimated number of active customers in Accra alone is over 50,000. The study targets individual customers from various backgrounds, such as students, teachers, artisans, civil and public servants, traders, and business personnel. To determine the sample size, the study employs a mathematical formula based on Cochran's (1977) analysis for infinite population. With an acceptable sampling error of 5%, the estimated sample size is calculated to be not less than 380

respondents. Simple random sampling method is used to ensure that all Agricultural Development Bank customers have an equal chance of being selected for the study.

The data collection instruments primarily consist of a questionnaire, which includes both closed-ended and open-ended questions. The questionnaire was divided into two sections: the first section gathers demographic information, while the second section assesses the respondents' attitudes towards the variables using a 5-point Likert scale. Data analysis begins with the checking of questionnaire completeness and the screening of responses for readability, consistency, and ambiguity. Data cleaning is performed to ensure accuracy and precision. The analysis includes descriptive statistics, such as frequencies, percentages, mean, and standard deviations, to summarize the respondents' demographic characteristics. Statistical software like Statistical Product and Service Solution (SPSS) version 22.0 is used for this purpose. Additionally, Structural Equation Modeling (SEM) with Smart PLS 3.0 software was employed to determine the strength of adoption strategies and test relationships among variables. SEM combines factor analysis, independent t-tests, correlation analysis, and multiple regression to conduct the analysis on the determinants of mobile banking adoption among Agricultural Development Bank customers.

## 3. Results and Discussion

### Demographic characteristics of respondents

A number of 420 individuals account holders (customers) of ADB were approached of which 380 accepted to respond to the questionnaires giving a ninety percent response rate. The study focuses on mobile banking users of the bank in evaluating the factors that influence their usage. It was revealed that 225 out of the 380 respondents are males representing 59.2% while respondents of 155 representing 40.8% are females. It shows that both male and females are signified in this study of whereby male customers' number outweighs that of the female. The above data from the survey indicates that men and women can differ quite a bit in their banking attitudes and behaviors with women, on average, less risk-seeking than men and are less likely to know about different financial instruments and practices than men.

Age distribution of banking customers shows that a greater number of the respondents (175, 46.1%) each are found from either 20-30 years or 31-40 years. This followed by 25 respondents who are beyond 50 years old while few (5, 1.3%) of the respondents are from 41 to 50 years. Thus, majority of the youth within the population are having bank account with the Agricultural Development Bank as per the samples collected. The variation could be influenced by generation and the technology available.

Data gathered on the various educational levels attained indicates that 50% which is 190 respondents are having undergraduate education, postgraduate education which is 160 representing 42.1% follows whiles five respondents representing 1.3% have basic or secondary education. It must be noted that the data reveals that, 25 respondents constituting 6.6% have training college (nursing or teaching) education.

### Respondents' Mobile Banking Services subscription

The Figure 1, reveals a difference between subscribers and non- subscribers which shows that 320 respondents representing 84% of the respondents have sign up to mobile banking services with the bank whiles 60 representing 16% of the respondents are yet to sign up.
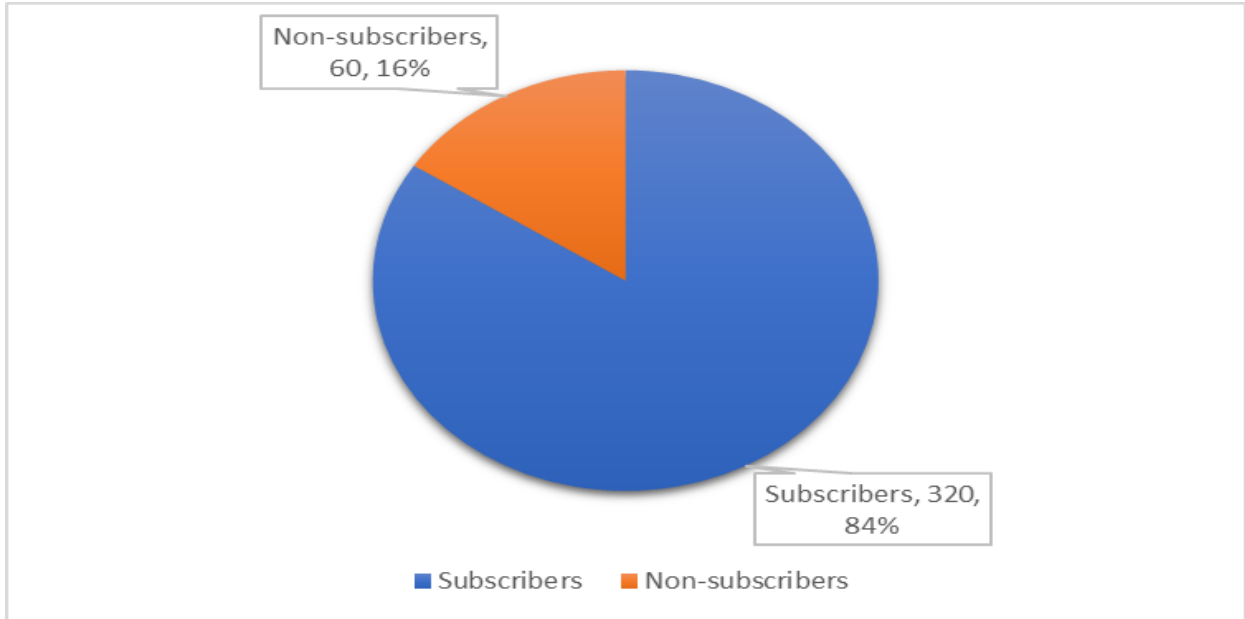
**Figure 1 Respondents' Mobile Banking Services subscription**

**Usage of Mobile money wallet**
According to Figure 2, 375 out of the 380 representing 98.7% of the respondents have an active mobile money wallet whiles about 5 respondents responding 1.3% do not have. This means that most respondents use the mobile money wallet for their individual and corporate dealings.
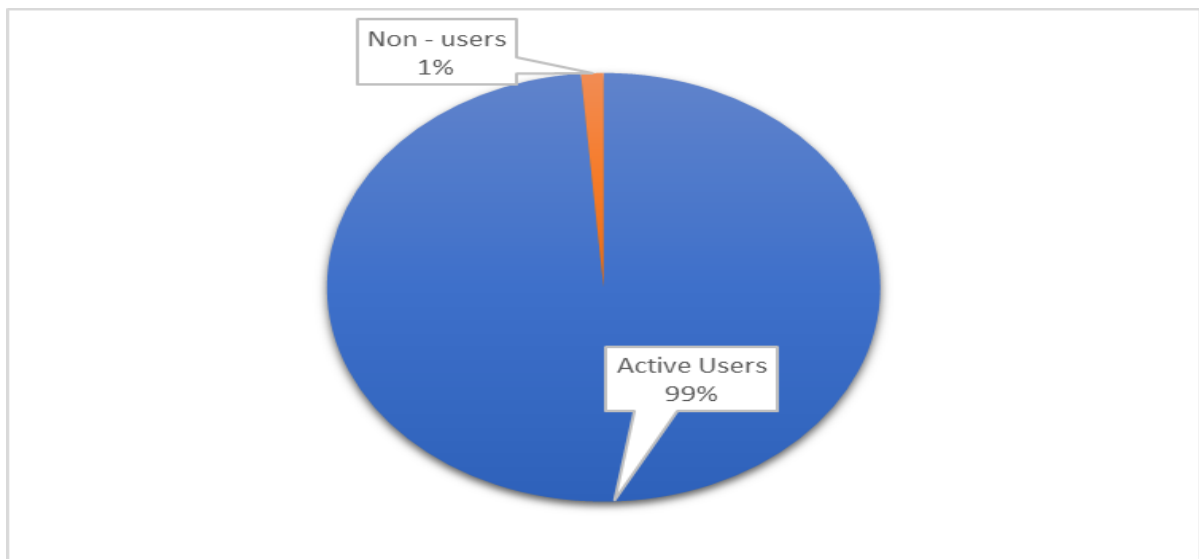


**Figure 2 Usage of Mobile money wallet**
**Adoption of Mobile banking system offered by respondents' bank**
Figure 3 shows that 299 out of the 380 respondents have adopted mobile banking system offer by ADB whiles 81 of the respondents are yet to adopt. Thus, majority of the respondents have adopted mobile banking system.
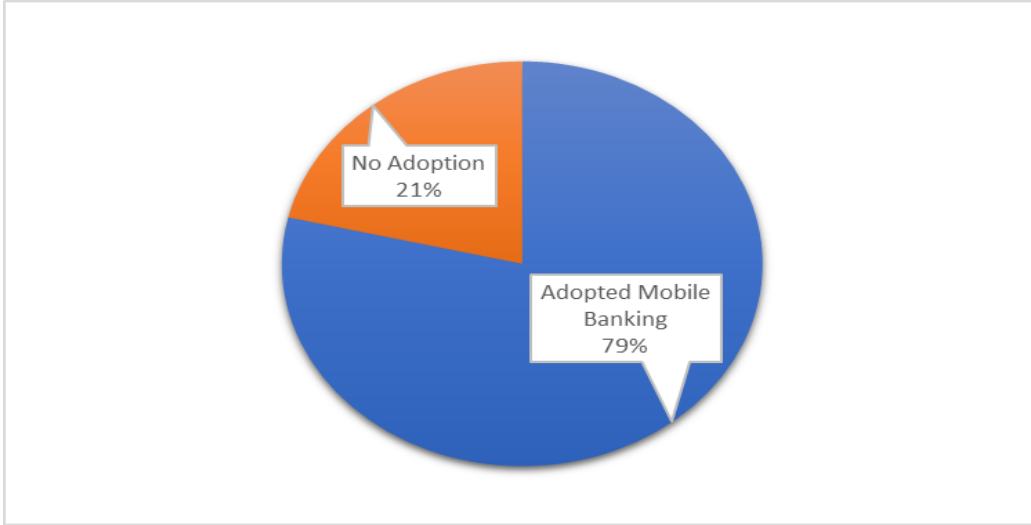
**Figure 3 Adoption of Mobile banking system offered by respondents' bank**
**Preliminary Inferential Analysis**
This section being a parametric analysis discusses preliminary tests including Normality test, Multicollinearity test and data reduction using Principal Component Analysis (Exploratory Factor Analysis).


**Test for Normality**
　　In any statistical analysis, normality tests are important to determine whether the dataset is correctly modelled from a normal distribution, and for the database calculation it is possible that a random variable below the data set has a normal distribution. Data normality assessment is a prerequisite for many statistical analyses because normal data is an important underlying assumption in parametric analyses. For this study, normality is explored. Although the normality of the data is not necessary when using PLS-SEM, in order not to violate any assumptions of parametric analysis, and as normal practice for any statistical analysis, when performing the normality test, scrutinise if the data set is normally distributed or not. This is necessary because an unusual distribution of the data set will negatively affect bootstrapping standard error. According to Hair et al. (1998), the shape of probability distribution of statistical data is demonstrated by skewness and kurtosis. Kline (2005) opines that skewness show how positively or negatively dataset is symmetrically distributed. For normal distribution, kurtosis and skewness are to be within a bracket of -2 and +2. The outcomes revealed both the skewness and kurtosis for majority of the indicators were within the acceptable limit of -2 and +2 as by Hair et al. (2010). Hence the result is conclusive that the data has no issues of normality.

**Multicollinearity Test**
　　Multicollinearity is an indication for a linear relationship between independent variables (Gujarati, 2003). Variable Inflation Factor (VIF) technique is employed to test multicollinearity problem. The variable inflation factor (VIF) technique is used to verify the presence or absence of a polyline problem. The variance inflation factor (VIF) measures the inverse of the forecast correlation complement: $VIF = 1 / (1-r2)$, where r represents multiple correlations between the forecast variable and other forecasts. The general rule of thumb for multicollinearity test is that a variable with VIF values less than 10 indicates the possible existence of a multicollinearity problem. Researchers use tolerance, defined as 1 / VIF, to control the level of co-linearity (Gujarati,

2003). A multicollinearity decision rule in the study establishes a variable whose tolerance is greater than 1.0 (Table 1).

**Table 1: Test of Multicollinearity**

| Variable | Tolerance | VIF |
|---|---|---|
| Ease of use | 0.784 | 1.276 |
| Perceived usefulness | 0.690 | 1.450 |
| Pursuance | 0.881 | 1.136 |
| Communication | 0.576 | 1.735 |
| Transaction speed | 0.737 | 1.357 |
| Security and privacy (Perceived risk) | 0.666 | 1.501 |

The result in Table 1 indicates that VIF values of variables been more than the tolerable value (i.e. VIF values of all variables are more than 1.0) while the tolerance value is not more than 1.0. It indicates that the study model is free from multicollinearity and multicollinearity problem.

**KMO and Barlett's Test**
This section presents the various tests run to ensure that the data is fit for factor analysis or Structural Equation Model. Such tests include KMO and Barlett's test to identify the significance level of the model and the adequacy of the sample size and how correlated the factors are. These tests are performed and results are shown in Table 2.

**Table 2: KMO and Barlett's Test**

| Test | | |
|---|---|---|
| Kaiser-Meyer-Okin Measure of Sampling Adequacy | | 0.72 |
| | Approx. Chi-Square | 4946.69 |
| | df | 406 |
| | Sign. | 0.000 |

The KMO is 0.72, which is more than 0.5, meaning the sample size is adequate for running factor analysis. Bartlett's Test of Spherity, ($X^2$ (12225) = 4946.69, p<0.001) shows that variables or factors are highly correlated and are statistically significant. Therefore, all the necessary assumptions are met for running factor analysis before running the Structural Equation Model. Also, using Harman's single factor test, there is no threat of common method bias in the responses. The result shows that there is 16.846 percent of variance caused by a single factor, which is less than 50 percent. Therefore, common method bias is not present in the responses.

**Structural Equation Modelling**
After an assessment of the model fit measurement, construct and discriminant validity, structural model assessment becomes the next. This involves the testing of hypothesis and the relationship with the latent constructs. Structural model is a part of SEM that describes the interrelationships that exist among constructs or latent variables (Weston & Gore, 2006). The structural model emphasises more on the nature and scale of the relationship between the constructs (Hair, et al., 2006). In essence, structural model is essentially the corresponding structural theory, or the specification of the hypothesised relationship based on the theory represented with series of structural equations represented by visual diagram (Hair, et al., 2006). It is therefore the part of SEM process that is employ in estimating relationships among constructs.

**Measurement Model Assessment**

This section deals with the examination and verification of the suitability of the model. It is recommended to use at least two fit indicators to verify the suitability of the model. Popular indicators used in structural equation modelling include absolute, incremental and parsimonious measures (Hair et al., 2010; Holmes-Smith, Coote & Cunningham, 2006). These three measurements are employed in the study. The measurement model test included convergent validity, reliability and discriminant validity displayed in Table 3 and 4.

**Content Validity**

Prior studies indicate that content validity is explored using cross-loading, the rule of the thumb is that the value of the measured construct/variable should load higher than other study variables within the same row and columns (Hair Jr, 2010; Khan et al.,2018). The results as present in Table 3 confirms content validity.

**Table 3: Factor Loading and Cross Loading**

| Items | Mobile Banking Adoption Intention | Comm. | Ease of Use | Perceived Risk | Perceived Usefulness | Pursuance | Transaction Speed |
|---|---|---|---|---|---|---|---|
| MBAI1 | 0.853 | 0.587 | 0.358 | 0.555 | 0.475 | 0.449 | 0.546 |
| MBAI2 | 0.859 | 0.636 | 0.431 | 0.583 | 0.458 | 0.489 | 0.576 |
| MBAI3 | 0.857 | 0.586 | 0.459 | 0.616 | 0.457 | 0.363 | 0.556 |
| MBAI4 | 0.817 | 0.584 | 0.536 | 0.543 | 0.466 | 0.354 | 0.550 |
| COM1 | 0.617 | 0.837 | 0.549 | 0.636 | 0.404 | 0.305 | 0.558 |
| COM2 | 0.575 | 0.820 | 0.436 | 0.574 | 0.430 | 0.279 | 0.519 |
| COM3 | 0.642 | 0.896 | 0.451 | 0.664 | 0.460 | 0.281 | 0.566 |
| COM4 | 0.553 | 0.830 | 0.326 | 0.547 | 0.345 | 0.240 | 0.474 |
| EU1 | 0.436 | 0.356 | 0.779 | 0.368 | 0.462 | 0.259 | 0.443 |
| EU2 | 0.378 | 0.417 | 0.843 | 0.396 | 0.446 | 0.165 | 0.441 |
| EU3 | 0.504 | 0.533 | 0.910 | 0.505 | 0.387 | 0.290 | 0.522 |
| EU4 | 0.452 | 0.459 | 0.859 | 0.440 | 0.430 | 0.286 | 0.488 |
| PR1 | 0.608 | 0.621 | 0.457 | 0.867 | 0.469 | 0.266 | 0.548 |
| PR2 | 0.662 | 0.653 | 0.454 | 0.929 | 0.507 | 0.318 | 0.587 |
| PR3 | 0.567 | 0.638 | 0.471 | 0.889 | 0.485 | 0.265 | 0.553 |
| PR4 | 0.556 | 0.631 | 0.415 | 0.853 | 0.398 | 0.228 | 0.514 |
| PU1 | 0.388 | 0.337 | 0.284 | 0.429 | 0.823 | 0.181 | 0.407 |
| PU2 | 0.505 | 0.482 | 0.467 | 0.516 | 0.874 | 0.262 | 0.518 |
| PU3 | 0.512 | 0.426 | 0.527 | 0.421 | 0.896 | 0.283 | 0.511 |
| PS1 | 0.367 | 0.202 | 0.192 | 0.187 | 0.226 | 0.692 | 0.311 |
| PS2 | 0.337 | 0.209 | 0.190 | 0.229 | 0.248 | 0.802 | 0.336 |
| PS3 | 0.305 | 0.262 | 0.233 | 0.203 | 0.152 | 0.727 | 0.314 |
| PS4 | 0.465 | 0.316 | 0.289 | 0.300 | 0.239 | 0.838 | 0.408 |
| TS1 | 0.523 | 0.489 | 0.423 | 0.358 | 0.425 | 0.325 | 0.424 |
| TS2 | 0.541 | 0.497 | 0.458 | 0.285 | 0.415 | 0.385 | 0.430 |

**Validity and Reliability**

Construct Reliability is explored by using Composite Reliability (CR). The CR coefficient of 0.70 or higher is considered to have a good scale reliability (Hair et al., 2010). Table 4 gives results that shows the computed Composite Reliability (CR) of all the latent variables ranges between 0.850 and 0.935, and all were above the 0.70 threshold. Therefore, produces evidence that all the latent variables have good reliability. Additionally, the Cronbach alpha is also measure of items' reliability. Although Wang and Tai (2003) are of the view composite reliability as very similar to Nunnally, Cronbach alpha and Bernstein (1994) hold the view that there is the need to measure the two. Again, the Cronbach alpha values range between 0.692 and 0.929. All the latent variables are above the 0.60 threshold as recommend by Nuanally and Berntein, (1994). For convergent validity, it is requiring that values of AVE be more than 0.5 to verify convergent validity.

The results show that AVE and Factor Loadings are greater than 0.5 hence the result confirms the construct capability to explain more than half of the indicators' variations. The study, again, explores the extent to which individual constructs are divergent from other constructs (Hair et a., 2010; Henseler et al., 2016). To confirm discriminant validity, the diagonal values (square root of AVE) of each latent variable must have values greater than the highest construction correlation. The result again confirms the absence of multicollinearity (Byrne, 2013). Additionally, Henseler et al., (2015) is of the view that, to further confirm the presence of discriminant validity, a multitrait-multi method matrix in the form of heterotrait-monotrait ratio of correlations (HTMT) ought to be explored to validate the result of the Fornell-Larcker (1981) criterion. Therefore, discriminant validity is tested using HTMT technique.

Kline (2011) states that to confirm discriminant validity, HTMT value should not be better than 0.85. On the other hand, Gold et al (2001) is of the view that the HTMT value should not be more than 0.90 to confirm discriminant validity. The result as presented in Appendix III indicates values exceeding HTMT of 0.90 (Gold et al., 2001). Consequently, using Fornell and Larcker (1981) criterion and that of heterotrait-monotrait correlations ratio, outcomes indicates the attainment of discriminant validity. The model shows substantial predictive accuracy ($R^2$) values of 0. 645, towards intention to adopt mobile banking.

**Table 4: Validity and Reliability**

| Variables | Items | Loadings | Cronbach's Alpha | Composite Reliability | AVE | $R^2$ |
|---|---|---|---|---|---|---|
| Mobile Banking Adoption Intention | BI1 | 0.853 | 0.868 | 0.91 | 0.717 | 0.645 |
| | BI2 | 0.859 | | | | |
| | BI3 | 0.857 | | | | |
| | BI4 | 0.817 | | | | |
| Communication | COM1 | 0.837 | 0.867 | 0.91 | 0.716 | |
| | COM2 | 0.820 | | | | |
| | COM3 | 0.896 | | | | |
| | COM4 | 0.830 | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Ease of Use | EU1 | 0.779 | 0.87 | 0.912 | 0.721 | |
| | EU2 | 0.843 | | | | |
| | EU3 | 0.910 | | | | |
| | EU4 | 0.859 | | | | |
| Perceived Risk | PR1 | 0.867 | 0.908 | 0.935 | 0.783 | |
| | PR2 | 0.929 | | | | |
| | PR3 | 0.889 | | | | |
| | PR4 | 0.853 | | | | |
| Perceived Usefulness | PU1 | 0.823 | 0.833 | 0.899 | 0.748 | |
| | PU2 | 0.874 | | | | |
| | PU3 | 0.896 | | | | |
| Pursuance | PS1 | 0.692 | 0.766 | 0.85 | 0.588 | |
| | PS2 | 0.802 | | | | |
| | PS3 | 0.727 | | | | |
| | PS4 | 0.838 | | | | |
| Transaction Speed | TS1 | 0.627 | 0.801 | 0.87 | 0.603 | |
| | TS2 | 0.745 | | | | |

**Measurement of Model Path Coefficients**
The results of the path coefficient as depicted by Figure 4 shows that all of the coefficients were positive, the implication is therefore that, a unit increase in the quality of any construct will have a direct influence on dependent variable (mobile banking adoption).

**Hypothesis Testing for Relationships**
The study proposes that communication has a significant positive influence on the intention to adopt mobile banking. The result reveals a positive significant connection between communication and intention to adopt mobile banking ($\beta = 0.339$, $p < 0.05$) hence communication has a significant positive effect on the intention to adopt mobile banking. The result reveals positive significant linkage between perceived risk and adoption of mobile banking ($\beta = 0.244$, $p < 0.05$), The result indicates a positive significant association between perceived usefulness and the intention to adopt mobile banking ($\beta = 0.149$, $p < 0.05$). The result, again, shows a positive significant connection between pursuance and intention to mobile banking adoption ($\beta = 0.238$, $p < 0.05$). Furthermore, the result shows a positive significant relationship between ttransaction speed and intention to adopt mobile banking ($\beta = 0.131$, $p < 0.05$). The result however reveals a positive but insignificant relationship between ease of use and intention to adopt mobile banking ($\beta = 0.244$, $p > 0.05$). In all, five (5) out the six (6) hypotheses are supported as shown in Table 5.
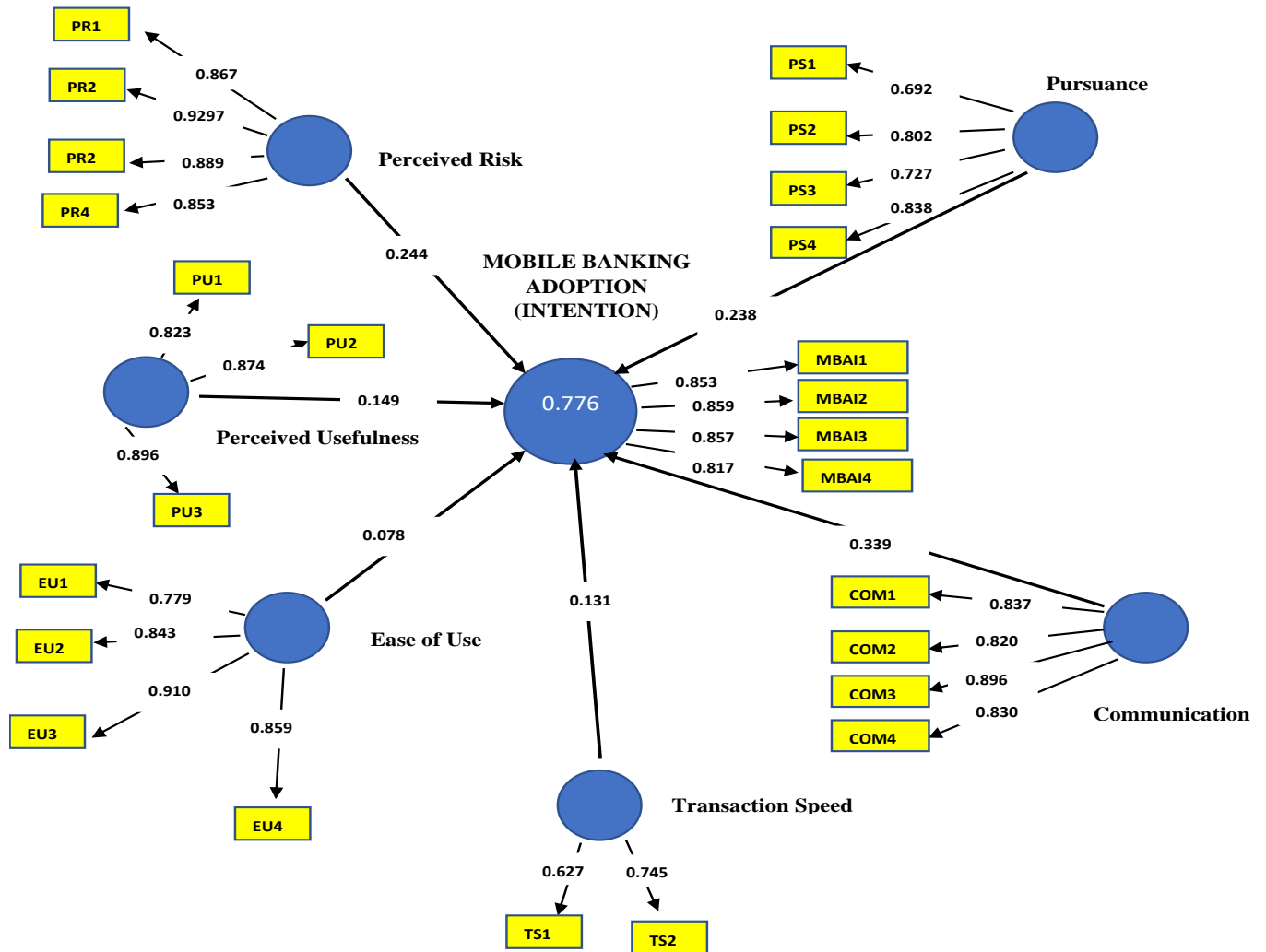
**Figure 4***: **Measurement of Model Path Coefficients**

**Summary of Hypotheses**
In all, six hypotheses are put to test by the study. These range from hypothesis 1 through to hypothesis 6. The results show that out of the six hypotheses tested, five are supported and one is rejected. The discoveries on the hypotheses show significant role of the latent variables to the adoption of mobile banking intention of Agricultural Development Bank customers.

**Table 5: Summary Result of Hypotheses**

| Hypothesis Code | Hypotheses Tested | Relationship Result | t-value p-value | Supported/ Rejected |
|---|---|---|---|---|
| H1 | Communication -> Mobile Banking Adoption Intention | + | 8.141 (0.000) | Supported/ Confirmed |
| H2 | Ease of Use -> Mobile Banking Adoption Intention | + | 1.656 (0.098) | Rejected |
| H3 | Perceived Risk -> Mobile Banking Adoption Intention | + | 3.815 (0.000) | Supported/ Confirmed |
| H4 | Perceived Usefulness -> Mobile Banking Adoption Intention | + | 3.057 (0.002) | Supported/ Confirmed |
| H5 | Pursuance -> Mobile Banking Adoption Intention | + | 6.555 (0.00) | Supported/ Confirmed |
| H6 | Transaction speed -> Mobile Banking Adoption Intention | + | 2.964 (0.003) | Supported/ Confirmed |

**Discussion of Results**
The study obtains that 320 (84%) of respondents make use of mobile banking services with their bank (ADB) while 60 (16%) of the respondents are yet to sign on. Thus, most of the respondents are using the mobile banking applications. Also, 375 out of the 380 respondents have mobile money wallet or account indicating that majority of the respondents perform transaction using mobile money wallet. Out of 380, 299 respondents adopt mobile banking system offer by the bank. Thus, majority of the respondents uses mobile banking system and therefore are aware of mobile banking. According to Sharafi et al. (2017) mobile banking awareness impacts ease of use together with perceived usefulness. Meaning, the higher the level of awareness, the more positive the attitude of clients towards usage of mobile banking. This study agrees with that of Sharafi et al. (2017) that people who are highly aware of mobile banking, make use of the services. Also, a study by Cudjoe et al. (2015) reveals that the rate of adoption was low among Access Bank customers due to the low awareness level.

Majority of the respondents strongly agrees that checking account details is the foremost need for adopting a mobile banking service. This is followed by the viewing of mini-statement (M=4.36, SD=0.757). Transfer of funds between bank accounts (M=4.34, SD=0.853) and the access of real-time services (M=4.29, SD=0.887) follow suit. Also, a greater number of respondents agrees that they use mobile banking platforms to pay bills to private entities and statutory institutions for utilities (M=4.03, SD=0.933) which is followed by investment and insurance products payments (M=3.93, SD=0.958). Since almost all respondents are aware of mobile banking, ease of use and perceived usefulness are certain to exist as postulate by Sharafi et al. (2017).

The results show the existence of positive association between mobile banking adoption and ease of use of 0.077 but it is not statistically significant as most of customers do really consider this variable in intending to adopt the mobile banking options of the bank. On perceived usefulness, it reveals that as the perceived usefulness of the customers increase, the intention of adopting mobile banking also increases at 0.149. Thus, mobile banking adoption been having significant positive influenced by perceived usefulness.

There is also a positive effect of pursuance on mobile banking adoption, this effect is statistically significant. This means that the more people are constrained from accessing the services, branch assistance as well as location of facility, the more they adopt mobile banking platforms (applications). Regarding communication, there is a positive effect of communication on adoption of mobile banking which is statistically significant. Thus, an increase in the communication leads to 0.339 growth in the adoption of mobile banking intentions. For the transaction speed variable, a positive relationship between transaction speed and mobile banking adoption. This is also statistically significant and so an increase in the transaction speed leads to an increase of 0.131 in mobile banking adoption intention. On security and privacy (perceived risk), there is positive effect of security and privacy on mobile banking adoption which is statistically significant. Thus, a percent increase in the communication leads to an increase of 0.244 in mobile banking adoption.

These findings support Islam et al. (2018) study that indicates that factors like the convenient, transaction speed, responsive system, accuracy and security in ATM cubicle are positively and significantly related to the overall experience of the customers about the mobile banking in Bangladesh. Adesina and Ayo (2010) and Agwu (2012) consider security as a significant factor influencing customer for not choosing online banking. People's desire of mobile banking usage is influenced greatly by fraudulent online activities, credit card scams and mobile banking technologies insecurities. The outcome of the study confirms security and privacy (perceived risk) as a notable variable of the adoption of mobile banking.

## 4. Conclusion

The study intends to reveal the mobile banking adoption determinants among customers of agricultural development bank. The study employs explanatory design of the quantitative approach. The study targets all customers of Agricultural Development Bank in Ghana. However, simple random is used to select 384 customers to form part of the study. Main collection instrument of data employed is questionnaire and data are analyzed using SEM. The results show that communication, pursuance, perceived risk (security and privacy), perceived usefulness and transaction speed as the significant influencing causes in mobile banking adoption among the Banks' customer base. Ease of use, though having a positive correlation with mobile banking adoption, does not have a significant impact on mobile banking adoption among Agricultural Development Bank customers. This implies that Agricultural Development Bank customers tend to use mobile banking services based on its perceived risk (security and privacy), perceived usefulness, transaction speed, communication and pursuance.

## 5. Recommendations

From this research analysis and discussions done, the following recommendations can be made: First and foremost, Agricultural Development Bank and the entire banking sector in Ghana should extensively invest in innovations, technological advancement and mobile banking as they help improve growth (in terms of market share the overall financial inclusion agenda).

Again, Agricultural Development Bank must ensure speed and cost efficiency in its mobile banking service. Furthermore, mobile banking departments activities need to be closely supervised and audited in evaluating the developments, expansions and challenges of services rendering. This unit within the operations of the bank is very imperative to the management of the bank as it helps to study the changes of the adoption and rate of use of mobile banking and challenges customers and banks encounter while banks servicing the customers efficiently and effectively in a timely manner. Additionally, management and staff of banks should be well educated and be knowledgeable on how to make use of the various mobile banking services (channels) so as to offer the needed assistance and support to current and potential customers. This will go a long way to reduce the cost of hiring more personnel and reduce banking premises' congestions. More affordable a mobile banking services is, more profitable it is for Agricultural Development Bank. Lastly, reflecting on the findings, it is recommended that since a number of respondents (customers) are of the view that network non-availability in some parts of the country affects internet-based applications, it is therefore imperative for the banking sector to work closely with the telecommunication service providers to ensure that networks (not necessary internet only) coverage is all over the country in order to serve all spheres of the country thereby customers can use all channels such as USSD, SMS and Internet-based applications. Demographic factors such as gender, education, occupation and age impact on mobile banking adoption do not enjoy ample prominence in this study, future researchers should explore how demographic factors influence mobile banking services adoption.

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**International Journal of Business, Technology, and Organizational Behavior (IJBTOB) ISSN: 2775-4936**
**Vol. 3 No. 4, August 2023**

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