# Factors Influencing the Adoption of E-banking Services in Klang Valley

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**ABSTRACT**

*The growth of the Internet and the usage of electronic devices such as computers and mobile phones have increased the usage of e-banking services, especially online and mobile banking. This is a great opportunity to identify and understand which factors would significantly affect the user's intention to use e-banking services and to give the determining factors of e-banking services in the aspect of the users. This could help banking-related companies to improve their services and products. Quantitative analysis was used in this paper to measure the relationships between e-banking services and users' intentions. In the data collection process, questionnaires were distributed to 390 Malaysians, aged 18 and above, who stay in Klang Valley. Statistical Package for Social Science (SPSS) software was used to analyse the collected data based on Pearson's correlation coefficient and multiple regression analysis to determine the result.*

***Keywords**: Internet Development, Mobile Phones, E-Banking, SPSS, Correlation Coefficient*

## INTRODUCTION

With the rapid development of the Internet and informational technology, Malaysia has entered an era of digitalization, and it has changed the way of living including the banking industry. The development of e-banking services in Malaysia has been popular in the last few decades. E-banking services refer to the use of technology to communicate instructions and receive information from a financial institution where an account is held. This service includes a system that enables financial institutions' customers, individuals, or businesses to access accounts for a business transaction or obtain information on financial products and services through a public or private network (Aliyu et al., 2012). However, the new form of e-banking services will be discussed in this research including online banking and mobile banking. Banking refers to the action of channelling funds from the savers to the borrowers through

financial intermediaries (Irons, 2019). Compared to the conventional way, e-banking services enable individuals to conduct the transaction through machines at the bank or online.

With the invention of the automated teller machine (ATM), the earliest electronic method to transfer funds in the banking sector in Malaysia was the implementation of ATM in 1981 (Guru et al., 2001). It allows individuals to complete the transaction without the limitation of geographic location and operating time. Besides, these machines also help banks to reduce the workload of bank staff in terms of basic services such as funds transfer, cash deposit/withdrawal, and balance inquiry. With the development of software, the ATM can now conduct more actions than before such as loan repayment using a credit card, hire purchase loan, and even reloading an e-wallet. Thus, most banks in Malaysia provide ATM service nationwide. On the other hand, phone banking is another popular option for customers where the bank has a centralized consumer department operating 24 hours to provide basic service to meet the customer's needs (Hway-Boon & Ming Yu, 2003). However, it is gradually being replaced by online banking although most banks still keep the hotline number for emergency purposes such as reporting the loss of credit card or debit card.

Deregulation, advancement in IT, and globalization have reduced the margin of traditional banking activities which lead the banks to transform by merging with non-financial institutions to provide extra services and reduce part of the labour cost by investing in online banking and mobile banking (Goi, 2005). Therefore, promoting the new form of e-banking services at present is a win-win situation between consumers and banks. However, some issues may arise when promoting the new form of services. Online banking is referred to as an Internet platform that enables customers to access banking services ranging from payment to transfer of funds. (Pikkarainen et al., 2004). Commonly, mobile banking is defined as a transaction conducted through a Personal Digital Assistant (PDA) such as a mobile phone (Cheah et al., 2011). Under the guidelines of Bank Negara Malaysia, online transactional websites and informational websites are only allowed to operate under the licensed banking institution whereas domestic banking institutions are allowed to establish an online transactional website (Goi, 2005).

The banking industry has grown rapidly but to serve more people at a lesser cost, the increase in service efficiency has become crucial. With the innovation of digital technology, banks seize this opportunity to develop their e-banking services to increase the efficiency of serving their customers better and faster. Based on the digital banking penetrations for transactions and services in ASEAN countries report prepared by Barquin et al. (2015) is the second highest with 44%, and Malaysia is third with a 41% penetration rate. By comparing Malaysia with other ASEAN countries, Malaysia's performance is somehow better. However, there is still a gap in studies related to the adoption of e-banking services between these countries. This may point out the question of what are the factors that affect the adoption of e-banking services.

The primary concerns that have important effects on the adoption are privacy and security. Furthermore, personal details protection is one of the main concerns of banking activities because the banking industry is obligated to ensure the confidentiality of customers' identities and personal information is not violated by others, particularly hackers. Since banks operate on a trust-based system, the loss of their data can cause customers to lose their trust in the banks. Households are willing to carry out their internet transactions when security is enhanced and transactions are guaranteed. Security is considered one of the key factors that can change the perceptions of customers regarding the adoption of e-banking services. Customers typically have little faith in the Web because their protection system is vulnerable. Therefore, security issues need to be solved to improve e-banking, as most customers have higher risk concerns during the online banking processes (Lee & Chung, 2009). Moreover, future e-banking users are aware that unstable or weak technology protection and safety can lead to errors and mistakes in the transaction when carried out. Therefore, poor e-banking services will be less preferred and used less frequently. One widely recognized factor as a strong predictor for accepting new innovative technologies is convenience. According to Black et al. (2002), the sense of comfort often extends well with the theory of online banking. Likewise, convenience has been considered the most important

influencer in online banking use for market forecasting. When customers find it inconvenient for any particular reason, they would be less likely to pursue online banking. For example, Lee and Chung (2009) found that some users consider online banking inconvenient due to delays in managing electronic transactions, or when it takes longer than normal to wait for a specific website or webpage to load.

The main purpose of this study could provide valuable knowledge and prove which factors will give more impact in influencing the adoption of e-banking services. This study brings the opportunity to explore the impact of security and privacy, ease of use, and convenience of the user's intention toward e-banking services. Furthermore, this research paper provides a platform for gathering information for researchers, academics, and practitioners as well as contributing to the business management of the banking industry. Previously, the relevant research especially in Klang Valley is poorly understood due to insufficient findings which suggest the necessity of this paper. The greater the findings, the better it is for researchers of future studies. Besides, this study provides information to both academics and practitioners to understand the attributes of e-banking in Klang Valley and observe Malaysian's acceptance of e-banking services as well as contribute to relevant marketing management to increase the chance of success in promoting e-banking services. As technology develops, the development of e-banking services such as online banking, mobile banking, and e-payments is necessary to deal with consumers' daily activities. The findings of this study will directly help the financial institutions to have a better understanding of customers' concerns towards e-banking services, the factors that influence the adoption of e-banking services which in result will help them to improve the service quality and increase customer satisfaction.

## LITERATURE REVIEW

Security and privacy breach are defined as the actions of accidental or purposeful unlawful disclosure, modifications, or destruction of the protected data by unofficial persons (Wei, 2017). Even though the level of security could be evaluated, the positive perception of security towards the platform is still not established especially when the leakage of data occurs (Taherdoost, 2017). Lee and Kim (2020) pointed out in their research that security and privacy risks have negative impacts on the determinants of adoption and continuance intentions towards internet-only banks.

Furthermore, the risk of hacking and disclosure of personal data accidentally or purposely due to the poor security system may threaten customer safety while conducting the transaction (Lee & Kim, 2020). The e-banking services should be secure with fewer worries for the users about the risk of losing money and personal data through the bank website or mobile banking. Miyazaki and Krishnamurthy (2002) pointed out in their research that the most essential roles in the e-banking process are security and privacy to features such as access to the customer's accounts, transaction history, payment of bill details, and other processes. Anouze and Alamro (2020) claimed that security and privacy issues directly influence the user's intention of using e-banking services and it has been proven by research that security issues are related to the adoption of e-banking services. Furthermore, Gefen (2000) proved that the relationship between trust and intention on purchasing has a significant relationship and claimed that the increase in trust will lead to an increase in intention to use online banking. Well-planned security can increase customer satisfaction and confidence when using online banking because it provides a strong influence of trust to the customers and proves that it is safe to be used. Thus, consumers are willing to develop habits of using online money transactions.

The most widely accepted model to examine the adoption is the technology acceptance model (TAM) proposed by Davis et al. (1989). TAM is a theory adopted from the theory of reasoned action (TRA). TRA is interested in the factors that affect consciously chosen behaviours. It emphasizes that a person's ability to perform a specific behaviour is determined by the person's attitude and subjective norm of the behaviour and that the behaviour purpose is determined by the person's attitude and subjective norm of the behaviour. Davis et al. (1989) suggested that the attitude toward using forms the behaviour of use and Perceived Usefulness (PU). They also noted that the Perceived Ease of Use (PEOU) will affect the

forming of the attitude of use while the PEOU could also impact the PEOU to form the attitude of using. Davis believed that people's attitude towards using is determined by two key elements which are PU and PEOU. Davis (1989) defined perceived usefulness as "the prospective user's subjective probability that using a specific application system will increase the job performance within an organizational context" while perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort". Once people form the attitude of using it will eventually form the behavioural intention to use it. Many of the studies in information technology research have empirically proven the capability of TAM (Ma & Liu, 2004; Rauniar et al., 2014; Venkatesh et al., 2012).

However, some researchers criticised TAM and other studies also had proven that the TAM has limitations. Ajibade (2019) pointed out the core argument is that the ease of use of technology is based on the experiences and proficiency of the information technology while the acceptance and attention of the people are influenced by the company's rules, IT guidelines, and policy. The study also claims that "the playfulness of the gaming technology is more critical to users and fun of application rather than ease of use" (Ajibade, 2019). Zaineldeen et al. (2020) also claimed that the TAM inadequacies emphasised external factors such as prior experience, facilitating condition, and perceived enjoyment.

Based on Figure 1 below, the conceptual framework has acted as a beginning in the process of this research project. Thus, the figure has specifically illustrated the factors that will influence the adoption of e-banking services. According to the TAM, the perceived ease of use can also form the perceived usefulness and lead to the actual system use. Furthermore, the relationship between security, privacy, and convenience has been proved by many previous studies. Therefore, three independent variables were chosen in this research which are security and privacy, convenience, and ease of use.
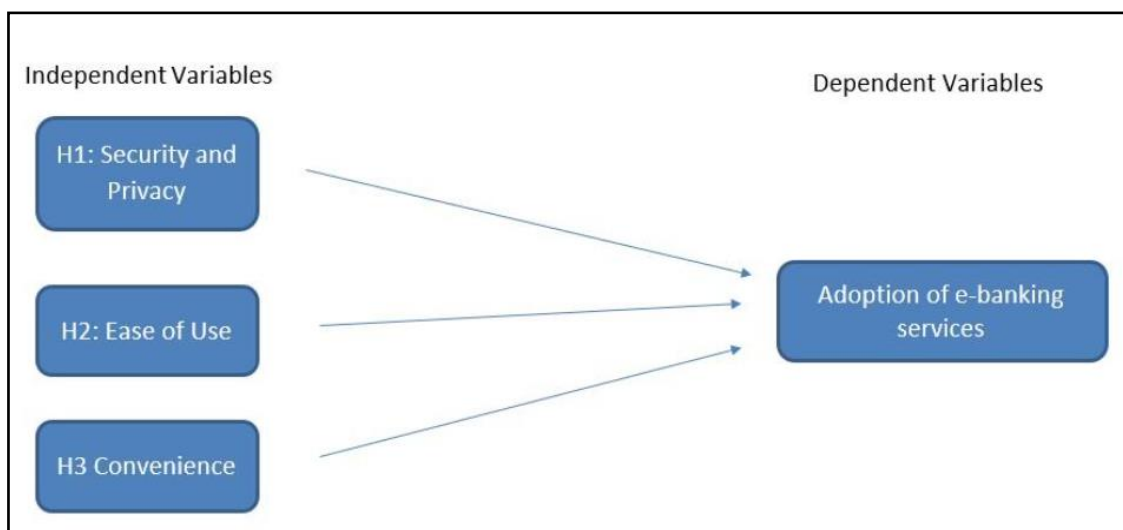


**Figure 1: The Conceptual Framework of the Study**

## METHODOLOGY

### Research Design

This research aims to study the factors that influence the adoption of e-banking services in Klang Valley, Malaysia. Primary data was used in this research and was collected via a questionnaire distributed to the respondents through the internet. The reason to use this type of questionnaire is that an online questionnaire survey costs lesser as well as a faster way to collect data. The determination of

variables under this study was based on the adoption of the e-banking dimension that was derived in previous studies. Hence, based on the collected data, directly showed the relationship between the independent variables and dependent variables.

## Research Sampling

The target population of this research is adults living in Klang Valley, Malaysia between the age of 18 to 60. Klang Valley is the most developed area in the whole of Malaysia and it is part of the capital of Malaysia. Klang Valley has the largest population in Malaysia and the large population could provide enough sample size and therefore a suitable area to conduct the survey. The sample size of this study is 384 respondents. The questionnaire was distributed via the Internet on the social media platform. The purpose of using this method is due to the efficiency of this method which is high, low-cost, and time-saving when collecting the data and information. The questionnaire was designed into two parts, which are Section A and Section B. Section A comprises the general demographic information about the respondents including gender, age, education level, occupation, income level, computer availability, internet availability, mobile phone availability, mobile internet feature and "have you ever use e-banking (internet & mobile banking) before?". Multiple Choice Question is applied in Section A to facilitate the respondents when answering the questionnaire. On the other hand, Section B consists of 20 questions from each dependent and independent variable, and it will be measured by using the Likert Scales five-point scale. The respondents were asked to choose the number that represents their levels of satisfaction from the range of strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5).

The data collected by the researcher was analysed via Statistical Package for Service Solution (SPSS) version 26.0. It was used to evaluate the question and generate the result in the study. By gathering the data and using SPSS software to run the statistical analysis and tests, it measured all the relevant statistics such as descriptive statistics, reliability test, normality test, Pearson correlation analysis, and multiple regression analysis.

## RESULTS AND DISCUSSIONS

This section reports the results from the data collected from the questionnaire and analysis by the statistical methods which include descriptive analysis, reliability test, normality test, Pearson's Correlation Analysis, and multiple regression analysis to discuss and interpret the relationship between the dependent variable and independent variables. Statistical Package for Social Science (SPSS) was used to analyse the collected data.

There were 154 (40.1%) male respondents to this questionnaire while the rest, 230 or 59.9%, were female respondents. The majority of those who answered the questionnaire, 46.9% were respondents from the age of 26 to 45 while the respondents at age 25 and below were the smallest number in the questionnaire. 151(39.3%) respondents were of the 45 and above group age. Regarding the education level, 55.7% or 214 respondents have a bachelor's degree, while the number of respondents who have a secondary education is the least. Respondents who have postgraduate qualifications are the second-largest respondents while those who have a diploma ranked the second least. Next, most of the respondents work in either in sales, marketing, advertising or customer service which consists of 36.7% or 141 out of all respondents. Professionals are the second-largest career of all respondents and the respondents from manufacturing/production/operation/industry made up the third-largest. The respondents who have an income level between RM3,000 to RM4,599 were the largest in the result which consists of 49% or 188 out of all respondents while the least were those who earned less than RM1,499. In addition, respondents who have income levels from RM1,500 to RM2,999 and RM4,600 and above are 9.9% and 34.4% respectively. Other than that, almost all respondents have access to a computer. The result shows that there are 95.1% or 365 respondents do have access to a computer and

only 4.9% or 19 do not have access to a computer out of all 384 respondents. Almost all respondents have access to the internet. The result shows that there are 99.7% or 383 respondents do have access to the Internet and only 0.3% or 1 respondent do not have access to the Internet out of all 384 respondents.

This section concludes that mobile phone availability and mobile internet are used by the majority of the respondents. There are a few options regarding the mobile internet feature which include none, WAP, GPRS, 3G, 4G, or 5G. The result shows that only 0.3% or 1 respondent do not have access to mobile phone and mobile internet out of all 384 respondents. Furthermore, almost all respondents have access to mobile phones and mobile internet and most of the respondents have 4G mobile internet access on their mobile phones. There are 97.1% or 373 respondents have access to 4G Internet and 2.1% or 8 respondents have access to 5G mobile internet. On the other hand, 0.5% or 2 respondents only have access to 3G mobile internet. Almost all respondents have had e-banking services experience before. The result shows that 98.7% or 379 respondents do have experience with e-banking services and only 1.3% or 5 respondents do not have experience with e-banking services out of all 384 respondents.

Table 1 shows the descriptive statistics of dependent variables and independent variables which include the mode, median, mean, and sample standard deviation. Respondents were asked to disclose their agreement or disagreement using the Likert Scales five-point scale from strongly disagree (1) to strongly agree (5). There are a total of 4 questions provided regarding the intention to use (ITU) for respondents to answer. Table 1 shows the descriptive analysis for the dependent variable.

**Table 1: Descriptive Statistics of Dependent Variable**

|  |  | Mean | Median | Mode | Standard Deviation |
|---|---|---|---|---|---|
| ITU1 | I intend to use -banking as often as needed | 3.80 | 4 | 4 | 0.76 |
| ITU2 | I will use e-banking on a regular basis in the future | 3.85 | 4 | 3 | 0.83 |
| ITU3 | Based on my experience, I am very likely to return to use the e-banking services facility | 3.85 | 4 | 3 | 0.83 |
| ITU4 | Provided that I may have access to e-banking services in the future, I will use them. | 4.06 | 4 | 5 | 0.87 |

The result shows that the means of these four questions about the intention to use the internet and mobile banking are 3.8, 4.3, 3.85, and 4.06 which indicates that the respondent's attitude towards the intention to use the internet and mobile banking is between neutral to strongly agree. Furthermore, the median of these questions is 4 which shows that half of the respondents agree and have the intention to use the internet and mobile banking. The mode of these questions is 4, 5, 3, and 5 respectively and most respondents strongly agree with it.

ITU 2 and ITU 4 while most respondents are neutral to ITU 3. In addition, the standard deviations of these 4 questions are 0.76, 0.77, 0.83, and 0.87 respectively which indicates that the variation of the data set is close to the mean. In other words, the mean value of these questions is reliable. There was a total of 5 questions provided regarding the security and privacy of e-banking services for respondents to answer. Table 2 shows the descriptive analysis for security and privacy (SP).

**Table 2: Descriptive Statistics of Security and Privacy**

| | | Mean | Median | Mode | Standard Deviation |
|---|---|---|---|---|---|
| SP1 | I would feel secure sending sensitive information across the e-banking services platform | 3.81 | 4 | 4 | 0.86 |
| SP2 | I am concerned about the security and privacy of e-banking services | 3.97 | 4 | 4 | 0.86 |
| SP3 | I do not leave my computer unattended, while connected to the e-banking services | 3.91 | 4 | 3 | 0.89 |
| SP4 | I am satisfied with the security system provided by banks | 3.97 | 4 | 5 | 0.89 |
| SP5 | Pins obtained by fraud may allow hackers to access customers' account | 3.92 | 4 | 3 | 0.90 |

The result shows that the means of these five questions about security and privacy of e-banking services are 3.97, 3.91, 3.97, and 3.92 which indicates that the respondents' attitudes towards security and privacy of e-banking services were between neutral to nearly agree. Furthermore, the median of these questions is 4 which shows that half of the respondents agreed that security and privacy are crucial for e-banking services. The mode of these questions is 4, 4, 3, 5, and 3 respectively and most respondents strongly agreed with SP 4 while most respondents were neutral to SP 3 and SP 5. In addition, the standard deviation of these 5 questions is 0.86, 0.86, 0.89, 0.89, and 0.9 respectively which indicates that the variation of the data set has a similar mean. In other words, the mean value of these questions is reliable.

There is a total of 6 questions provided regarding the ease of use of e-banking services for respondents to answer. Table 3 shows the descriptive analysis for ease of use.

**Table 3: Descriptive Statistics of Ease of Use (EOU)**

| | | Mean | Median | Mode | Standard Deviation |
|---|---|---|---|---|---|
| EOU1 | Navigation on the e-banking platform is easy | 3.90 | 4 | 3 | 0.87 |
| EOU2 | I find it easy to get the e-banking system to do what I want it to do. | 3.88 | 4 | 3 | 0.90 |
| EOU3 | My interaction with the e-banking information system is clear and understandable | 3.97 | 4 | 5 | 0.87 |
| EOU4 | It is easy for me to become skilful in the case of using e-banking services | 3.97 | 4 | 3 | 0.92 |
| EOU5 | The e-banking information system has an easy inquiry access | 3.91 | 4 | 3 | 0.90 |
| EOU6 | I find the online banking system to be flexible to interact | 3.98 | 4 | 5 | 0.91 |

The result shows that the means of these six questions about ease of use of banking services are 3.9, 3.88, 3.97, 3.97, 3.91, and 3.98 which indicates the respondent's attitude toward the ease of use of e-banking services is between neutral to nearly agree. Furthermore, the median of these questions is also 4 which shows that half of the respondents agree that ease of use is crucial for e-banking services. The mode of these questions is 3, 3, 5, 5, 3, and 5 respectively and most respondents strongly agreed with EOU 3, EOU 4, and EOU 6 while most respondents were neutral to EOU 1, EOU 2, and EOU 5. In addition, the standard deviation of these six questions is 0.87, 0.9, 0.87, 0.92, 0.90, and 0.91

respectively which indicates that the variation of the data set is near the mean. In other words, the mean value of these questions is reliable.

There was a total of 5 questions provided regarding the convenience of e-banking services for respondents to answer. Table 4 shows the descriptive analysis for convenience.

**Table 4: Descriptive Statistics of Convenience (CVN)**

|  |  | Mean | Median | Mode | Standard Deviation |
|---|---|---|---|---|---|
| CVN1 | I can access e-banking services at any time and anywhere | 3.96 | 4 | 4 | 0.84 |
| CVN2 | E-banking services save time as compared to conventional banking | 4.06 | 4 | 5 | 0.88 |
| CVN3 | My E-banking account can be accessed when I abroad | 3.93 | 4 | 5 | 0.94 |
| CVN4 | No queue when performing activities on e-banking services | 3.97 | 4 | 5 | 0.88 |
| CVN5 | It is important to have 24-hour support for e-banking services | 4.25 | 4 | 5 | 0.83 |

The result shows that the means of these five questions about the convenience of e-banking services are 3.96, 4.06, 3.93, 3.97, and 4.25 which indicates the respondent's attitude toward the convenience of e-banking services is between nearly agree to agree. Furthermore, the median of these questions is 4 which shows that half of the respondents agree that convenience is crucial for e-banking services. The mode of these questions is 4, 5, 5, 5, and 5 respectively and most respondents strongly agreed about CVN 2 to CVN 5 while most respondents agreed with CVN 1. In addition, the standard deviation of these 5 questions is 0.84, 0.88, 0.94, 0.88, and 0.83 respectively which indicates that the variation of the data set is near to the mean. In other words, the mean value of these questions is reliable.

## Pearson's Correlation Analysis

**Table 5: Correlations of the Mean of ITU and SP**

|  |  | Mean ITU | Mean SP |
|---|---|---|---|
| Mean_ITU | Pearson Correlation | 1 | 0.298** |
|  | Significant (2-tailed) |  | .000 |
| Mean_SP | Pearson Correlation | 0.298** | 1 |
|  | Significant (2-tailed) | .000 |  |
| **Correlation is significant at the 0.01 level (2-tailed) | | | |

Table 5 explained that the correlation coefficient between ITU and SP is 0.298 with the p-value of 0.001 in the significant level of 0.01 which indicates that the ITU has a positive linear relationship with SP but with a weak relationship since the R-value is 0.298. To answer the research question from chapter 1, the dependent variable- intention to use (ITU) has a very weak positive relationship with the independent variable- security and privacy (SP) based on the result.

**Table 6: Correlations Between the Mean of ITU and EOU**

|  |  | Mean ITU | Mean EOU |
|---|---|---|---|
| Mean_ITU | Pearson Correlation | 1 | 0.371** |
|  | Significant (2-tailed) |  | .000 |
| Mean_EOU | Pearson Correlation | 0.371** | 1 |
|  | Significant (2-tailed) | .000 |  |
| **Correlation is significant at the 0.01 level (2-tailed) |  |  |  |

Moreover, table 6 explained that the correlation coefficient between ITU and EOU is 0.371 with the p-value of 0.001 at the significance level of 0.01 which indicates that the ITU has a positive linear relationship with EOU but with a weak relationship since the r-value is 0.371. To answer the research question from chapter 1, the dependent variable- intention to use (ITU) has a weak positive relationship with the independent variable- ease of use (EOU) based on the result.

**Table 7: Correlations of the Mean of ITU and CVN**

|  |  | Mean ITU | Mean EOU |
|---|---|---|---|
| Mean_ITU | Pearson Correlation | 1 | 0.459** |
|  | Significant (2-tailed) |  | .000 |
| Mean_CVN | Pearson Correlation | 0.459** | 1 |
|  | Significant (2-tailed) | .000 |  |
| **Correlation is significant at the 0.01 level (2-tailed) |  |  |  |

The result shows that the correlation coefficient between ITU and CVN is 0.459 with the p-value of 0.001 at the significance level of 0.01 which indicates that the ITU has a positive linear relationship with CVN but with a moderate relationship since the r-value is 0.459. To answer the research question from chapter 1, the dependent variable- intention to use (ITU) has a moderate positive relationship with the independent variable- convenience (CVN) based on the result.

## Multiple Regression Analysis

This section will show the multiple regression analysis of the dependent variable and independent variables. The analysis included an ANOVA table, model summary, the test of significance, collinearity, and the residuals of the multiple regression. The ANOVA table, as shown in Table 8, it indicates that the overall model is significant with the F ratio of 45.471 with a degree of freedom of 3 and a residual of 50.78. The p-value is used to determine whether the model is appropriate for the data. Based on the result, the regression model is a good fit for the data since the p-value is less than 0.001 which is less than the 0.05 significance level. Therefore, the result shows the data fit the regression model very well.

**Table 8: Analysis of Variance**

| Model | Sum of Squares | Degree of freedom | Mean Square | F | p-value |
|---|---|---|---|---|---|
| Regression | 18.227 | 3 | 6.076 | 45.571 | 0.000 |
| Residual | 50.773 | 380 | 0.134 |  |  |
| Total | 68.999 | 383 |  |  |  |

## CONCLUSION

According to the survey results, convenience plays a significant role in the intention of using e-banking services. The main reason for using e-banking services is because users value the convenience of banking services that can be accessed from anywhere and at any time without the need to visit a physical branch to conduct transactions (Gunaratnam et al., 2017). E-banking services provide users with convenience and time savings, which increases their satisfaction with e-banking. As a result, one of the most important factors in determining e-banking users' intention to use is convenience.

## ACKNOWLEDGEMENTS

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