

**FACTORS AFFECTING MALAYSIAN BEHAVIORAL
INTENTION TO ADOPT MOBILE WALLET**

BY

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A research project submitted in partial fulfilment of the
requirement for the degree of

BACHELOR OF INTERNATIONAL BUSINESS (HONS)

UNIVERSITI TUNKU ABDUL RAHMAN

**FACULTY OF ACCOUNTANCY AND MANAGEMENT
DEPARTMENT OF INTERNATIONAL BUSINESS**

APRIL 2018

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- (1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.
- (2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
- (3) Equal contribution has been made by each group member in completing the research project.
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ACKNOWLEDGEMENTS

We would like to take the opportunity to express our sincerest gratitude to our research project supervisor, Ms Mandy Yeong Wai Mun who supervise us tolerantly and patiently by providing guidance, suggestion and encouragement during the process of complete of our research project. Without her support, understanding and meaningful, this research project could not had been completed successfully. Her recommend and suggestion had helped us to improve the quality of the research. Hence, we are able to keep up a right track in this research.

Besides, we would also like to thank to our second examiner, Dr Lau Teck Chai. His comment and suggestions are very helpful to overcome the shortcomings in the research in order to improve the quality of the research.

Furthermore, we would like to special appreciated to research project coordinator, Ms Fitriya binti Abdul Rahim had given us an opportunity to conduct the research project. She also have providing us an advice and the guideline of the research project and ensure that we are in the right track.

Next, we would also like to thank all the respondents who willing to spend their time and effort to participate in the questionnaire survey. Without their feedback and recommend as well as suggestion, the questionnaire survey could not have completed in short period.

Last but not least, our deepest appreciate to our family member for providing advice and support as well as encouragement that allows us obtain to achieve in this level. We would wish to thanks to our member who work hard together to complete this research project.

Thank you.

DEDICATION

Universiti Tunku Abdul Rahman

For providing us an opportunity to conduct this research project.

Ms Yeong Wai Mun

Dear supervisor who provide us a lot of insightful feedbacks, assistance and motivation that lead us to the right path throughout the process of this research project.

300 Survey Respondents

To all respondents who spend their precious time to complete the questionnaire for this research project.

Dear Family and Friends

Family and friends who give us their valuable support, encouragement and helping hands.

Thank you.

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LIST OF ABBREVIATIONS

PE	Perceived Ease of Use
PU	Perceived Usefulness
PR	Perceived Risk
AT	Attitude
BI	Behavioral Intention
TAM	Technology Acceptance Model
SPSS	Statistical Package for Social Science
NFC	Near Field Communication

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PREFACE

In today era for fast-changing global marketplace, the role of e-commerce has become more important in our live. There are many people using e-commerce to do their business, as it is low cost, convenient and efficiency to do business. Mobile wallet is one of the system under e-commerce.

Using mobile wallet is more convenience compare to traditional wallet and it is very popular to use in China. Nowadays, many China investor had make an investment in Malaysia as they found out that most of the Malaysian are easily to accept the new technology. The total number of using mobile wallet is growing in Malaysia as compare to previous years. Mobile wallet are consider new in Malaysia market as it enter the market in several years ago.

The purpose of this research project is to evaluate the factors affecting Malaysian intention to adopt mobile wallet. Therefore, developer and marketer are keen to find out what are the factors that affect Malaysian intention to adopt the mobile wallet. There are many factors will affect Malaysian intend to use the mobile wallet. This study is to determine how independent variables (predictors) will affect the dependent variable via mediate variable.

Lastly, this study can help developers and marketers to identify which variable is the best predictor that might affect Malaysian intend to use the mobile wallet. Readers and future research can gain more information and knowledge of the mobile wallet intention in Malaysia.

ABSTRACT

The primary objective of this research is to determine the factors that affect Malaysian's behavioral intention to adopt mobile wallet. This research is to investigate the relationship of perceive ease of use, perceived usefulness, perceived risk between consumer attitudes and behavioral intention and to test the role of consumer attitudes as a mediator between perceived risk and behavioral intention.

The target respondents of this study are Malaysian who does not use mobile wallet before and intend to use it in future. In addition, 300 sets of questionnaire were distributed through hard copy by using convenient sampling and snowball sampling technique. However, only 233 sets of questionnaire are valid to use in this research. The actual data collected will be analyzed using Statistical Package for Social Science (SPSS) version 23. Then, Internal Reliability Test, Multiple Regression Analysis and mediated variable regression are conducted.

In this research, result shows that independent variables which are perceived ease of use and perceived usefulness have significant positive relationship with attitude, while, attitude also has positive relationship with behavioral intention. On the other hand, attitude as a mediator between perceived risk and behavioral intention has result as partial mediate. However, perceived risk has no impact towards attitude.

Moreover, this research provides a clearer overview for academicians, developers and users who currently involved in mobile wallet. Lastly, the limitations associated with this research project were identified and implications for further research were recommended.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

Mobile wallets are currently trending in the society and it will continuously grow as it brings benefits and convenience for business and consumers. Due to the improvements in technology, the number of mobile applications for mobile wallet are increasing in these few years. Mobile wallet has been recognized by many people around the world notably in China. Mobile wallets have entered Malaysia few years ago, however, there are a small number of Malaysian are notice of it and using it.

Therefore, this study aims to determine the factors that affecting Malaysian's behavioral intention to adopt mobile wallet. The researchers intend to find out how Malaysian's behavioral intention will be affected by perceived ease of use, perceived usefulness and perceived risk which mediated by attitude. The chapter included an overall insight of research background and identity the problem statements. Research questions and research objectives will also be developed. Researchers will also provide the significance of the study and brief in chapter layout.

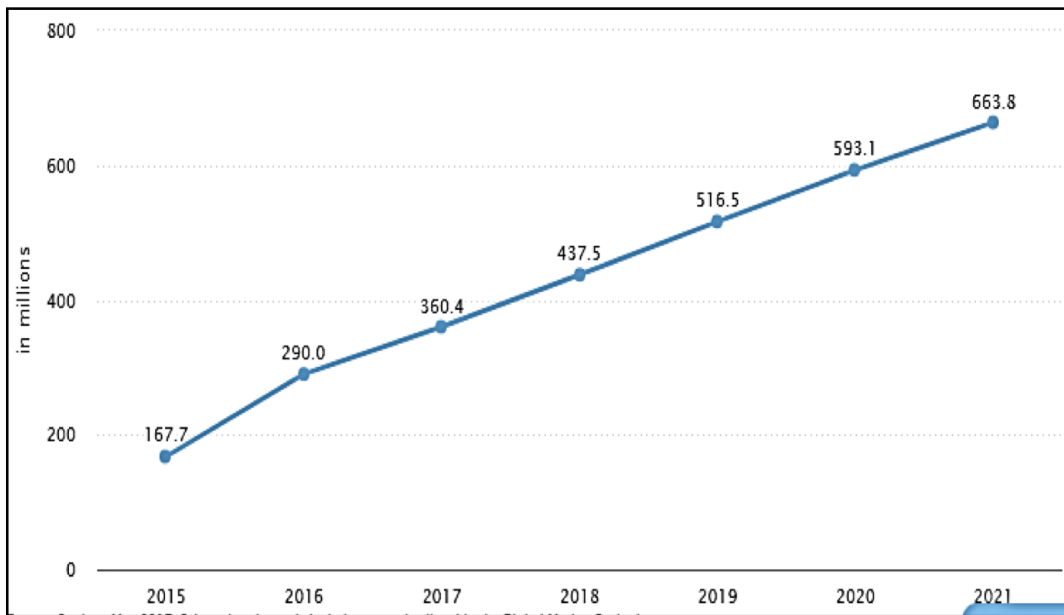
1.1 Research Background

Mobile Payments are defined as the transactions at Point-of-Sale through the smartphone applications (aka "mobile wallets") (Statista, 2017). However, Mobile Wallet is one of the payment methods that allows users to purchase goods and services without any paper money or coins involve (Jayaseelan, 2017). The data transfer can be made through Near Field Communication (NFC) or scan the QR code to complete the payment. Thus, mobile wallet is a cashless and card-less payment method, which is an alternative to traditional payments as it is more

convenient and friendly to users. The popular mobile wallet such as WeChat Pay, Samsung Pay, Google wallet, Alipay, Apple Pay, CIMB pay and others. Besides, mobile wallets is an advanced application. It can use to make mobile transaction, register membership cards such as BonusLink, Sunway Pals, AirAsia Big Points to collect loyalty points and store debit or credit card information (Caldwell, 2012). We can image that, when user use the vending machine by waving the smartphone and that particular products such as drinks will appear in the tube (Swilley, 2010). No paper money or coins are required for user to make a purchase online or in-store.

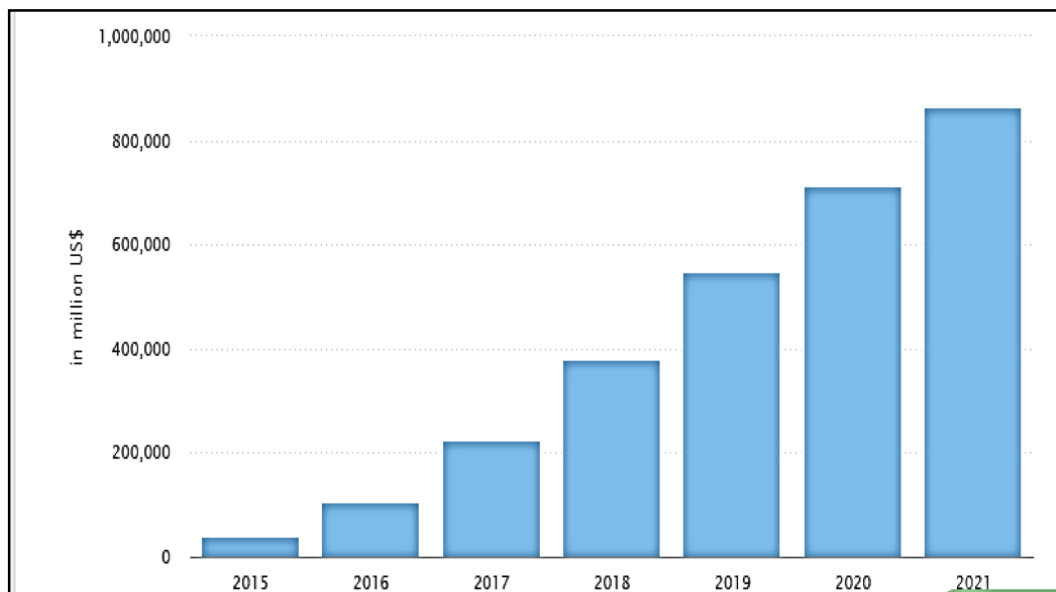
Mobile wallets have been growing fast, with more famous brands stepping into the industry to enhance technology that allows them to pay with their smartphones. Therefore, it is now more convenient to use the smartphone for everyday purchases such as mobile ticketing, hotel booking, parking and bills payment (Mallat & Tuunainen, 2008). The global mobile wallet is poised to grow strongly during the forecast period 2017-2025 (Dublin, 2017). Mobile wallets have been widely adopted in countries such as China (Alipay), Kenya (M-Pesa) and India (Paytm Wallet). In Southeast Asia, countries that use mobile payments include Indonesia (T-Cash) and Thailand (Line Pay). According to Statista (2017), the number of worldwide users in the mobile payment segment has increase from USD 167.7 million in 2015 to USD 360.4 million in 2017. In 2021, the amount of worldwide users is expected to increase to USD 663.8 million (Figure 1.1). Due to the number of worldwide users in mobile payment segment is increasing, therefore, the total transaction value is also increasing from USD 39,442.9 million in 2015 to USD 224,426.9 million in 2017. The worldwide total transaction value in the mobile payment segment is expected to increase to USD 865,534.6 million in 2021 (Figure 1.2).

Figure 1.1: Number of worldwide users in the mobile payment segment



Source: Statista. (2017). *Mobile payments statistic*.

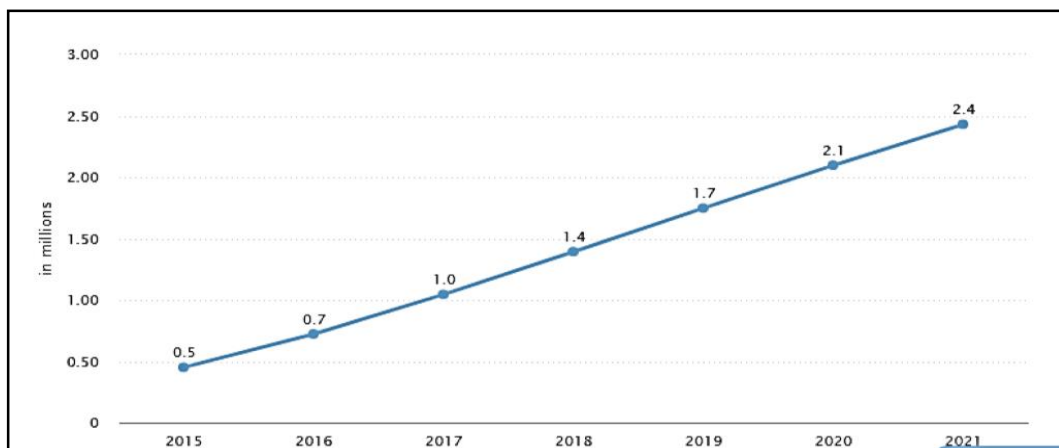
Figure 1.2: Worldwide total transaction value



Source: Statista. (2017). *Mobile payments statistic*.

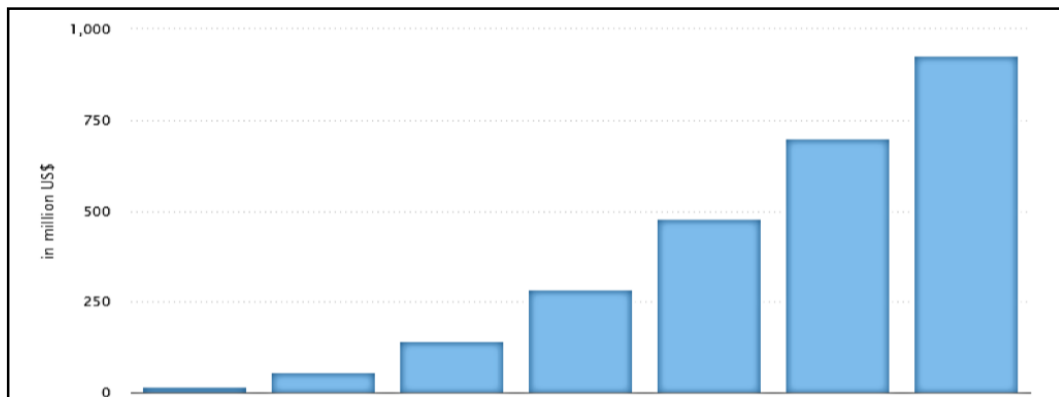
Recently, Jack Ma, Alibaba Group Founder, had introduced about Alipay mobile wallet and he mentioned about “Malaysia should be a cashless society to be more transparent and efficient” (“Jack Ma introducing Alipay in Malaysia”, 2017). Mobile wallets have only a small presence in Malaysia. According to Wong (2017), 70% of Malaysian are ready to adopt mobile payment and willing to use and 30% have used mobile wallets. This is because most of Malaysian do not want to carry the cash with a large amount. They feel unsafe when using the cash, thus, they prefer to use payment cards or electronic payment. Figure 1.3 show the number of Malaysian users in mobile payment segment have increased from USD 0.45 million in 2015 to USD 1.05million in 2017, while the transaction value in the mobile payment segment in Malaysia (figure 1.4) increase from USD 17.1 million in 2015 to USD 142.3 million in 2017 and expected to growth to USD 927 million in 2021(Statista, 2017).

Figure 1.3: Number of Malaysian users in mobile payment segment



Source: Statista. (2017). *Mobile payments statistic*.

Figure 1.4: Malaysia total transaction value



Source: Statista. (2017). *Mobile payments statistic*.

The focus of this research is to study what factors that contributed to Malaysian's intention to adopt mobile wallet. According to Maybank (2016), Maybank has launched MaybankPay, Malaysia's first mobile wallet that enables the customer to make cashless payment. On the others hand, Alipay, Chinese mobile wallet is the latest mobile wallet that was implemented in Malaysia. Due to the presence of mobile wallet is still new in Malaysia, some are aware of it but they do not know the usage of mobile wallet in details. Therefore, this research is mainly being conducting to determine how the factors; perceived ease of use, perceived usefulness, perceived risk and attitude will affect Malaysian's intention to adopt this technology. The following will discuss the problem statement that leads to the need to conduct the correct research.

1.2 Problem Statement

World of Buzz (2017) stated that Malaysian is ranked at top 15th for an international crime rate among 118 countries in the world. In addition, Malaysia is ranked Number 1, the highest crime rate with 65.65 crime index when within South-Eastern Asia region (Figure 1.5). Police themselves have admitted that the street crimes are rising in Malaysia (Lovrenciar, 2017). This can be explained that the current streets and commercial crimes such as purse snatching, house-braking, pick-pocket and robbery at shop has led to public lost their money,

identity cards and many of their valuable belongings. The crime rate in Malaysia is still at the serious stage, therefore it needs more safety and innovative technologies that can help people to ensure their belongings are always safe.

Figure 1.5: The crime rate within South-Eastern Asia Region

Rank	Country	Crime Index
1	Malaysia	65.56
2	Vietnam	53.45
3	Cambodia	52.72
4	Thailand	52.16
5	Indonesia	49.51
6	Philippines	38.99
7	Brunei	34.70
8	Singapore	16.49

Source: World of Buzz. (2017). *Malaysia ranks number 1 in South East Asia for highest crime rate.*

The introduction of mobile wallet has emerged as a solution for these problems, because the mobile wallet technology does not involve any direct cash payment, so that, there is no point for retailers and public being the prey of robbery. However, it is necessary to study the acceptance of the Malaysian towards mobile wallet in order to implement this technology in Malaysia (Pantano & Pietro, 2012). This is because, mobile wallet is still in an introduction stage and the presence of this technology and its usage is still not realized by many Malaysian (Jayaseelan, 2017), therefore Malaysian is still lack of knowledge towards the uses of mobile wallet.

Rogers (2003) determine that the introduction of new services are perceived as hard to understand and use. Some of Malaysian will think that mobile wallet is difficult to utilize and it is complicated to use. Mobile wallet is a new technology service, so it might make users difficult to use. Furthermore, mobile wallets do not provide assistance that can explain or help users to access the transaction will lead to lack of communication. It only gives some simple steps and without explanation.

In addition, when people have no experience with the innovation technology, they will concern about the security and perceived risk in transaction (Schierz, Schilke & Wirtz, 2010; Yoon, 2010). They will be anxious about the hacker will access unauthorized their privacy and transfer their money without notifying the users. Sometimes, users feel helpless when mobile wallet occur some errors during the transaction. Thus this will increase the perceived risk of the user and form a negative attitude in their intention to adopt the usage (Krishanan et al, 2016).

According to Central Bank of Malaysia (2009), most of the customer lack of awareness towards mobile wallet, therefore they are not willing to adopt mobile wallet. Many studies also showed that perceived usefulness and attitude are the reason and concern that affect customers' behavioral intention to adopt mobile wallet. Chen and Adams (2009) identified that high perceived usefulness could lead to a favorable user attitude relationship. With the positive attitude, user has intention to adopt mobile wallet. Therefore, this study is to create awareness to software developers or providers so that they can more understand customers need and put more effort in marketing to educate customer about the usefulness.

Furthermore, users always concern perceive ease of use about the interface design of mobile wallet (Tarasewich, 2003). For example, in mobile wallet, the usability looks at operations, design and layout to evaluate how easy the technology would be for users to use it. Users always expect things that are easily and quickly which is using the systems effortlessly. In mobile wallet applications, there is limited design and usability guidance (Chou, Lee & Chung, 2004). Thus, users do not understand how to interact with the application and what is important to the users when using mobile applications.

Currently, Malaysian adoption of mobile wallets is in the early stages, many industries are trying to achieve the right combination of market forces and consumer acceptance (Ernst & Young, 2012) but marketers are eager to view the adoption of this new technology (Mastercard Worldwide, 2012). However, the research that study on the adoption of mobile wallets in Malaysia is limited. Thus, there is a need for a study to add to the emerging research on mobile wallet by

investigating the factors that may influence the acceptance of mobile wallet in Malaysia which increase perceived usefulness, perceived ease of use and perceived risk in affecting the attitude and ultimately behavioral intention.

1.3 Research Objectives

1.3.1 General Objective

This study is mainly to examine the factors that influence Malaysian's intention to adopt mobile wallet. It attempts to study whether perceived ease of use, perceived usefulness and perceived risk are able to influence Malaysian attitude and behavioral intention to adopt the mobile wallets.

1.3.2 Specific Objectives

The research objectives are as following:

- 1) To examine the relationship between perceived ease of use and attitude towards using mobile wallet.
- 2) To examine the relationship between perceived usefulness and attitude towards adopting mobile wallet.
- 3) To examine the relationship between perceived risk and attitude towards using mobile wallet.
- 4) To examine the mediating role of attitude between perceived risk and behavioral intention to adopt mobile wallet.
- 5) To examine the relationship between attitude and behavioral intention to adopt mobile wallet.

1.4 Research Question

This research addresses the following research questions:

- 1) Is there a relationship between perceived ease of use and attitude towards the adoption of mobile wallet?
- 2) Is there a relationship between perceived usefulness and attitude towards the adoption of mobile wallet?
- 3) Is there a relationship between perceived risk and attitude towards the adoption of mobile wallet?
- 4) Is attitude function as a mediator between perceived risk and behavioral intention?
- 5) Is there a relationship between attitude and behavioral intention towards the adoption of mobile wallet?

1.5 Hypotheses of the study

Five hypotheses have been developed as follow:

H1: There is a significant positive relationship between perceived ease of use and attitude towards adopting mobile wallet.

H2: There is a significant positive relationship between perceive usefulness and attitude towards adopting mobile wallet.

H3: There is a significant negative relationship between perceived risk and attitude towards adopting mobile wallet.

H4: Attitude as a mediator between perceived risk and behavioral intention.

H5: There is a significant positive relationship between attitude and behavioral intention to adopt mobile wallet.

1.6 Significance of the study

Nowadays, mobile wallets are popular in foreign countries. Joifin (2017) stated that Singapore, Netherlands, China, India and France are the top cashless transaction countries. But in Malaysia, there are plenty of consumers who are unfamiliar with this concept. Therefore, this study aims to create awareness among all consumers to adopt mobile wallet because it would bring advantages to them. For instance, the benefits are convenience, efficient and flexible (He & Mykytyn, 2016). Through this research, consumers will be exposed to mobile wallets and realized that mobile wallet is not only beneficial but also improve their standard of living. For example, users can easily make payment by using mobile wallet without any cards or papers. Furthermore, we can identify the shortage of the mobile wallet so that it can be improved to satisfy the customers' needs and therefore lead to increase the customers' intention to adopt mobile wallet.

Besides, this research could also be used as a reference by Small Medium Enterprise (SME) or merchants especially retailers and foodservice operators which are currently involved in or plan to deploy mobile wallet technology. Mobile wallet has the potential to increase revenues and cut down the operating costs and it may be also decrease the fraud loss or payment processing fees (Evans, 2015). Angeles (2014) mentioned that merchants want control completely over their payment systems and consumer experience while consumers want a pleasant experience that bring the benefits of easy and convenient. So that, mobile wallets benefit both merchants and customers by enabling the business to stay on the cutting edge of technology, enhance the customer experience and gather valuable information about their customers.

Moreover, it is to promote mobile wallet among customers in Malaysia. If mobile wallets are developed, the efficiency of financial system could be achieved. It reduced the transaction cost, increase liquidity and better allocate financial resources to everyone involved in the financial sector (Jones, 2015). For government agencies, mobile wallet will be an important development because it brings convenience and efficiency to citizens and institutions themselves. Jones (2015) also stated that mobile wallets someday will be implemented in government offices, such as people pay for license renewals by using their smartphones. A smartphone could allow employees to access to the building or to log on into networks.

1.7 Chapter Layout

Chapter 1 is the introduction of the research and it present a clear overview of the research project. This chapter contains research background and identify the problem statement. Researchers have generated the research objectives, research questions and hypotheses. Lastly, the significance of study has been discussed.

Chapter 2 reviews the relevant literature from articles and journals which supported by past studied. This chapter presents a comprehensive literature review and the relevant theoretical models. Then, develop the conceptual framework and hypotheses to qualify the relationships among those variables.

Chapter 3 overview of the methodology of this study. Methodology descried the research in terms of research design, data collection methods, sampling design, research instrument, constructs measurement, data processing and data analysis.

Chapter 4 reviews the analysis of the data that are collected through questionnaires. Descriptive analysis, scale measurement and inferential analysis are carried out with Statistical Package of the Social Science (SPSS) program to generate the results of this study.

Chapter 5 consists of the discussion on the result generated previously. This chapter also includes implication of the research, identify the limitations of the research and provide suggestion to improve in future research. Lastly, conclusion is formed based on the entire research project along with the research objective set.

1.8 Conclusion

This chapter serves as an introductory chapter that discuss the mobile wallet background and problem statements. The research aims to study the relationship between the predictors towards Malaysian's behavioral intention to adopt mobile wallet. Then, the following chapter 2 will further discuss the literature review for a clearer understanding.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

Research problem, research objectives and hypothesis have been identified in chapter one. Thus, literature review of factors affecting behavioral intention to adopt mobile payments will be discussed in this chapter. Besides, the conceptual framework and hypotheses are also developed.

2.1 Review of the Literature

This section reviews past studies and illustrates the relationship between each independent variable (perceived usefulness, perceived ease of use, perceived risk) and the dependent variable (behavioral intention) through the mediating variable (attitude) to adopt mobile wallet.

2.1.1 Behavioral Intention

Behavioral Intention can be explained by a person who formulated conscious plans to try to achieve future behavior (Fishbein & Ajzen, 1975). According to Chen and Tsai (2007), behavioral intention refers to potential traveler's expectations of a future travel. In current research, behavioral intention refers to an individual intends to use a particular technology that will directly affect the actual usage (Netemeyer, Andrews & Durvasula, 1993).

According to Zeithaml, Berry and Parasuraman (1996), behavioral intention was group into two groups which are favorable and unfavorable behavioral intentions. Favorable intentions such as positive world of

mouth, recommending, remaining loyal and pay more for the particular products or services. However, the unfavorable behavioral intentions will have negative word of mouth, switching to other organizations, complaining to external agencies and less business with the company. In the context of using mobile wallet, if a user is satisfied with the mobile wallet application, he or she will recommend it to others and repeatedly, others will recommend to others. When more and more people use mobile wallet, those who have not yet tried before will also intend to use it.

In addition, Goh (2017) mentions that behavioral intentions are meant to be affected by few determinants. For example, subjective norm which is an individual's performance in accordance with the referents. Besides, an individual's intention might be affected by perceived behavioral control of the important person when making a decision. Moreover, individuals that have self-efficacy beliefs based on their previous experiences that indicated success or failure.

2.1.2 Perceive Ease of use

In this study, perceived ease of use is defined as when a user found that a new technology system is easy to use, this is one of the factors that influences consumers easily to accept the new technology system (Aydin, 2016). It depends on users whether they feel easy to use on mobile payment compared to traditional payment methods. Most users will not intend to adopt the new payment system if they feel difficult to use it.

Besides, Donald and Rémy (2011) defined perceived ease of use as an individual believes that there will be no physical and mental effort to use that particular system. Furthermore, Ma, Dong, Zhang, Yang and Song (2016) said that perceived ease of use is customers that don't need to be hardworking in a particular system. Researchers also pointed out that there

is a consensus among social scientists that perceived ease of use is a factor in the adoption of mobile wallet (Dastan & Gurler 2016).

When using a new technology, particular system such as mobile wallet had provided an easier guideline for users on how to use it as well as how to function the system. For example, one of the social media, which is 'WeChat', it is easy to operate and communicate, message can be sent directly through voice record, video call and texting. Moreover, the new feature which is "Scan" brings advantages and benefits for users such as make a payment by using WeChat Pay and adding friends by just scanning the QR code (Li, 2015).

Moreover, Xia and Hou (2016) mentioned that consumer has more acknowledge on online marketing channel such as mobile payment due to they are easily accepted and familiar with using online and mobile payment. Therefore, consumer's perception of the relative advantage increase as it provides advantage when doing their personal finance as consumers are familiar with the process of using that particular system.

2.1.3 Perceived Usefulness

Perceived usefulness is defined as it would enhance job performance when user believe in using that particular system (Donald & Remy, 2011), which are used in current study. Besides, perceived usefulness could be a concern in decision making process based on expectancy theory. Tzou and Lu (2009) stated that perceived usefulness could describe as using a familiar product before making a payment. Lack of understanding of the knowledge and benefits towards mobile wallet always are the barriers to consumers to adopt the new technology system. However, users will adopt the new technology if they have a deeper understanding (Aydin, 2016).

Furthermore, Amin, Azhar, Amin and Akter (2015) mention that by using technology can strengthen a person productivity or performance. Perceived usefulness was included in TAM theory, thus, researcher of information system mentioned this variable is justified to predict a person to acceptance of various system (Kafsh, 2015). On the others hand, Chanchai, Sellitto, and Fong (2015) concluded that perceived usefulness improved individual task job and performance by having a new idea.

Aydin (2016) suggested that compatibility is an important element to adopt a new technology system. Compatibility is perceived as beliefs, experiences and needs of individuals when using new technology system (such as mobile payment). There is low compatibility when consumer prefers to use traditional payment method rather than use mobile payment due to their lifestyle.

2.1.4 Perceived Risk

Li (2015) mentioned that perceived risk is defined as users need to consider their private data such as personal, product and payment information before providing the information to other people. For instance, bank account, credit-card information and personal data will link to users' mobile wallet when making a payment, thus, payment through mobile wallet can create a risk to the users. Consumers' feeling of uncertainty regarding the possible negative result of using new technology. Thus, consumer will not use because they are lack of confidence to use the new technology (Bauer, 1967; Featherman and Pavlou, 2003; Chanchai et al., 2015). Therefore, many researchers concluded that perceived risk is one of the barriers that affect consumers' intention to adopt mobile wallet (Luarn & Lin, 2005; Shin, 2009; Shen, Huang, Chu & Hsu, 2010).

Using the third-party online payment service will create a possible risk (Xie & Lin, 2014), and it will generate a higher risk, therefore affects

user's confidence decisions. When consumer had loss of stored their personal data which had led to credit card fraud can be described as risk (Swilley, 2010). Furthermore, Yang, Liu, Li and Yu (2015) explained that the uncertainty of the occurrence of unpleasant consequences could result in perceived risk. Users are not willing to take the risk that related to their personal information (Shen et al., 2010; Zhang, 2012). Abadi, Ranjbarian & Zade (2012) additional remarks that the high risk will result the low intention to adopt the new technology system.

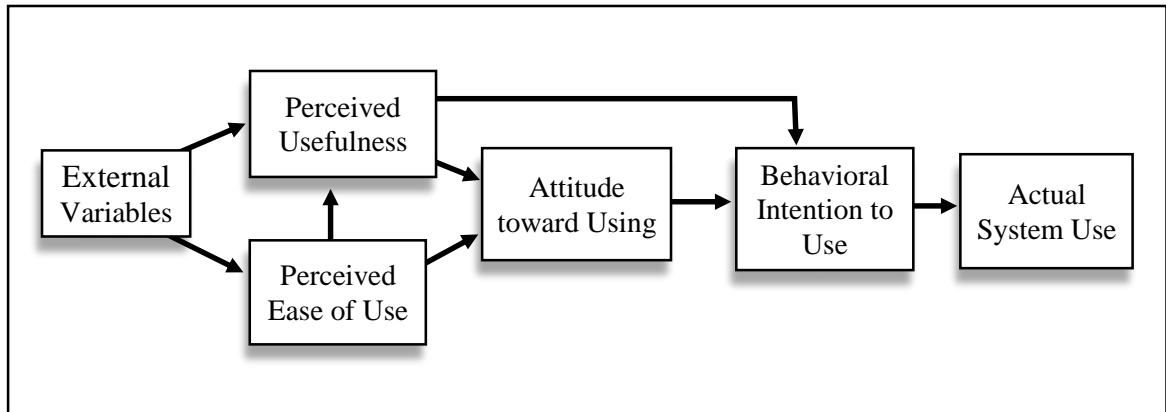
2.1.5 Attitude

Attitude towards using mobile wallet is refers to an individual's overall effective response towards the use of technology (Schierz, Schilke & Wirtz, 2010). Peter and Olson (2010) also mentioned that attitude is a relatively enduring evaluation of a concept. Moreover, attitude also refers to a person's positive or negative evaluation effect on a particular behavior or innovation adaption (Fishbein & Ajzen, 1975). If individuals think that using a new technology will lead to more positive outcome, he/she would hold a favorable attitude towards them. On the other hand, if the individual holds a negative attitude towards them, negative outcomes will result (Mykytn & Harrison, 2003).

Davis (1989) further found that attitude was a partial mediator between perceived usefulness and intention to adopt mobile wallet. In the consumer environment, attitude has been found to play an important role in technology acceptance (Bruner & Kumar, 2005). According to Roger (2003), previous researchers had stated that innovation options such as compatibility and complexity were the main factors to enhance user attitude. Khalil and Pearson (2007) also had further explained that trust, trail ability and complexity will also the factors that influence user attitude. However, user usually will take on a new technology which has similarity with what they had experienced before.

2.2 Review of Relevant Theoretical Models

Figure 2.1: Technology Acceptance Model



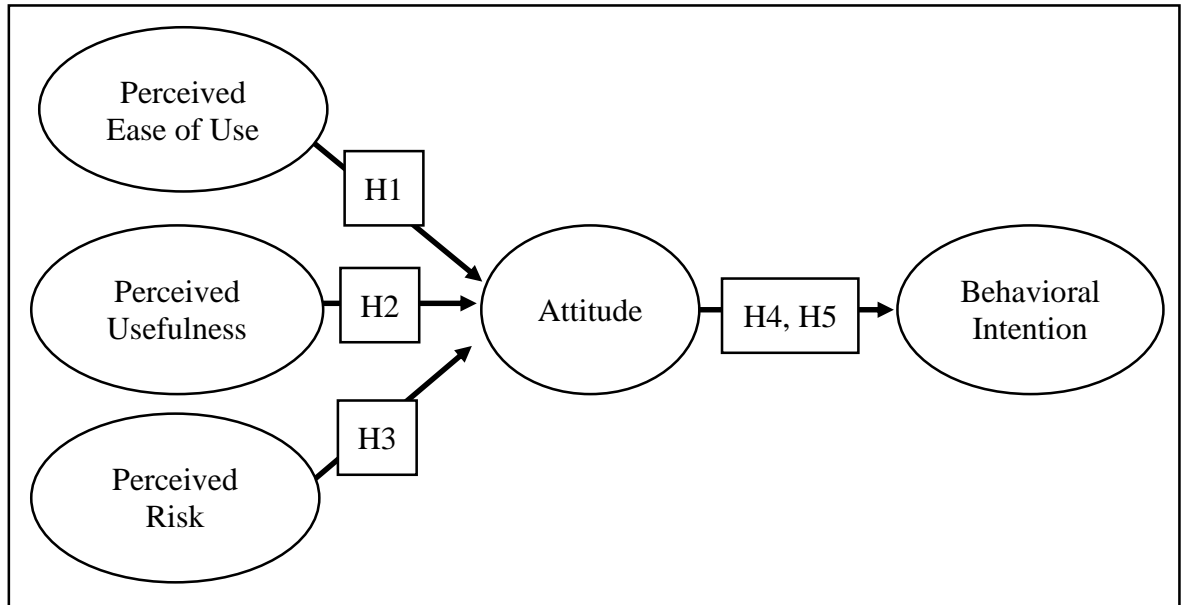
Source: Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3).

Technology Acceptance Model (TAM) which established by Davis (1989) was formulated as a research model in this study. TAM model explained the user's acceptance of new technology in the organization context. Davis (1989) defined that behavioral intention predicted individual's use of technology. Besides, the TAM model consists of two key factors which are perceived usefulness and perceived ease of use. Perceived usefulness refers to an individual think that the technology will improve performance; while perceive ease of use refer to an individual deem that using a particular technology will be effortless (Davis, 1989).

TAM model has been widely adopted and verified (Adams, Nelson, & Todd, 1992; Davis, Bogozzi, & Warshaw, 1989). Therefore, TAM model could be a tool to analyze consumers' behavioral intentions toward acceptance of mobile wallet.

2.3 Proposed Conceptual Framework

Figure 2.2 Adaption of TAM theory towards the usage of mobile wallet



Source: Developed for the research

Based on Figure 2.2, behavioral intention is evaluated by perceived ease of use, perceived usefulness and perceived risk and mediated by attitude. Perceived ease of use and perceived usefulness were adopted from Amin et al. (2015) while for the perceived risk was adopted from Chanchai, Sellitto, and Fong (2015). The foundation of this research model is based on the adoption of TAM theory with the inclusion of one additional constructs which is perceived risk. These constructs were theoretically justified to have a direct effect on Malaysian's behavioral intention to adopt mobile wallet based on the literature review.

2.4 Hypothesis Development

2.4.1 The relationship between Perceived Ease of Use and Attitude

Perceived ease of use will increase if the customers do a research before using and understand the information first about the Mobile Wallet (Donald & Remy, 2011). In Bangladesh, the researchers have to use Latent Variable Correlation to test the relationship among the TAM elements. Thus, it found out that there is a positive significant relationship between perceived ease of use and attitude. Furthermore, another research result showed that perceived ease of use has a strong significant relationship with attitude using the mobile wallets (Shin, 2009). In previous study, the researcher had developed hypotheses test which positive impact on the variables, however, Dastan and Gurler (2016) found out there is no relationship between the variables.

H1: There is a significant positive relationship between perceived ease of use and attitude towards using mobile wallet.

2.4.2 The relationship between Perceived Usefulness and Attitude

There is a positive relationship between perceived usefulness and attitude, this is because when user find out the new system technology have benefits or easy to use, it will develop a positive towards the new technology (Aydin, 2016). Mobile Suica is a very useful and popular mobile payment system in Japan, which can improve user's performance. This is because, in Japan mobile payment service is more popular due to had do improvement in a certain period and it easy to use (Donald & Remy, 2011). Other than that, there is a strong impact between perceived

usefulness and attitude founded by Carey & Day (2005). Dastan and Gurler (2016) study that there is no evidence to show the relationship between perceived usefulness and attitude using mobile wallet, however, in previous study had explained that there is a relationship between both variables.

H2: There is a significant positive relationship between perceived usefulness and attitude towards using mobile wallet.

2.4.3 The relationship between Perceived Risk and Attitude

In previous study found that there is a negative relationship between perceived risk and attitude when using mobile wallet in Japan. However, there is a positive relationship between perceived risk and attitude towards using mobile wallet. This is because the citizens believe there is a low perceived risk when using mobile wallet due to it had established the reliability and security of the Suica brand (Donald & Remy, 2011). Verbrugge and Marez (2014) had study mobile wallet services in Finland and stated that there is a weak significant positive relationship between perceived risk and attitude, although Shin (2010) explained that have a positive impact on attitude towards using the mobile wallets service in Flanders.

Abadi, Ranjbarian & Zade (2012) have conducted a research in Meli and found out there is a negative impact between perceived risk and intention to accept new system such as mobile banking as the mobile banking transactions are lack of assurance. Other than that, Ahmad and Gupta (2015) concluded that perceived risk have a negative impact on attitude towards using mobile banking in India.

H3: There is a significant negative relationship between perceived risk and attitude towards using mobile wallet.

2.4.4 The relationship between perceived risk and behavioral intention and mediate by Attitude

Customers are difficult to ask for compensation when doing a transaction which had errors occur when using mobile wallet in Iran, therefore, customer may not use this services in future due to they face a bad experience (Abadi, Ranjbarian & Zade, 2012). According to Krishanan, Low and Siti (2016), their study is focuses on mediating effects of consumer attitude in perceived risk towards behavioral intention to use that particular service, thus, there is a relationship between perceived risk and behavioral intention mediated by attitude.

H4: Attitude act as a mediator between perceived risk and behavioral intention.

2.4.5 The relationship between Attitude and Behavioral Intention

A user's attitude has a significant impact on his/her behavioral intentions (Ajzen & Fishbein, 1980). There are many research suggests that attitude has a strong positive effect on behavioral intentions and has been supported in many settings (Kurkinen, 2014). Besides, Trivedi (2017) study that attitude towards using mobile wallet had a significant influence on behavioral intention. A consumer's choice of product depends on his attitude towards the product (Polatoglu and Ekin, 2001). However, in the research done by Goh (2017), it conceded that attitudes and behavioral intention has no relationship.

H5: There is a significant positive relationship between attitude and behavioral intention for using mobile wallet.

2.5 Conclusion

In this chapter, we discussed the research background of each variable gotten from past studies. The relevant theoretical models are being used to form the proposed conceptual framework of this study. In addition, the development of definition and hypotheses are discussed as well. For chapter 3, all the research methodology used will be discussed.

CHAPTER 3: METHODOLOGY

3.0 Introduction

In previous chapter, researchers have discussed the literature review with each of the variables derived from relevant and past researches. Researcher methodology is use by researchers to discuss research design, data collection method, sampling design, research instrument, construct measurement, data processing and data analysis in this chapter. Researchers used primary data and secondary data to investigate the relationship between the variables towards using the mobile wallets. Besides, researchers collected the data and answering the hypothesis and research question in this chapter. In addition, researchers followed the procedure to make appropriate research to ensure readers can clearly understand and evaluate the outcome of this research. In sampling design, researcher will discuss the target respondents, sample size and the technique used to collect the survey. Moreover, researchers test the questionnaire reliability by using software program to generate the result. In this chapter also discussed the appropriate method to analyze the data and interpret the result used by researchers to answer the research objectives.

3.1 Research Design

Research design is a plan for data collection, measurement, and analysis based on the research questions (Sakaran & Bougie, 2013) and provide appropriate method and necessary procedure to gather and analyze the information (Zikmund, Babin, Carr & Griffin, 2012). Quantitative research and descriptive research was used to identify which variables will influence Malaysian's behavioral intention to adopt mobile wallet.

3.1.1 Quantitative Research

Quantitative research is gathering the data, object, test the hypothesis and meet the research objective. Through this quantitative research, researcher can clearly understand and analyze the relationship between the independent variables, mediator and dependent variable in this study. Researchers collected the quantitative data from the target respondents through survey questionnaire. Therefore, the results can be concluded as conclusive and suggest a final course of action.

3.1.2 Descriptive Research

Descriptive method is to collect the data and describe the characteristic of object, people, groups, organization, or environments (Sakaran et al., 2013). Hence, descriptive research is useful in this research to examine the impact of the independent variables which affect Malaysian's intention to use mobile wallet. By using this method, researchers can conduct the research through observational, case study, an in-depth study of an individual or groups, interview or survey. However, only survey will be used in this study. With survey questionnaire, researchers can achieved the purpose of verify current situation through develop hypothesis.

3.2 Data Collection Methods

Primary data and secondary data are used in this study. Data collection method can help the researcher to search for more information about the e-commerce industry so that can achieve the research objective and hypotheses proposed. Hence, the data collected can help researchers to understand as well as to provide a clearer view.

3.2.1 Primary data

Primary data refer to first-hand information, which the data are usually obtained and developed (Zikmund, 2003). The source of primary data can obtain from survey questionnaire. Researchers have distributed 300 sets of questionnaire to 300 target respondents which fit the requirements to participate in the survey. The requirements are the respondent must not use mobile wallet before and have intention to use it. Although collection of primary data was costly and time consuming compared to secondary data, it can provide the more up-to-date and reliable data.

3.2.2 Secondary data

Secondary data information is collected by past researchers which obtained from journals, magazine, Google Scholars and online database such as Science Direct and ProQuest which are provided by UTAR library. This method is less time consuming and cheaper compared to primary data. This kind of secondary data is a basic source of gaining insight of the research topic. Researchers firstly reviewing the related journals or past studies and then formulate the hypotheses. However, these hypotheses are later to be tested after the questionnaires is collected.

3.3 Sampling design

Sampling design is the process of choosing a part of the small population within the entire population (Sekaran & Bougie, 2013). It is use to estimate the characteristic of the whole population from a subset of statistical population. This process will define the population, determine the appropriate sample size and research instrument.

3.3.1 Target Population

This study aimed to evaluate the factors that affect Malaysian's intention to use mobile wallet. Our target audience is Malaysian who does not use mobile wallets before and intend to use it. Due to mobile wallets had entered Malaysia market for several years. Therefore, researchers would like to determine the factor that affecting Malaysian's intention to use mobile wallets.

3.3.2 Sampling Frame and Location

Researchers are using non-probability sampling, therefore no sampling frame in this research. Malaysian who does not use mobile wallet before is our target respondent in this study. Thus, 300 sets of questionnaires were randomly distributed through convenience sampling and snowball sampling method where the respondent that are most easily and conveniently available response to the questionnaire. One of the main location is at Kajang because it is more convenience for the researchers to conduct the pilot test and distribute the questionnaire. Besides, researchers also distributed to other places such as Kuala Lumpur, Subang Jaya, Petaling Jaya, Ipoh, Penang and Melaka. All of these city have more population within Malaysia (World population review, 2018). Besides, the respondents help researchers to distribute the questionnaire through snowball sampling method.

3.3.3 Sampling Element

Sampling elements includes students, undergraduates and working adults in Malaysia who does not use mobile wallet before and willing to use it. Researchers targeted Malaysian that does not use mobile wallet because

researchers want to find out that what factors that affecting them to adopt to the new technology.

3.3.4 Sampling Technique

Non-probability sampling is chosen to use in this study. Convenience sampling and snowball sampling were selected in this study. As for this study, researchers use convenience sampling method to distribute and collect questionnaire to the target population. It is more convenient as it is impossible to calculate the selection probability of each element in the population (Zikmund, 1994).

In addition, snowball sampling is used as the sample for the research is limited to a small subgroup. This method works like chain referral. After observing the initial respondents, researchers asked the respondents to help to identify people with similar interests (Zikmund, 1994).

3.3.5 Sampling Size

According to Roscoe (1975), sample size that between 30 and 500 is the most appropriate number of respondents for behavioral research. In this study, 300 sets of questionnaires were distributed and all were returned back. Among 300 sets, there are 65 (21.7%) respondents who the first time heard about mobile wallet; 212 (70.7%) respondents who heard before but didn't use it before; 23 (7.7%) respondents who have heard it before and already use it. Therefore, for those who didn't use mobile wallet before were required to answer Question 3 in order to measure their intention to use mobile wallet. Among 277 respondents, there are 233 (84.1%) respondents who intend to use mobile wallet in the future and 44 (15.9%) respondents do not have any intention in using mobile wallet. Thus, 44 respondents were void. In conclusion, the final sample size (number of

respondents who didn't use mobile wallet before and have intend to use it) is 233 (77.7%) among 300 sets of questionnaire.

3.4 Research Instrument

This study is self-management questionnaire to collect primary data from the audience. The questionnaire was formed based on the literature reviewed in Chapter 2. Questionnaires were distributed and conducted face-to-face with respondents and collected the questionnaires back on the spot to ensure the respondent's involvement.

3.4.1 Questionnaire Design

The questionnaire is separated into Section A, B and C.

Section A is general information regarding the knowledge of respondents toward mobile wallets. There are 6 questions that respondents need to answer. The questions are set in multiple choices and ranking question. Section B consists of the respondent's demographic information. This section was set as closed-ended question. Thus, respondents are required to choose one answer from the alternative given. Lastly, section C consists of the dependent and independent variables. All variables are measured using 5 Likert scale of measurement, which to measure the level of agreement of respondents.

3.4.2 Pilot Test

Pilot test have to conduct before actual survey is carried out. Researchers had distributed 30 set of questionnaire in this stage. Using pilot test is to identifies potential error or mistake and also ensure all the questions are

understandable by the respondents. The collection of feedback can be used to clarify the question. Researchers received some suggestion from respondents to modify the questionnaire. Besides, there are one statement have to remove due to original test suggest to remove it. In addition, the data collected from the questionnaire are key-in into SPSS software to test the reliability of questionnaire. The Cronbach's Alpha was adopted in order to determine the internal reliability of the pilot test. Table 3.1 shows the result of pilot test. Variables are reliable when the Cronbach's Alpha value is more than 0.6 for each of the variable (Malhotra, 2007).

Table 3.1 Result of Pilot Test

No	Construct	Cronbach's Alpha	No. of items
1	Perceived ease of use	0.770	4
2	Perceived usefulness	0.825	6
3	Perceived risk	0.737	4
4	Attitude	0.882	4
5	Behavioral Intention	0.767	4

Source: Developed for the research

3.5 Construct Measurement

Measurement scale is an important tool to affect the statistical procedures of data analysis. Nominal, ordinal, interval and also ratio are the types of measuring scale. In this research, only nominal, interval and ordinal scales are adopted in designing the questionnaire.

3.5.1 Scale Measurement

Nominal scale is the values of data cannot be measured numerically, but can be distinguish by classifying into categories (Saunders, Lewis & Thornhill, 2010). For the research, there are questions such as gender, education level, intention to use mobile wallet are using nominal scale. Moreover, ordinal scale is measured through ranking order. Section B are using ordinal scale for question asking such as age and income level.

Besides, section C are using five-point Likert scale. There are three choice of Likert scale which are choice of five, seven and nine (Saul, 2008). Using Likert scale can create a less biased measurement, which balanced on both sides of a neutral option as well as it is also very useful measurement tool that can be used to measure specific options, experiences, etc. Researchers choose five-point scale instead of seven or nine-point scale due to previous researcher has found that a five-point scale can reduce the “frustration level” and also enables respondents to express their view.

3.5.2 Origin of Construct

The questionnaires used in this study were adopted from Aydin (2016) and Ricardo, Stella and Andrade (2016). Table below showed all the questions will be asked in each variable:

Table 3.2: Development of questionnaire

Construct	Adapted Items	Source of Items
Perceived ease of use	<ol style="list-style-type: none"> 1. I think using mobile wallet is easy. 2. My interaction with a mobile wallet would be clear and understandable. 3. I think it is easy for me to learn how to use mobile wallet. 4. It is easy to perform the steps required to use mobile wallet. 	Aydin (2016)
Perceived usefulness	<ol style="list-style-type: none"> 1. I think mobile payment is useful for me to buy products or services. 2. I think mobile payment makes it easier for me to buy products or services. 3. I think mobile payment saves time for me to buy products or services. 4. Using mobile payments would make it easier for me to conduct transactions. 5. Overall, I find the mobile wallet to be useless for making payments. 6. Using mobile wallet would take more time and effort than using traditional payment methods. 	Aydin (2016)
Perceived risk	<ol style="list-style-type: none"> 1. I wouldn't feel completely safe by providing personal information through the mobile payment system. 2. I'm worried about the future use of mobile payment services, because other people might be able to access my data. 3. I don't feel protected when sending confidential information via the mobile payment system. 4. The likelihood that something wrong will happen with the mobile payment systems is high. 	Ricardo, Stella and Andrade (2016).

Attitude	<ol style="list-style-type: none"> 1. Using mobile wallets is a good idea. 2. Using mobile wallets is beneficial. 3. Using mobile wallets is favorable. 4. Using mobile wallets is a wise thing to do. 	Aydin (2016)
Behavioral Intention	<ol style="list-style-type: none"> 1. I am likely to use mobile payment services in the near future. 2. I am willing to use mobile payment services in near future rather than not using it. 3. I intend to use mobile payment services at least as often within the coming month(s). 4. I intend to use mobile payment services when the opportunity arises. 	Aydin (2016)

Source: Developed for the research

3.6 Data Processing

Before the raw data can be used in analysis, researchers have to convert the data into a proper form. Besides, the data must undergo a repetitive data preparation process (Malhotra, 2007) to ensure that this study have bring value to targeted parties.

3.6.1 Data checking

Researchers have to conduct a pre-test to ensure that the questionnaire is in appropriate towards the respondents. Thus, researcher have to check whether any error or mistake have and ensure the questionnaire is in fully complete as well as ensure that the questionnaire are in simple way that respondents can understand so that data can be obtained is one of the purpose to conduct data checking. The next is to proceed data editing after the mistake or any error was found (Malhotra & Peterson, 2006).

3.6.2 Data editing

Data editing used for monitoring questionnaire to avoid incomplete and inconsistent responses. This process is to increase the precision and improve the quality of the questionnaires. For example, if it is possible to damage the overall result, the unsatisfactory answers will be discarded. Therefore, to create values from the collected data, researchers need to edit the data before it is transmitted to the information.

3.6.3 Data coding

Data coding usually convert variables into a number so that data can key into software program such as SPSS for analyze (Lewis, Bryman, & Liao, 2004). For instant, gender of respondents can be assigned as '1' for male and '2' for female. Other than that, the data received from the respondents will convert into numerical form by replacing strongly disagree as 1, disagree as 2, neutral as 3, agree as 4 and strongly agree as 5. Using numerical code will be easier for respondents to choose the answer and easier for researcher to key into software program for analyze and interpret the data.

3.6.4 Data Transcribing

After the researchers had gather all the data coding in software program which is SPSS software, the data will be further transcribed into disk. Researchers have to key in the data into SPSS to ensure the data is more accuracy or validity.

3.6.5 Data Cleaning

This is the last step of data processing. Researchers have to check whether there is any missing response or invalid response after the transcribe process. If there is found out missing responses due to unambiguous answer the question researchers have to clean the unknown data in this process.

3.7 Data Analysis

Researchers collect all the data and need to key in the data into software program, which is SPSS version 23 to generate the result and analyze the data. Only the fully complete questionnaire will use to analyze the data through SPSS. According to Zikmund (2003), in this stage, it consists an interrelated procedure, which can transform the data into meaningful information.

3.7.1 Descriptive Analysis

Descriptive analysis allows researchers to analyze and summarize the large amount of data about a population or sample and explain in simple way so that can easily to understand (Saunders, Lewis and Thornhill, 2012). As the data collected from the 300 sets of survey questionnaires is raw data, it can be described in descriptive statistics to Malaysian's intention to adopt mobile wallet. Descriptive statistics using frequency distribution, mean, mode, medium, standards deviation and others to summarize the data which suitable to use in this study that enable easier understanding by people.

3.7.2 Scale measurement

Using scale measurement is to check the reliability and validity of data collected. Reliability test using Cronbach's Alpha to determine the reliability of the constructs. According to Malhotra (2007) mentioned that if the value of Cronbach's alpha less than 0.60, the questionnaire is poor reliability, while if more than 0.6, the questionnaire is more reliable. Therefore, in this study, researchers aim to use Cronbach's alpha value with more than 0.7 to ensure the questionnaire is good reliability. However, in this study, there is an item of perceived ease of use due to the Cronbach's alpha value is less than 0.7, thus, the original test suggests researchers to remove one of the question in order to ensure the independent variable is more reliable.

3.7.3 Inferential Analysis

3.7.3.1 Simple Linear Regression Analysis

Simple linear regression is to find out the linear relationship between a sample independent and dependent variable. Thus, using this regression is to examine the significant relationship between attitude and behavioural intention. It assume that, dependent variable as Y, and independent variable as X. Therefore, the equation for simple linear regression are form as below:

$$Y = a + \beta_1 X_1$$

3.7.3.2 Multiple Regression Analysis

Multiple regression measuring the relationship between one metric dependent variable and two or more metric independent variables. Researcher used this model to identify the relationship between

independent variable and dependents variable. Using multiple regression analysis can allow researcher to interpret result. According to Sekaran et al. (2013), when p-value is less than 0.05, the test is significant. Besides, F-test, T-test, one-way ANOVA and others will be test in this study.

The multiple regression models in this study are shown as follows:

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n$$

Equation:

$$BIAMP = a + \beta_1 AT + \beta_2 PU + \beta_3 PU + \beta_4 PR$$

Whereby,

BIAMP = Behavioral Intention to Adopt Mobile Payment

AT = Attitudes

PU = Perceived Ease of Use

PU = Perceived Usefulness

PR = Perceived Risk

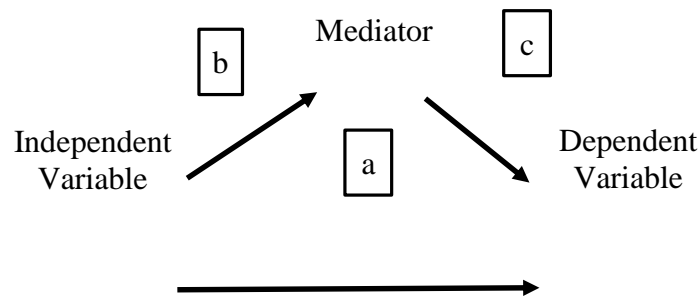
Moreover, according to Daoud (2017), multicollinearity is to test whether predictors and the dependent variable is accurate. Using tolerance and Variance Inflation Factor (VIF) is to identify multicollinearity. If tolerance value is less than 0.1 and the value of VIF is above 10, hence the multicollinearity is problematic.

3.7.3.3 Mediated Variable Regression Analysis

There is a mediate variable involve, thus mediation will test in this study. Researcher use this model to determine the relationship between one metric independent variable (perceived risk) and one metric dependent variable (behavioral intention) as well as one metric mediate variable (attitude).

According to Baron and Kenny (1986), the mediation analysis will be evaluated to assess whether mediations mediate the relationship between independent variables and dependent variables. In order to evaluate the mediation, three regressions will be made.

Figure 3.1: Sobel z-test



- (a) First regression is independent variable predicting dependent variable.
- (b) Second regression is independent variable predicting mediator.
- (c) Third regression is independent variable and mediator predicting dependent variable.

In order for mediation to be met, the conditions are (1) the first and second regression must be related. In the final regression, (2) mediator should remain a significant predictor of dependent variable while (3) independent variable should no longer significantly predict dependent variable. If all three conditions are met, full mediation is supported. If only the first two conditions are met, then partial mediation is supported.

Sobel (1982) provided a test for the indirect effect of the perceived risk on the behavioral intention via attitude. Baron and Kenny (1986) also suggest the Sobel z-test for the indirect path $a \times b$ in Figure 3.1, as shown in below:

$$z = \frac{a \times b}{\sqrt{b^2 s_a^2 + a^2 s_b^2}}$$

3.8 Conclusion

Overall in chapter 3 is to explain the questionnaire design, what method suitable to use in this study, what method to use to collect the data, how the process to fully complete questionnaire with standard quality and others. Besides, the questionnaire can consider as primary data in this study while for secondary data is use to support the evidence review from journal, article, internet and books. In addition, researcher aim Cronbach's alpha value more than 0.7 through SPSS to ensure the questionnaire is more reliable. However, original test suggests research to remove one of the question in this study. Lastly, multiple and mediated variable regression model is more appropriate to use in this chapter. Researchers will make a further discussion about the statistical analysis and interpretation the result of the hypothesis in the following chapter.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

It has been discussed which analysis model is suitable for used in the previous chapter. Descriptive analysis such as demographic information and general information, scale measurement, multiple regression and mediate regression, as well as hypothesis testing will be discussed in this chapter. The result will be presented in tables and charts form to examine the result.

In addition, 300 questionnaires have been collected, however, 67 of the questionnaire is unqualified due to respondents who answer they have heard before and not intend to use mobile wallet, therefore, researchers are able to collect 233 respondents used to analyze the result.

4.1 Descriptive Analyses

4.1.1 Demographic information

There is 5 question were asked about respondent's gender, age, race, highest education level and monthly income included pocket money in section B.

Table 4.1: Respondents' Demographic Profile

	Frequency (N=233)	Percentage (%)
Gender		
Male	90	38.6
Female	143	61.4
Age		
Below 20 years old	26	11.2
21-25 years old	179	76.8
26-30 years old	16	6.9
31-35 years old	10	4.3
36-40 years old	1	0.4
Above 40 years old	1	0.4
Race		
Malay	8	3.4
Chinese	195	83.7
Indian	20	8.6
Others	10	4.3
Highest Education Level		
SPM	26	11.2
STPM or PRE-U	32	13.7
Diploma	26	11.2
Bachelor Degree	141	61.5
Master Degree	5	2.1
PHD	2	0.9
Others	1	0.4
Monthly Income (include pocket money)		
Less than RM 1000	148	63.5
RM1000-RM1999	41	17.6
RM2000-RM2999	23	9.9
RM 3000-RM 3999	10	4.3
RM4000-RM4999	6	2.6
RM 5000 and above	5	2.1

Source: Developed for the research.

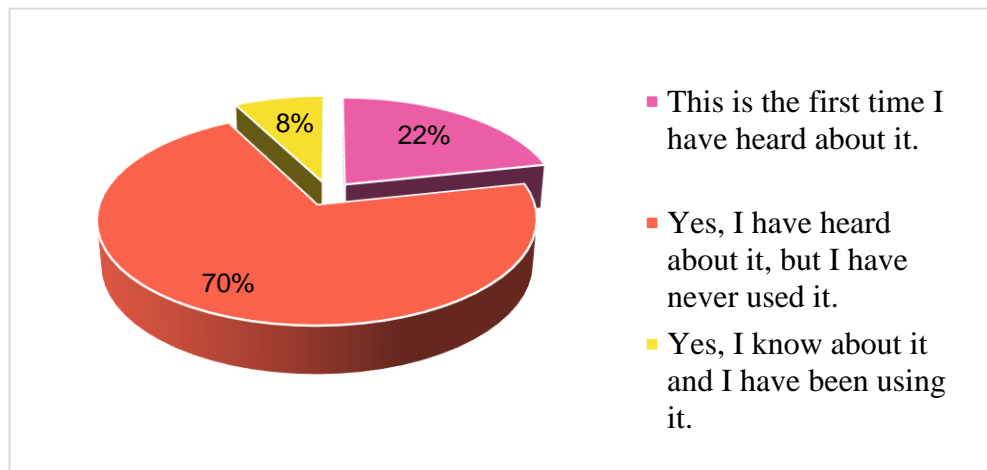
Based on table 4.1, it clearly showed that 143 female respondents (61.4%) and remaining is male. Besides, 179 respondents are under the age range between 21 to 25 years old (76.8%), Majority respondents are Chinese which is 195 respondents (83.7%), 141 respondents holding Bachelor of

Degree (60.5%) and 148 respondents' income level are less than RM 1000 (63.5%).

4.1.2 Respondent General Information

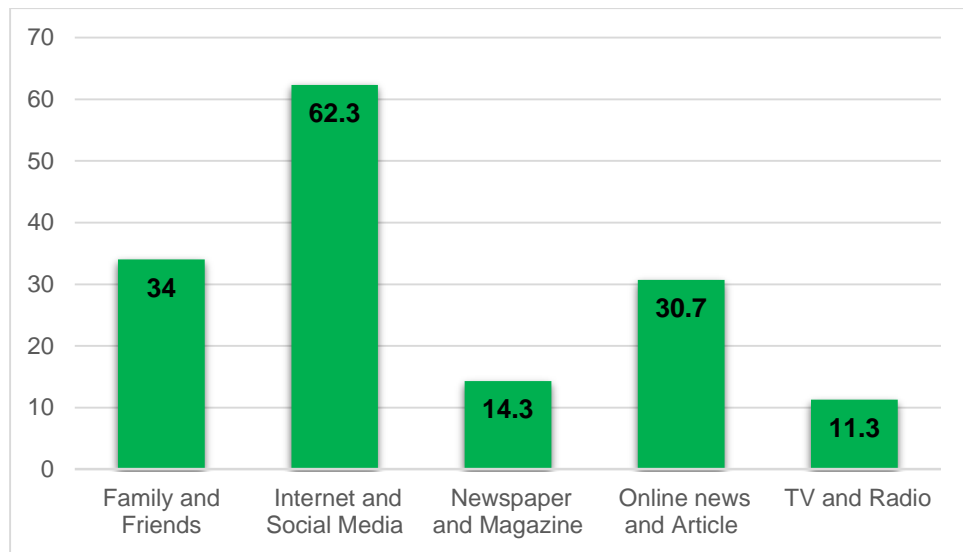
In this section would consists of knowing about mobile wallet and heard it from where, intention used mobile wallet, convenient to make online purchase, important factors affected to use mobile wallet and the number of using cards to conduct payment.

Figure 4.1: Result of respondents' awareness toward mobile wallet



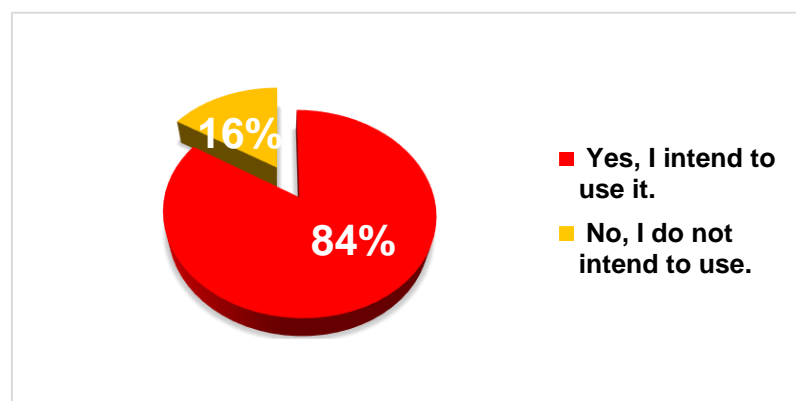
Source: Developed for the research

Figure 4.1, 212 respondents (70 %) have heard about what is mobile wallet but have not used before. Followed by 65 respondents (22%) have heard for the first time as well as 23 respondents (8%) have used before mobile wallet.

Figure 4.2: Result of source of respondents heard mobile wallet

Source: Developed for the research

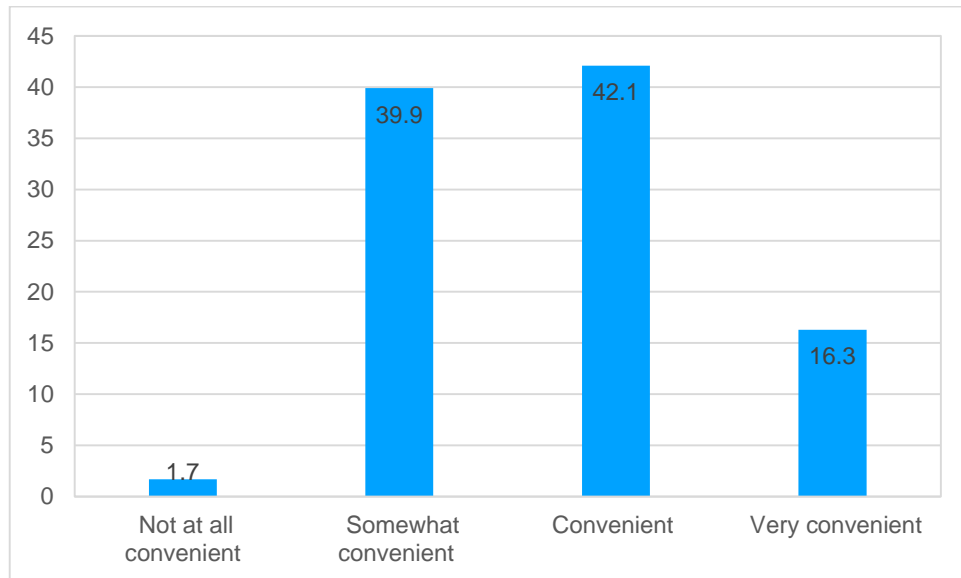
Refer to figure 4.2, the result show that 187 respondents have heard about mobile wallet from internet (62.3%), followed by family and friends 102 respondents (34%), 92 respondents heard from online news and article (30.7%), 43 respondents have heard it from newspaper and magazine (14.3%) and 34 respondents are heard from TV and radio (11.3%).

Figure 4.3: Result of respondents' intention to use mobile wallet

Source: Developed for the research

Refer figure 4.3, the result shows that 233 respondents (84%) are intended to use the mobile wallet; however, 44 of respondents (16%) are not intended to use it.

Figure 4.4: Conveniences to make an online purchase



Source: Developed for the research

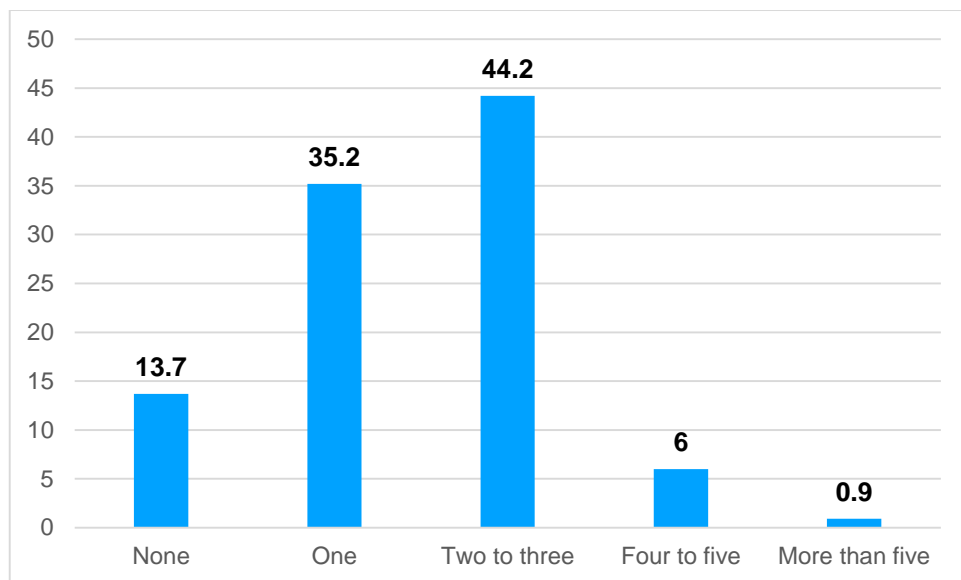
Based on Figure 4.4, 98 respondents (42.1%) feel using mobile wallet are convenient. Besides, 93 respondents (39.9%) feel that using mobile wallet are somewhat convenient, 38 respondents (16.3%) feel that it is very convenient when using the mobile wallet to make a payment. Lastly, 4 respondents (1.7%) feel that it is not convenient when using the mobile wallet.

Table 4.2: Ranking of factors according to importance.

	Frequency	Percentage
Security	157	67.4
Convenient	82	35.2
Fast executive	70	30.0
Mode of payment	76	32.6
Trust	70	30.0

Source: Developed for the research

Based on Table 4.2, security is the highest rank that most people think is the most important when using mobile wallet (157 respondents, 67.4%). Followed by second important, which is convenient (82 respondents, 35.2%), and third important is mode of payment (76 respondents, 32.6%). While, trust (70 respondents, 30%) and fast executive (70 respondents, 30%) are fourth important when using the mobile wallet.

Figure 4.5: Number of cards used when making financial transactions

Source: Developed for the research

Refer to Figure 4.5, 103 respondents (44.2%) using two to three cards is the highest population to make a payment. Other than that, 82 respondents (35.2%) who had to make a financial transaction by using one card. Besides, 32 respondents (13.7%) does not use card to make financial transactions and 14 respondents (6%) using four to five cards to make payment as well as 2 respondents (0.9%) conduct the payment by using more than five cards.

4.1.3 Central Tendencies Measurement of Constructs

Table 4.3: Measurement of Construct

Variables	Mean	Standard Deviation
Perceived ease of use	3.7650	.6372
Perceived usefulness	3.7697	.6117
Perceived risk	3.7403	.7787
Attitude	3.7586	.6948
Behavioral intention	3.7403	.7038

Source: Developed for the research.

The table 4.3 clearly shows the mean of perceived usefulness is the highest which is 3.7697 than others predictors. This explained that most of the respondents agreed of this construct. Followed by the mean of perceived ease of use 3.7650, and attitude 3.7586, while perceived risk and behavioral intention is the least mean, which is 3.7403.

4.2 Scale Measurement

4.2.1 Reliability Analysis

Table 4.4: Reliability Test

Constructs	Cronbach's alpha	No. of items
Perceived ease of use	0.805	4
Perceived usefulness	0.738	6
Perceived risk	0.823	4
Attitude	0.878	4
Behavioral intention	0.840	4

Source: Developed for the research

The variables considered as moderate strong if the Cronbach Alpha value at the range between 0.6 and 0.8. Besides, variable considered strong reliability if the Cronbach Alpha value at the range between 0.8 and 1.0. Hence, the table above shows that all the 5 variables are reliable as it above 0.7 based on Malhotra and Peterson (2006).

4.3 Inferential Analysis

4.3.1 Multiple Regression Analysis

H1: There is a positive relationship between perceived ease of use and attitude towards using mobile wallet.

H2: There is a positive relationship between perceived usefulness and attitude towards using mobile wallet.

H3: There is a negative relationship between perceived risk and attitude towards using mobile wallet.

Table 4.5(a): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.698 ^a	.487	.480	2.004
a. Predictors: (Constant), PR, PU, PE				

Source: Developed for the research

Based on table 4.5(a), the value of R^2 is 0.487, this mean that the changes in attitude influenced by three independent variables, which is perceived ease of use, perceived usefulness and perceived risk.

Table 4.5(b): ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	871.925	3	290.642	72.360	.000 ^b
	Residual	919.801	229	4.017		
	Total	1791.725	232			
a. Dependent Variable: AT						
b. Predictors: (Constant), PR, PU, PE						

Source: Developed for the research

Based on ANOVA test, Table 4.5(b), F value is 72.360 and P value is 0.000. This can confirm that the model is fit for predictors.

Table 4.5(c): Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.705	1.276		2.120	.035		
	PE	.477	.063	.438	7.517	.000	.662	1.511
	PU	.253	.044	.334	5.767	.000	.669	1.496
	PR	-.038	.044	-.043	-.877	.381	.931	1.074

a. Dependent Variable: AT

Source: Developed for the research

Based on Table 4.5(c), the value of standardize beta for perceived ease of use have high impact on attitude compare to other predictors which is perceived usefulness and perceived risk. There is a positive correlation between perceived ease of use and perceived usefulness towards attitude. Thus, accepted H1 and H2 as the p-value is 0, hence, perceived ease of use and perceived usefulness has significant relationship towards attitude. However, there are no significant between perceived risk and attitude due to the p-value is 0.384, therefore H3 is rejected. In addition, there is no issue of collinearity statistics, and it does not test in this study.

4.3.2 Simple Linear Regression

H5: There is a positive relationship between attitude and behavioral intention for using mobile wallet.

Table 4.6(a): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.694 ^a	.481	.479	2.032

a. Predictors: (Constant), AT

Source: Developed for the research

Based on table 4.6(a), the value of R^2 is 0.481, this mean that, the changes in behavioral intention influenced by attitude.

Table 4.6(b): ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	885.102	1	885.102	214.418	.000 ^b
	Residual	953.551	231	4.128		
	Total	1838.652	232			
a. Dependent Variable: BI						
b. Predictors: (Constant), AT						

Source: Developed for the research

Based on ANOVA test, table 4.6(b), F value is 214.418 and P value is 0.000. This means that the above model is fit for predictor.

Table 4.6(c): Coefficients

Model		Unstandardized Coefficients		Standardize d Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.395	.734		5.989	.000		1.000
	A	.703	.048	.694	14.643	.000	1.000	
a. Dependent Variable: BI								

Source: Developed for the research

There is a positive correlation between attitude and behavioral intention due to the significant value is 0.000. Other than that, the value of standardize beta for attitude have greatest influenced on behavioral intention. Hence, accept H5 as the p-value is 0, therefore, attitude has significant impact towards behavioral intention.

4.3.3 Mediated Variable Regression

H4: Attitude act as a mediator between perceived risk and behavioral intention.

Table 4.7(a): Coefficients (Perceived Risk and Attitude)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	18.010	.874		20.596	.000	
	PR	-.199	.057	-.223	-3.476	.001	1.000
a. Dependent Variable: AT							

Source: Developed for the research

**Table 4.7(b): Coefficients
(Attitude and Perceived Risk to Behavioral Intention)**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.829	1.104		4.375	.000	
	A	.697	.049	.688	14.134	.000	.950
	PR	-.023	.044	-.026	-.528	.598	.950
a. Dependent Variable: BI							

Source: Developed for the research

Table 4.7(c): Coefficients
(Perceived Risk to Behavioral Intention)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	17.383	.894		19.444	.000	
	PR	-.162	.059	-.179	-2.767	.006	1.000

a. Dependent Variable: BI

Source: Developed for the research

Table 4.7(d): Sobel test

Input:		Test statistic:	p-value:
t_a	-3.476	Sobel test: 3.3754216	0.00073703
t_b	14.134	Aroian test: 3.36748325	0.00075858
		Goodman test: 3.38341636	0.0007159
Reset all		Calculate	

Source: Developed for the research

Sobel's test would use to test the mediation effect of attitude between perceived risk and behavioral intention. Based on Sobel's test result $t = 3.375$, $p = 0.000$. It can be concluded attitude as a mediate relationship between perceived risk and behavioral intention. Hence, accept H4. Nevertheless, perceived risk has a direct effect ($t = -2.767$, $p = 0.006$) towards behavioral intention, thus, attitude has a partial mediation effect between perceived risk and behavioral intention.

4.4 Conclusion

In conclusion, demographic information and general information had explained. Reliability analysis is explaining the reliability of variables while multiple regression analysis is testing the relationship between independent variable and dependent variable as well as mediator analysis. It can be concluded that H1, H2, H4 and H5 have the significant influence between independent variable and dependent variable. However, H3 have no significant effect due to the significant level is above 0.005. The result and data information will further discuss in following chapter.

CHAPTER 5: DISCUSSION, CONCLUSION, AND IMPLICATIONS

5.0 Introduction

Chapter 5 consist of overall conclusion in this study as a whole. Besides, summarize all the result therefore discussed the relationship between independent variables, mediate variable and dependent variable in descriptive analysis and finding. Furthermore, managerial implication will discuss further in this chapter. In addition, identify the limitation and provide suggestion to improve in future research.

5.1 Summary of Statistical Analyses

5.1.1 Descriptive Analysis

300 sets of questionnaire are collected back from respondents, however, 233 set of questionnaire are analyzed in this research. This is because, 67 set of questionnaire are unqualified due to respondents who answer they have use mobile wallet before and does not intend to use it as well as missing information.

Based on demographic profile in this research, there are more female respondents (61.4%, 143 respondents) compare to male respondents (38.6%, 90 respondents). Furthermore, majority of the respondents fell into age group between 21-25 years old (76.8%, 179 respondents) and majority respondents are Chinese (83.7%, 195 respondents). Last but not least, majority of them received their income level less than RM100 (63.5%, 148 respondent).

Based on general information, majority respondents have heard about mobile wallet, but have not use before (70.7%, 212 respondents), followed by the first time heard about it (21.7%, 65 respondents) and have heard and used before (21.7%, 23 respondents). Besides, majority of the respondents heard from internet and social media (62.3%, 187 respondents). Other than that, most of the respondents intend to use it (84%, 233 respondents) and respondents feel that it is convenient to use mobile wallet (42.1%, 98 respondents). Security is the most important factor that respondents considered it (67.4%, 157 respondents) and majority respondents used two to three cards to conduct the financial transaction (44.2%, 103 respondents).

5.1.2 Scale Measurement

Cronbach Alpha is used to test reliability of each variable. Based on table 4.3 in Chapter 4, since all variables has shown its value are more than 0.7, hence, all variables are strong reliability.

5.1.3 Inferential Analysis

Multiple regression analysis, single regression analysis and Sobel test used in this study. The purpose to carry out multiple regression analysis is to examine the significant relationship between three independent variables and dependent variable. The purpose to use single regression analysis and Sobel test is to determine the significant between independent variable and dependent variable via mediator. The independent variable includes perceived ease of use, perceived usefulness and perceived risk and the mediate variable is attitude while the dependent variable in this study is behavioral intention. All variables have positive significant towards the dependent variable, except perceived risk have no relationship with attitude towards using mobile wallet based on the result obtained.

5.2 Discussion of Major Finding

Table 5.1: Summary of Hypotheses and Results

	Hypothesis	Result	Conclusion
H1	There is a positive relationship between perceived ease of use and attitude towards using mobile wallet.	t = 7.517 p = 0.000	Accepted
H2	There is a positive relationship between perceived usefulness and attitude towards using mobile wallet.	t = 5.767 p = 0.000	Accepted
H3	There is a negative relationship between perceived risk and attitude towards using mobile wallet.	t = -0.877 p = 0.381	Rejected
H4	Attitude act as a mediator between perceived risk and behavioral intention.	t = 3.375 p = 0.000	Accepted
H5	There is a positive relationship between attitude and behavioral intention for using mobile wallet.	t = 14.643 p = 0.000	Accepted

Source: Developed for the research

5.2.1 Perceived ease of use and Attitude

H1: *There is a positive relationship between perceived ease of use and attitude towards using mobile wallet.*

Based on the multiple regression analysis, the result indicates that there is a positive significant relationship between perceived ease of use and attitude towards using mobile wallet as the P-value is 0.000 which is less than the significant value of 0.005. Hence, accepted H1. In other words, when perceived ease of use increase, attitude towards using mobile wallet will increase. This is supported by Maduku (2014), he indicates that when users feel that mobile wallet is easy to make payment, it will lead to develop a positive attitude towards using the third party payment method (mobile wallet).

This is also supported by Jay (2016), perceived ease of use is the factor that have significant relationship towards attitude towards using mobile wallet. Li (2015) had conduct a research on WeChat marketing and found out that if users feel that particular system are easy to use, this will develop user's attitude easily to accept that particular system. Dong (2009) concluded that ease of use of mobile wallet have met the high level positive attitude to adopt it.

Hence, the objective to analyze the relationship between perceived ease of use and attitude towards using mobile wallet had been met. The research question of "How does perceived ease of sue influence attitude towards using mobile wallet?" was answers in this research. Thus, we can conclude that perceived ease of use has a positive relationship with attitude of using mobile wallet.

5.2.2 Perceived usefulness and Attitude

H2: *There is a positive relationship between perceived usefulness and attitude towards using mobile wallet.*

Based on the multiple regression analysis, the result indicates that there is a positive significant relationship between perceived ease of use and attitude towards using mobile wallet as the P-value is 0.000 which the significant value is less than 0.05. Hence, H2 is accepted. Similar study carries out by Jay (2016) that there is a significant influence between perceived usefulness and attitude. In addition, Donald and Remy (2011) stated that a useful system can generate users' positive attitude towards using the mobile wallet. Moreover, Amin, Azhar, Afrina and Akter (2015) found out that perceived usefulness have strongly influence consumer attitude toward using the third party payment method. If the new technology is benefit to them, it will met to consumer positive attitude.

Hence, to examine the relationship between perceived usefulness and attitude towards using mobile wallet had met. The research question of "How does perceived usefulness influence attitude towards using mobile wallet?" was answers in this research. Thus, we can conclude that perceived usefulness has a positive relationship with attitude of using mobile wallet.

5.2.3 Perceived Risk and Attitude

H3: *There is a negative relationship between perceived risk and attitude towards using mobile wallet.*

Based on the multiple regression analysis indicate that the P-value is 0.381 is more than the significant value of 0.05. Hence, H3 is rejected that there

is a significant between perceived risk and attitude towards using mobile wallet.

Perceived risk is not the factor that affect attitude towards using mobile wallet which supported by Khasawneh (2015). He had conducted a research in Jordan that users are not worried about the risk of delays when conducted financial transactions by using mobile wallet. This can say that the probability of delay of payment is not a problem to consider. Besides, due to banks' staff provided assurance about the efficiency of the financial transaction, users would not consider about that monetary loss is the issues for them.

Besides, similar study in Verah (2015) found out that perceived risk not a factor that affect consumers to adopt mobile wallet. This might be the bank had adopted a stringent security measures to protect users. As the mobile wallet still at early stage in the market, therefore, consumers are not aware of any negative experience (Shi Yu, 2009). In addition, perceived risk does not have direct link to adopt mobile payment, if consumer observe other users using mobile wallet without any problem and harm, consumer might be follow the trend to adopt mobile wallet.

Hence, to determine the relationship between perceived risk and attitude towards using mobile wallet had met. Research question of "How does perceived risk influence attitude towards using mobile wallet?" was answers in this research. Thus, we can conclude that perceived risk do not have relationship with attitude of using mobile wallet.

5.2.4 Perceived Risk, Attitude and Behavioral Intention

H4: Attitude act as mediator between perceived risk and behavioral intention

Based on the multiple regression analysis, the result indicates that attitude act as mediator between perceived risk and behavioral intention. Hence, accepted H4.

This also supported by Krishanan, Low and Siti (2016), that attitude act as a mediate role between perceived risk and behavioral intention to use mobile wallet. Furthermore, attitude is a partial mediate between independent variable and dependent variable (Shanmugam, Michael & Teoh, 2014). Thus, it can be say that increase in perceived risk will develop a negative attitude that would not leads consumer intention to adopt the mobile wallet.

Hence, the objective to examine the mediating role of attitude between perceived risk and behavioral intention to adopt mobile wallet was met. The research question “Is attitude function as mediator between perceived risk and behavioral intention” was answered. Therefore, attitude is a mediate variable between perceived risk and behavioral intention.

5.2.5 Attitude and Behavioral Intention

H5: *There is a positive relationship between attitude and behavioral intention towards using mobile wallet.*

Based on the simple linear regression indicate that the P-value is 0.000 is more than the significant value of 0.05. Hence, H5 is accepted that there is a significant between attitude and behavioral intention to using mobile wallet. In other words, when attitude increase, behavioral intention will increase.

The finding is similar to Cabanillas, Luna and Ríos (2017), Donald and Remy (2011) and Trivedi (2017) which concluded that attitude had a

positive impact on behavioral intention to adopt mobile payment service. Positive and negative attitude can affect individual intention to adopt mobile wallet. If consumers satisfy overall performance of mobile wallet, this will lead to positive outcomes, thus, consumers hold a favorable attitude and they might intend to use it in future.

Hence, to determine the relationship between attitude and behavioral intention to adopt mobile wallet had met. The research question of “How does attitude influence behavioral intention to adopt mobile wallet?” was answers in this research. Thus, we can conclude that attitude has a positive relationship with behavioral intention towards using mobile wallet.

5.3 Implication of the Study

5.3.1 Managerial Implications

TAM model has less determinants to predict the overall adoption of technology in terms of Malaysian as it has only consisted three determinants. With the expansion of the model, in this study that offer understandings on Malaysian’s behavioral intention to adopt the new construct which is perceived risk, that also been adopted by previous researcher using different models.

Therefore, this study suggested better predictions of Malaysian’s behavioral intention to adopt mobile wallet. Malaysian mobile wallet application developers or services providers and banks should continually to enhance their mobile wallet services to meet consumers’ expectation. Hence, the findings in this study could be used as a guide for those services developers and providers to update their services accordingly.

The findings of perceived ease of use and perceived usefulness have shown positive significant influence on attitude towards using mobile payment. Thus, respondents perceived mobile wallet system to be user-friendly with simple structure and easy understand content which enables them easy to use without mental effort required. The more convenient and useful is the mobile wallet, the more people are likely to conduct their transaction through the application, and hence increase the use of application.

In addition, it is highly encouraging the continuous improvement on useful format within the surface to conduct the transaction through mobile wallet based on the needs and requirements of the consumers. The instructions given while the user make payment should easy to understand and have clearly explanations for every steps. In more attractive way, mobile payment developers could present instructions in form of tutorials to the users for even easier to implement. Other than ensuring clear instructions given to user, developers should have collaborated with programmers to identify the core and additional benefits that can be provided for users.

Surprisingly, the findings on perceived risk show no relationship between perceived risk and attitude toward using mobile wallet. Although perceived risk not a factor to affect consumers' attitude in this study, however, developers should consider perceived risk as important criteria when develop mobile wallet. Developers and marketers should put more effort to prevent fraud and identity thefts as the mobile wallet consists of users' private information which users are more concern about.

5.4 Limitation of the Study

There are few limitations which will affect our research result. Firstly, researchers found that there are a lot of outdated information which done by other researchers during the time of collecting information. Besides, some of the online journal or articles which may useful in this study need to be request or to be paid in order to access into it. This is restricting to the researchers to have the limit information to source the research.

Secondly, there are limited research studies related to mobile wallet that have done in term of Malaysia context. Thus, this research has to rely more on foreign journal than local journal that related to this topic. Since different countries practice different value, belief, and cultures, therefore, the research studies done in foreign country may not fully reflect to Malaysia. As a result, the information may not be provide accurately by the past studies to use in this research.

Thirdly, the sample of respondents and location were selected is too general. Researchers only give out 300 questionnaires in few areas located in Malaysia. Therefore, the finding of this research cannot be represent as a whole population of Malaysia and this might jeopardize the reliability of the research. Hence, the result collected might not accurate to draw a conclusion.

Lastly, the variables that testing in this study are limited. Researchers only use few variables due to some certain constraints such as time limited. In addition, researchers only adopt TAM theory that had discussed in Chapter 2, which are not enough broader view to enhance research in understanding the factors that affect Malaysian intention to adopt mobile wallet.

5.5 Recommendations for Future Research

In order to overcome the limitation that mentioned by researchers, some of the opinions and suggestions have proposed. Firstly, researchers need to explore more available relevant journals in Malaysia. However, more supportive journals that are studied by the Asian researchers could be adopted as Asian countries more likely to share the similar beliefs and thoughts as Malaysia. Hence, researchers are suggested to search past studies that from similar background. In addition, researchers need to ensure that the information and data collected from various sources must within a span of 5 years as it is more valid and useful (John, 2013).

Secondly, it is recommended that data collection can be expanded and include extensive sample size in future studies in order to obtain more accurate and reliable results. Besides, it will be better if researchers can reach out all the potentials respondents from all of the areas in Malaysia. However, it needs to have sufficient time to plan the resources in terms of traveling around Malaysia. Therefore, longer time period is needed to enable the researchers to collect data from respondents that have different perception toward the topic.

Lastly, broaden the conceptual framework is needed in order to enhance the quality of the research. In real life, there are many others variables that also will affects the consumers' intention to accept mobile wallet. Some variables that can take in consideration such as trust, subjective norms, self-efficiency and service quality. By broadening the conceptual framework, a more comprehensive research that present a full-coverage of all possible factors is conducted.

5.6 Conclusion

In a nutshell, this research was carry out to have clearer perspective on Malaysian's intention to adopt mobile wallet by clarifying the factors of perceived ease of use, perceived usefulness, perceived risk and attitude. The objectives to examine the relationship of the four variables towards behavioral intention have been fulfilled in this research project.

As a result, the relationships among variables have been examined and all of the hypotheses are supported excluded perceived risk has no significant relationship with attitude and the mediating hypotheses is partially supported. Inferential analysis, descriptive analysis, managerial implications and limitation are concluded and discussed in this chapter. Researches also provided few limitations in this study and recommendations for future research.

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Appendix A

SPSS Output

1. Demographic profileStatistics

		Gender	Age	Race	Highest Education Level	Monthly income
N	Valid	233	233	233	233	233
	Missing	0	0	0	0	0

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	90	38.6	38.6	38.6
	Female	143	61.4	61.4	100.0
	Total	233	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 20 years old	26	11.2	11.2	11.2
	21-25 years old	171	73.4	73.4	84.5
	26-30 years old	16	6.9	6.9	91.4
	31-35 years old	11	4.7	4.7	96.1
	36-40 years old	6	2.6	2.6	98.7
	Above 40 years old	3	1.3	1.3	100.0
	Total	233	100.0	100.0	

Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	8	3.4	3.4	3.4
	Chinese	195	83.7	83.7	87.1
	Indian	20	8.6	8.6	95.7
	Others	10	4.3	4.3	100.0
	Total	233	100.0	100.0	

Highest Education Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SPM	26	11.2	11.2	11.2
	STPM or PRE-U	32	13.7	13.7	24.9
	Diploma	26	11.2	11.2	36.1
	Bachelor Degree	141	60.5	60.5	96.6
	Master Degree	5	2.1	2.1	98.7
	PHD	2	.9	.9	99.6
	Others	1	.4	.4	100.0
	Total	233	100.0	100.0	

Monthly income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than RM1000	148	63.5	63.5	63.5
	RM 1000-RM 1999	41	17.6	17.6	81.1
	RM 2000-RM2999	23	9.9	9.9	91.0
	RM 3000-RM3999	10	4.3	4.3	95.3
	RM 4000-RM 4999	6	2.6	2.6	97.9
	RM 5000 and above	5	2.1	2.1	100.0
	Total	233	100.0	100.0	

2. General InformationHow much did you know about mobile wallet?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	First time heard	65	21.7	21.7	21.7
	Have heard before but haven't use	212	70.7	70.7	92.3
	Have used before	23	7.7	7.7	100.0
	Total	300	100.0	100.0	

Where did you heard from?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Family and Friends	102	34.0	100.0	100.0
Missing	System	198	66.0		
Total		300	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Internet and Social Media	187	62.3	100.0	100.0
Missing	System	113	37.7		
Total		300	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Newspaper and Magazine	43	14.3	100.0	100.0
Missing	System	257	85.7		
Total		300	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Online news	92	30.7	100.0	100.0
Missing	System	208	69.3		
Total		300	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TV and Radio	34	11.3	100.0	100.0
Missing	System	266	88.7		
Total		300	100.0		

Would you intend to use mobile wallet, if you have an opportunity to use it?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, I intend to use it	233	84.1	84.1	84.1
	No, I do not intend to use it	44	15.9	15.9	100.0
	Total	277	100.0	100.0	

Do you feel that it is convenient to make an online purchase?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all convenient	4	1.7	1.7	1.7
	Somewhat convenient	93	39.9	39.9	41.6
	Convenient	98	42.1	42.1	83.7
	Very convenient	38	16.3	16.3	100.0
	Total	233	100.0	100.0	

Rank the factors that affect to use mobile wallet

Security

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	157	67.4	67.4	67.4
	2	35	15.0	15.0	82.4
	3	18	7.7	7.7	90.1
	4	11	4.7	4.7	94.8
	5	12	5.2	5.2	100.0
	Total	233	100.0	100.0	

Convenience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	40	17.2	17.2	17.2
	2	82	35.2	35.2	52.4
	3	58	24.9	24.9	77.3
	4	33	14.2	14.2	91.4
	5	20	8.6	8.6	100.0
	Total	233	100.0	100.0	

Fast executive

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	10	4.3	4.3	4.3
	2	34	14.6	14.6	18.9
	3	64	27.5	27.5	46.4
	4	70	30.0	30.0	76.4
	5	55	23.6	23.6	100.0
	Total	233	100.0	100.0	

Mode of Payment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	3.0	3.0	3.0
	2	32	13.7	13.7	16.7
	3	44	18.9	18.9	35.6
	4	76	32.6	32.6	68.2
	5	74	31.8	31.8	100.0
	Total	233	100.0	100.0	

Trust

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	24	10.3	10.3	10.3
	2	49	21.0	21.0	31.3
	3	50	21.5	21.5	52.8
	4	40	17.2	17.2	70.0
	5	70	30.0	30.0	100.0
	Total	233	100.0	100.0	

How many card(s)(such as credit cards, debit cards, loyalty cards, etc.) do you use when making financial transactions?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	32	13.7	13.7	13.7
	One	82	35.2	35.2	48.9
	Two to three	103	44.2	44.2	93.1
	Four to five	14	6.0	6.0	99.1
	More than five	2	.9	.9	100.0
	Total	233	100.0	100.0	

3. Reliability Test

Perceived ease of use

Case Processing Summary			
		N	%
Cases	Valid	233	100.0
	Excluded ^a	0	.0
	Total	233	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics	
Cronbach's Alpha	N of Items
.805	4

Perceived usefulness

Case Processing Summary			
		N	%
Cases	Valid	233	100.0
	Excluded ^a	0	.0
	Total	233	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics	
Cronbach's Alpha	N of Items
.738	6

Perceived Risk

Case Processing Summary			
		N	%
Cases	Valid	233	100.0
	Excluded ^a	0	.0
	Total	233	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics	
Cronbach's Alpha	N of Items
.823	4

Attitude

Case Processing Summary			
		N	%
Cases	Valid	233	100.0
	Excluded ^a	0	.0
	Total	233	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.878	4

Behavioral Intention

Case Processing Summary			
		N	%
Cases	Valid	233	100.0
	Excluded ^a	0	.0
	Total	233	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.840	4

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
PE	233	1.00	5.00	3.7650	.63720
PU	233	1.17	5.00	3.7697	.61169
PR	233	1.75	5.00	3.7403	.77866
AT	233	1.25	5.00	3.7586	.69476
BI	233	1.50	5.00	3.7403	.70379
Valid N (listwise)	233				

4. Multiple Regression Analysis

Descriptive Statistics			
	Mean	Std. Deviation	N
AT	15.03	2.779	233
PE	15.06	2.549	233
PU	22.62	3.670	233
PR	14.96	3.115	233

Correlations					
		ATT	PE	PU	PR
Pearson Correlation	ATT	1.000	.638	.593	-.223
	PE	.638	1.000	.569	-.242
	PU	.593	.569	1.000	-.221
	PR	-.223	-.242	-.221	1.000
Sig. (1-tailed)	ATT	.	.000	.000	.000
	PE	.000	.	.000	.000
	PU	.000	.000	.	.000
	TOTAL_PR	.000	.000	.000	.
N	TOTAL_A	233	233	233	233
	TOTAL_PE	233	233	233	233
	TOTAL_PU	233	233	233	233
	TOTAL_PR	233	233	233	233

Variables Entered/Removed^a			
Model	Variables Entered	Variables Removed	Method
1	TOTAL_PR, TOTAL_PU, TOTAL_PE ^b		. Enter

a. Dependent Variable: TOTAL_A

b. All requested variables entered.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.698 ^a	.487	.480	2.004

a. Predictors: (Constant), PR, PU, PE

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	871.925	3	290.642	72.360	.000 ^b
	Residual	919.801	229	4.017		
	Total	1791.725	232			
a. Dependent Variable: AT						
b. Predictors: (Constant), PR, PU, PE						

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIP
1	(Constant)	2.705	1.276		2.120	.035		
	PE	.477	.063	.438	7.517	.000	.662	1.511
	PU	.253	.044	.334	5.767	.000	.669	1.496
	PR	-.038	.044	-.043	-.877	.381	.931	1.074
a. Dependent Variable: AT								

Collinearity Diagnostics ^a							
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	PE	PU	PR
1	1	3.929	1.000	.00	.00	.00	.00
	2	.052	8.703	.00	.07	.05	.48
	3	.011	18.515	.00	.80	.74	.01
	4	.008	22.305	1.00	.13	.21	.51

a. Dependent Variable: AT

5. Simple Linear Regression

Descriptive Statistics			
	Mean	Std. Deviation	N
BI	14.96	2.815	233
AT	15.03	2.779	233

Correlations			
		BI	AT
Pearson Correlation	BI	1.000	.694
	AT	.694	1.000
Sig. (1-tailed)	BI	.	.000
	AT	.000	.
N	BI	233	233
	AT	233	233

Variables Entered/Removed^a			
Model	Variables Entered	Variables Removed	Method
1	AT ^b	.	Enter

a. Dependent Variable: BI

b. All requested variables entered.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.694 ^a	.481	.479	2.032

a. Predictors: (Constant), AT

ANOVA^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	885.102	1	885.102	214.418	.000 ^b
	Residual	953.551	231	4.128		
	Total	1838.652	232			

a. Dependent Variable: BI

b. Predictors: (Constant), AT

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.395	.734		5.989	.000		
	AT	.703	.048	.694	14.643	.000	1.000	1.000

a. Dependent Variable: BI

Collinearity Diagnostics ^a					
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	AT
1	1	1.983	1.000	.01	.01
	2	.017	10.935	.99	.99

a. Dependent Variable: BI

6. Mediate Variable Regression**First Regression**

Descriptive Statistics			
	Mean	Std. Deviation	N
BI	14.96	2.815	233
PR	14.96	3.115	233

Correlations			
		BI	PR
Pearson Correlation	BI	1.000	-.179
	PR	-.179	1.000
Sig. (1-tailed)	BI	.	.003
	PR	.003	.
N	BI	233	233
	PR	233	233

Variables Entered/Removed^a			
Model	Variables Entered	Variables Removed	Method
1	PR ^b	.	Enter

a. Dependent Variable: BI

b. All requested variables entered.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.179 ^a	.032	.028	2.776

a. Predictors: (Constant), PR

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.983	1	58.983	7.656	.006 ^b
	Residual	1779.670	231	7.704		
	Total	1838.652	232			

a. Dependent Variable: BI

b. Predictors: (Constant), PR

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	17.383	.894		19.444	.000		
	PR	-.162	.059	-.179	-2.767	.006	1.000	1.000

a. Dependent Variable: BI

Collinearity Diagnostics ^a					
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	PR
1	1	1.979	1.000	.01	.01
	2	.021	9.731	.99	.99

a. Dependent Variable: BI

Second Regression

Descriptive Statistics			
	Mean	Std. Deviation	N
AT	15.03	2.779	233
PR	14.96	3.115	233

Correlations			
		AT	PR
Pearson Correlation	AT	1.000	-.223
	PR	-.223	1.000
Sig. (1-tailed)	AT	.	.000
	PR	.000	.
N	AT	233	233
	PR	233	233

Variables Entered/Removed^a			
Model	Variables Entered	Variables Removed	Method
1	PR ^b	.	Enter

a. Dependent Variable: AT

b. All requested variables entered.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.223 ^a	.050	.046	2.715

a. Predictors: (Constant), PR

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	89.053	1	89.053	12.082	.001 ^b
	Residual	1702.672	231	7.371		
	Total	1791.725	232			

a. Dependent Variable: AT

b. Predictors: (Constant), PR

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	18.010	.874		20.596	.000		
	PR	-.199	.057	-.223	-3.476	.001	1.000	1.000

a. Dependent Variable: AT

Collinearity Diagnostics ^a					
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	PR
1	1	1.979	1.000	.01	.01
	2	.021	9.731	.99	.99

a. Dependent Variable: AT

Third Regression

Descriptive Statistics			
	Mean	Std. Deviation	N
BI	14.96	2.815	233
AT	15.03	2.779	233
PR	14.96	3.115	233

Correlations				
		BI	A	PR
Pearson Correlation	BI	1.000	.694	-.179
	AT	.694	1.000	-.223
	PR	-.179	-.223	1.000
Sig. (1-tailed)	BI	.	.000	.003
	AT	.000	.	.000
	PR	.003	.000	.
N	BI	233	233	233
	AT	233	233	233
	PR	233	233	233

Variables Entered/Removed^a			
Model	Variables Entered	Variables Removed	Method
1	PR, AT ^b	.	Enter

a. Dependent Variable: BI

b. All requested variables entered.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.694 ^a	.482	.478	2.035

a. Predictors: (Constant), PR, AT

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	886.256	2	443.128	107.014	.000 ^b
	Residual	952.396	230	4.141		
	Total	1838.652	232			

a. Dependent Variable: BI

b. Predictors: (Constant), PR, AT

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.829	1.104		4.375	.000		1.052
	AT	.697	.049	.688	14.134	.000	.950	
	PR	-.023	.044	-.026	-5.28	.598	.950	

a. Dependent Variable: BI

Collinearity Diagnostics ^a						
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	AT	PR
1	1	2.945	1.000	.00	.00	.00
	2	.046	8.041	.00	.31	.47
	3	.010	17.474	1.00	.68	.53

a. Dependent Variable: BI

APPENDIX B: Survey Questionnaire



PERSONAL DATA PROTECTION STATEMENT

Please be informed that in accordance with Personal Data Protection Act 2010 (PDPA) which came into force on 15 November 2013. Universiti Tunku Abdul Rahman (UTAR) is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

Notice:

1. The purposes for which your personal data may be used are inclusive but not limited to:
 - For assessment of any application to UTAR
 - For processing any benefits and services
 - For communication purposes
 - For advertorial and news
 - For general administration and record purposes
 - For enhancing the value of education
 - For educational and related purposes consequential to UTAR
 - For the purpose of our corporate governance
 - For consideration as a guarantor for UTAR staff/ student applying for his/her scholarship/ study loan

2. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.

3. Any personal information retained by UTAR shall be destroyed and/or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.
4. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

Consent:

1. By summiting this form you hereby authorise and consent to us processing (including disclosing) your personal data and any updates of your information, for the purposes and/or for any other purposes related to the purpose.
2. If you do not consent or subsequently withdraw your consent to the processing and disclosure of your personal data. UTAR will not be able to fulfil our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.
3. You may access and update your personal data by writing to us at **1301807@utar.edu.my**.

Acknowledgement of Notice:

- () I have been notify by you and that I hereby understood, consented and agreed per UTAR notice (refer to PDPA Statement).
- () I disagree my personal data will not be processed.

Signature:

Date:



UNIVERSITI TUNKU ABDUL RAHMAN
Faculty of Accountancy and Management
BACHELOR OF INTERNATIONAL BUSINESS
(HONS)
FINAL YEAR PROJECT

TITLE OF RESEARCH:

Factors Affecting Malaysian Intention to Adopt Mobile Wallet

Survey Questionnaire

Dear respondents,

We are students from Universiti Tunku Abdul Rahman (UTAR), Faculty of Accountancy and Management, pursuing degree in Bachelor of International Business (Hons), currently conducting a study on “Factors Affecting Malaysian Intention to Adopt Mobile Wallet” for our final year project. The objective of this research is to understand the factors affecting Malaysian intention to adopt mobile wallets.

We sincerely hope that you will take a few minutes to complete this questionnaire. Your responses are essential for us to complete our study. Your participation is on voluntary basis.

Please take note that this survey is strictly for academic purposes and we would like to assure you that all the information collected will remain PRIVATE AND CONFIDENTIAL. We greatly appreciate you for taking the time and efforts in completing this questionnaire. Thank you for your cooperation.

NAME STUDENT	STUDENT ID. NO.
DING YING TSUR	1402713
LIM FEI MING	1306157

Section A: General Question

Please tick “√” your answer at the box.

Q1. How much did you know about mobile wallet such as Wechat Pay, Alipay, ApplePay and etc?

- This is the first time I have heard about it. (Skip Q2 and Proceed to Q3)
- Yes, I have heard about it, but I have never used it. (Proceed to Q2)
- Yes, I know about it and I have been using it. (If have used before, thank you for your participation. Please return the questionnaire)

Q2. Where did you hear about mobile wallet from? (You can tick more than one selection)

- Family and Friends
- Internet and Social Media
- Newspaper and Magazine
- Online news and Article
- TV and Radio
- Other: _____

Q3. Would you intend to use mobile wallet, if you have an opportunity to use it?

- Yes, I intend to use it.
- No, I do not intend to use. (If you not intention to use, please return the questionnaire and thank you for your participation.)

Q4. Do you feel that it is convenient to make an online purchase?

- Not at all convenient
- Somewhat convenient
- Convenient
- Very convenient

Q5. Rank the factors according to what you think is important to you when using mobile wallet. (Please rank it from 1= most important to 5= the less important)

- () Security
- () Convenience
- () Fast execution
- () Mode of payment
- () Trust

Q6. How many card(s) such as credit cards, debit cards, loyalty cards, etc. Do you use when making financial transactions?

- None
- One
- Two to three
- Four to five
- More than five

Section B: Demographic Profile.

Please tick “√” your answer at the box.

Q1. Gender

- Male
- Female

Q2. Age

- Below 20 years old
- 21-25 years old
- 26-30 years old
- 31-35 years old
- 36-40 years old
- Above 40 years old

Q3. Race

- Malay
- Chinese
- Indian
- Others: _____

Q4. Highest Education Level

- SPM
- STPM or PRE-U
- Diploma
- Bachelor Degree
- Master Degree
- PHD
- Others: _____

Q5. Monthly income (Include pocket money)

- Less than RM1000
- RM 1000-RM 1999
- RM2000-RM2999
- RM 3000-RM 3999
- RM 4000- RM 4999
- RM 5000 and above

Section C

In this section, you will be asked about perceived ease to use, perceived usefulness, perceived risk, attitude and behavioral intention towards using mobile wallets. For each of the statements given below, kindly circle the number that represents your opinion the most.

Strongly Disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly Agree (SA)
1	2	3	4	5

Perceived ease of use	SD	D	N	A	SA
1. I think using mobile wallet is easy.	1	2	3	4	5
2. My interaction with a mobile wallet would be clear and understandable.	1	2	3	4	5
3. I think it is easy for me to learn how to use mobile wallet.	1	2	3	4	5
4. It is easy to perform the steps required to use mobile wallet.	1	2	3	4	5

Perceived usefulness	SD	D	N	A	SA
1. I think mobile payment is useful for me to buy products or services.	1	2	3	4	5
2. I think mobile payment makes it easier for me to buy products or services.	1	2	3	4	5
3. I think mobile payment saves time for me to buy products or services.	1	2	3	4	5
4. Using mobile payments would make it easier for me to conduct transactions.	1	2	3	4	5
5. Overall, I find the mobile wallet to be useless for making payments.	1	2	3	4	5
6. Using mobile wallet would take more time and effort than using traditional payment methods.	1	2	3	4	5

Perceived risk	SD	D	N	A	SA
1. I wouldn't feel completely safe by providing personal information through the mobile payment system.	1	2	3	4	5
2. I'm worried about the future use of mobile payment services, because other people might be able to access my data.	1	2	3	4	5
3. I don't feel protected when sending confidential information via the mobile payment system.	1	2	3	4	5
4. The likelihood that something wrong will happen with the mobile payment systems is high.	1	2	3	4	5

Attitude	SD	D	N	A	SA
1. Using mobile wallets is a good idea.	1	2	3	4	5
2. Using mobile wallets is beneficial.	1	2	3	4	5
3. Using mobile wallets is favorable.	1	2	3	4	5
4. Using mobile wallets is a wise thing to do.	1	2	3	4	5

Behavioral Intention	SD	D	N	A	SA
1. I am likely to use mobile payment services in the near future.	1	2	3	4	5
2. I am willing to use mobile payment services in near future rather than not using it.	1	2	3	4	5
3. I intend to use mobile payment services at least as often within the coming month(s).	1	2	3	4	5
4. I intend to use mobile payment services when the opportunity arises.	1	2	3	4	5

THANK YOU FOR YOUR CORPORATION