



**FACTORS AFFECTING THE ADOPTION OF ETHIOPAY  
NATIONAL PAYMENT SYSTEM IN ETHIOPIAN BANKING  
INDUSTRY**

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**FACTORS AFFECTING THE ADOPTION OF ETHIOPAY  
PAYMENT SYSTEM IN ETHIOPIAN BANKING INDUSTRY:  
IN THE CASE OF SOME SELECTED BANKS**

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Industry: in the Case of Some Selected Banks**

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## **Statement of certification**

This is to certify that Ayalew Lake has carried out this thesis work title “**Factors affecting the adoption of EthioPay payment system in Ethiopian banking industry**”

The work is original in nature and is suitable for submission for the award of the Master of Art Degree in Marketing Management.

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## DECLARATION

I the under signed, hereby declare that the thesis entitled “**Factors affecting the Adoption EthioPay payment system in Ethiopian banking industry: in the case of some selected Banks**” is my original work and has not been submitted to any other college, institution or university other than the Addis Ababa university for the award of the Degree of Master in Marketing Management at Addis Ababa and that all sources of material used for the study have been appropriately acknowledged.

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## ABSTRACT

**Purpose:** *The purpose of this study is to examine the factors affecting adoption of Inter- Bank electronic payment branded as **EthioPay** in Ethiopian banking industry.*

**Design/methodology/approach:** *This study inspects factors affecting adoption inter- Bank e-payment by taking a respondents from the population of Bank card holder customers of the five selected banks in Addis Ababa. To obtain representative samples, in selecting the research respondents, convenient method was applied, this sampling method helps for a population from which sample has been constitute a homogeneous group, therefore the study takes 384 respondents as target respondents from these customers .A quantitative method with deductive approach was chosen in this research. The SPSS version 22.00 for windows was used to process the primary data collected through questionnaire. This paper observes the relationship between attitude, perceived ease of use, perceived usefulness, perceived risk, reliability and benefit to the inter-bank e-payment intention, EthioPay of bank card customers.*

**Findings:** *Multiple regression analysis was employed to test the hypotheses. The main findings of the study are: attitude, perceived ease of use, perceived usefulness and reliability has a positive and significant impact on the adoption of EthioPay payment system. Whereas reliability and perceived risk has negative impact. Attitude has a strong influence on customer's intention to use Inter-bank electronic payment.*

**Practical Implications:** *This study is important to academicians, buyers and sellers who involved in e-payment as it demonstrates attitude, perceived ease of use, perceived usefulness, perceived risk, reliability and benefit are among the six critical factors in affecting the inter-bank e-payment, EthioPay adoption .*

**Keywords:** *attitude, perceived ease of use, perceived usefulness, perceived risk, reliability, benefit, EthioPay, inter-bank e-payment, ATM, adoption, intention, EtSwitch, interbank e-payment*

## Chapter 1: Introduction

The objective of this study is to determine the factors that affecting adoption of EthioPay payment system in Ethiopian banking industry. This chapter consists of summarized chapter one into eight parts to illustrate and describe a clear idea for whole research project. All the parts will be explained in details which consist of research background, problem statement, research question, research objectives, and significance of study, scope of the study, definition of terms and organizations of the study in this entire chapter.

### 1.1. Background of the study and the study area

The birth of information and communication technology (ICT) as a result of merging of computer science and telecommunication engineering, brought dramatic changes of the way business is conducted to compete in the market place and spread throughout the globe (Schneider, 2011). The combination of traditional commerce and Internet, providing opportunities for business or organizations to develop new business models to take advantages of globalization is known as electronic commerce or e-commerce.

The emergence of Information and Communication Technology (ICT) had completely changed the lives and operations of individuals and organizations respectively. ICT and Digital technologies had made great evolutionary development in finance, economics, operational costs (Slozko & Pello, 2015) and enhanced organizational performance (Ali, 2010). The era of ICT and digital innovations has come along with a dynamic change in the world business environment, whereby business transactions are constantly shifting from cash-based transactions to electronic-based ones (Mohamad, Haroon, & Najiran, 2009). Also, the global proliferation of the internet and its rapid use over the years had contributed much in facilitating electronic commerce in global business environment (Fernandes, 2013).

Consequently, as transactions among business partners continue to proffer on the e-commerce platform, an electronic payment solution emerged to replace the former cash-based payment systems (Dennis, 2004). The advent of this development in the global business environment challenged most organizations to automatically switch from the conventional paper-based money transactions to an electronic payment system which is widely known as the e-payment

system. Generally, electronic payment can be defined as a platform used in making payments for goods/services purchased online through the use of internet (Roy & Sinha, 2014).

Subsequently, with the introduction of e-payment system, the world payment system turned out to align with the current trend of cashless transactions among individuals, businesses and governments (Odi & Richard, 2013). As a result of this, the world payments system is gradually changing from coins and paper based money to electronic forms that provide more convenient, fast and secured process of making payments among individual and organizations (Premchand & Choudhry, 2015). Similarly, the global annual non-cash transactions being facilitated by e-payment and mobile payment (m-payment) had been on the increase over the years, except for 2012 where it decelerates from an annual growth rate of 8.6% in 2011 down to 7.7% in 2012 (World Payment Report, 2014).

E-payment systems are important mechanisms used by individual and organizations as a secured and convenient way of making payments over the internet and at the same time a gateway to technological advancement in the field of world economy (Slozko & Pello, 2015). In addition, it has also become the major facilitating engine in e-commerce through which electronic business success relied upon. Electronic payment system had also brought about efficiency, fraud reduction and innovativeness in the world payment system (Oladeji, 2014).

Furthermore, e-payment system tends to bring many electronic modes of payments through which financial institutions offer different e-payment opportunities and services to their customers such as the credit cards, debit cards, on-line banking and mobile banking (Premchand & Choudhry, 2015). As a result, the adoption of e-payment technology is ever increasing in today's business environment (Balogun, 2012) and public sector establishments (Kaliannan & Awang, 2010). However, despite all these benefits associated with e-payment, adequate ICT know-how among users and fear of security breach remain the most concern of individuals, organizations and experts in the field of information system (Khairun & Yasmin, 2010).

Laudon & Traver (2007) highlights the advantages of electronic payment systems over the traditional methods. They encourage privacy, integrity, compatibility, good transaction efficiency, acceptability, convenience, mobility, low financial risk and anonymity. The other advantages are

reaching out to customers in remote zones, minimizing on costs associated with premises leasing and security and enhancing customer awareness and loyalty (Magutu, et al., 2011).

Many financial institutions support online payments since they provide new opportunities which also come with new operational and strategic risks. Several dimensions are considered before a good payment system which include support for anonymity, easier transferability, divisibility, acceptability and shortened transaction time. Other institutions adopt e-payment systems because it is part of their long term strategy. Akintoye and Araoye (2011) summarises the above drivers of effective electronic payment system into four main categories, i.e., technological developments, conducive economic environment, vibrant social environment and supportive regulatory policies

Card Based Payment System has been widely used in developed countries and is rapidly expanding in developing countries. It has been more than 50 years since a bankcard was introduced as payment mechanism. Over these years, a bankcard has become popular and adopted by many banks as it creates convenience for transactions taken place between consumers, merchants and banks. But in Ethiopia payment card has short history. It was introduced by Dashen bank since 2008 through providing Visa branded ATM card service then followed by commercial Bank of Ethiopia

Being a part of Electronic payment an ATM is a computerized telecommunications device that enables the clients of a financial institution to perform financial transactions without the need for a cashier, human clerk or bank teller. The ATM card uses expiration date and personal identification number (PIN) to authenticate the customer (Schneider, 2011; Harris et al., 2011)

Globally, Automatic Teller Machines (ATMs) have been adopted and are still being adopted by banks. They offer considerable benefits to both banks and their depositors. The machines can enable depositors to withdraw cash at more convenient times and places than during banking hours at branches. In addition, by automating services that were previously completed manually, ATMs reduce the costs of servicing some depositor demands. These potential benefits are multiplied when banks share their ATMs, allowing depositors of other banks to access their accounts through a bank's ATM (McAndrews, 2003). Banks have become the principal deployers of ATMs. Two reasons for this are that they want to increase their market share, although due to the prevalence of ATMs, it is not likely to be the primary means by which ATMs increase profitability for most banks; or/and above a certain level of operations,

the cost of a single transaction performed at an ATM is potentially less than the cost of a transaction conducted from a teller, as ATMs are capable of handling more transactions per unit of time than are tellers (Laderman, 1990).

In Ethiopia the deployment of ATM by banks and its use by bank customers is just gaining ground and has burgeoned in recent times. This has happened especially after the recent consolidation of banks, which has in all probability, made it possible for more banks to afford to deploy ATMs or at least become part of shared networks (NBE report). The increased deployment of ATMs in the banking sector has made the issue of technology relevance important. ATM services have a history that is less than ten years in Ethiopia. At first, they were operated as elitist services designed for those desirous of exclusive service. Cards were rare and the process for obtaining them tortuous.

In Ethiopia, however, cash is still the most dominant medium of exchange, and electronic payment systems are at an embryonic stage. In the face of rapid expansion of electronic payment systems throughout the developed and the developing world, Ethiopia's financial sector cannot remain an exception in rapidly expanding the use of the system. Now almost all commercial banks in Ethiopia started introducing the Card Based Payment System and others are planning to invest in such technology.

According to Findex 2014, roughly 29 million adults who do not own a bank account actively save and make payments outside the regulated financial system. In total, only 6% of adults reported transacting electronically compared to 30% in sub-Saharan Africa (SSA).

Paper-based payment instruments – cash, checks, and payment orders- remain the dominant means of payment in Ethiopia. Like many other countries, Ethiopia is a cash based society, and there is significant space for offering electronic payment instruments for individuals and firms to make their day-to-day payments. Large volumes of payments are made in cash or other paper based instruments. Many legal provisions require paper based – methods for record keeping. This may delay the country's transition to electronic transaction accounts.

Only 12% of Ethiopian adults transact electronically by making or receiving payments through account cards, ATMs, mobile money, or other cashless delivery channels. As per Findex 2014 data in Ethiopia 2.6% used mobile services, 9.3% used an ATM, and 9.3% own debit card.

Also, it is not necessary for a bank to own an ATM in order to belong to a shared network. Through spreading the fixed cost associated with ATMs over transactions initiated by customers of many different banks, a shared network can take advantage of economies of scale (Laderman, 1990).

The National Bank of Ethiopia, as part of the Payment Modernization Project, is floating a Tender called ‘Automatic Transfer System’ (ATS) having components of the Real Time Gross Settlement (RTGS) and Automatic Clearing House (ACH). The other project is building the Common Electronic Transaction System of Ethiopian Banks (CETRASEB) which is capable to interface with the ATS.

EthSwitch is the owner and operator of the national electronic retail payments switch of Ethiopia, National e-Payment Switch. This has been legally established with the purpose of providing electronic retail payment switching and clearing, card issuance and management, and infrastructure services in country at large. In November 2011, the National Bank of Ethiopia became an EthSwitch shareholder and board member. EthSwitch is a system where all eighteen banks in the country participate in. EthSwitch is a network which enables customers of different banks to access services through all of the ATMs in the country and make point of sale payments through any terminal. EthSwitch, as this network is called, is backed by the Ethiopian Banker’s Association, and the National Bank of Ethiopia. As a result of this collaboration, all involved parties are parts of a centralised payment solution. “All connected member banks can benefit from interoperability as well as providing a new level of convenience and access to Ethiopian citizens, merchants, and organizations.

Currently the system integrates over 1500 ATMS, over 13,000 POS- terminals, and 2.5 million cardholders all over the country. “In the long run, the EthSwitch national payment system should bring more business to Ethiopia over the coming years (**source: [www.nbe.gov.et](http://www.nbe.gov.et)**).

EthSwitch is the sole clearing house for interbank electronic retail payments in Ethiopia. On an ongoing basis, it does settlement between the banks. Whenever there is an inter-bank transaction, the transaction will come to the EthSwitch infrastructure and will be completed within its infrastructure. If an ATM card of one bank is used in another bank’s ATM machine, payment is made immediately to the card holder on behalf of the card holder’s bank, on the

spot. But clearing is an automated multilateral netting process with result of Net Settlement Instruction happening in the EthSwitch infrastructure. On the next business day, claims are settled between the banks passing through Net Settlement Instruction directly to Real Time Gross Settlement System through an automated and secured process.

EtSwitch objectives are:

- Establish a national central financial switch system
- Establish system for card payment and management
- Provide advisory services for member financial institutions
- Provide call center service and maintain service level agreement
- Provide card and retail payment switch and clearing service
- Provide card production and personalization service
- Provide gateway service for international card payments

**List of banks connected to EthioPay**

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>▪ National Bank of Ethiopia</li><li>▪ Abay Bank</li><li>▪ Addis International Bank</li><li>▪ Awash International Bank</li><li>▪ Bank of Abyssinia</li><li>▪ Berhan International Bank</li><li>▪ Bunna International Bank</li><li>▪ Commercial Bank of Ethiopia</li><li>▪ Cooperative Bank of Oromia</li></ul> | <ul style="list-style-type: none"><li>▪ Dashen Bank</li><li>▪ Debu Global Bank</li><li>▪ Development Bank</li><li>▪ Enat Bank</li><li>▪ Lion International Bank</li><li>▪ Nib International Bank</li><li>▪ Oromia International Bank</li><li>▪ United Bank</li><li>▪ Wegagen Bank</li><li>▪ Zemen Bank</li></ul> |
|---|--|

(Source: [www.inteligenctcio.com/africa/](http://www.inteligenctcio.com/africa/) 15 September, 2016/ how bpc-are interconnecting – Ethiopian banks/)

The belated national e- payment swish, EthioPay, serving the integration of automated Teller machines (ATMS) and Point of sale (POS) machines, celebrated its official launch on May 12, 2016 (Fortune published on May 17, 2016)

EthioPay is the brand given to the National e-Payment Switch of Ethiopia. EthSwitch metric of success for the project is the number of transactions being processed through the switch

system. The system infrastructure for the interconnectivity between banks and the central bank is designed for 100 transactions per second.

However, there have been some transactions declines due to connectivity failures and those limitations are still not addressed as a result customers who are using EthSwitch as payment channel are raising disputes This will have an adverse effect on the adoption of EthioPay. The study tried to identify and investigate other possible factors that has an effect on the adoption of EthioPay payment system in some selected Banks

Hence, there is clearly a need to study the issue of adoption of ATM in Ethiopian context, especially from the perspective of information science. This is because the diffusion of the innovation of Inter-bank electronic payment knowns as EthioPay can be specifically perceived through the attitudes and actions of users.

The technology acceptance model is, used in this study, attempted to examine the factors that influenced an individual to adopt an innovation. These are Attitude, perceived ease of use, perceived usefulness, perceived risk, reliability and benefit. The essence of the use of these constructs is to empirically test and exploring factors that brought about the adoption of the innovation (Inter-bank e-payment, EthioPay). An innovation in this study is taken to mean an idea, practice, or object that is perceived to be new by a person or adopting entity

## 1.2 Research Problem Statement

The objective of this study is to demonstrate the identification of the factors that affecting the use of Inter-bank e-payment, EthioPay which is the youngest payment plat form in Ethiopian commercial banks.

Technological innovations (Norton, Reed, and Walden, 1995) are replacing the traditional ways of banking. With a greater competition brought by deregulation, globalization, and widespread mergers and acquisitions in the banking industry, more banks are focusing on developing Electronic banking. The use of Electronic banking is strongly promoted to bring about a change in consumers'' banking behaviors. Padachi et al. (2007) suggest that the choice of communication channel has an effect on the relationship between banks and their customers. For example, Hiltz et al. (1986) show that computer mediated communication is less personal

and socio-emotional than a face-to-face banking transaction and exchange. Electronic banking does not need face-to-face interaction, and this delivery channel could potentially affect a bank's ability to create a trusting relationship between their customers and the bank. On the other hand, for those customers whose relationship is primarily based on efficiency of services, electronic banking may be an attractive alternative (Padachi et al., 2007)

E-payment has become an important component for the success of businesses and financial services (Hsieh 2001, Stroborn et al. 2004, Linck et al. 2006, Cotteleer et al. 2007, Kim et al. 2010). The main reason for the popularity and importance of e-payment as compared to the traditional payment methods is its several favourable characteristics. These include security, reliability, scalability, anonymity, acceptability, privacy, efficiency, and convenience. (Chou et al. 2004, Stroborn et al. 2004, Tsiakis and Sthephanides 2005, Linck et al. 2006, Cotteleer et al. 2007). E-payment systems have gained greater recognition over time and have been deployed by businesses throughout the world (Kim et al., 2010). Having efficient payment systems is the backbone of a highly competitive country. The effort to prioritise e-payment as a national agenda is important to boost productivity and contribute towards raising a country's competitiveness (BNM 2011b).

Developed countries such as France, the US and the UK have fully developed e-payment systems; meanwhile developing countries in regions such as Africa provide the growth impetus to the industry (Kim et al., 2010). For instance, the National Bank of Ethiopia has stated that Ethiopia would achieve higher economic growth and higher competitiveness by fully migrating from paper-based payment systems to e-payments because the latter provides, among other things, opportunities to enhance productivity levels and lower the cost of doing business.

As it is clearly stated on its vision statement of E-payment, National bank of Ethiopia has a vision of creating cashless society through automation of banking services. Establishing a national payment system is an important step in the right direction towards building a better ecosystem for everybody. EthSwitch, as this network is called, is backed by the Ethiopian Banker's Association, and the National Bank of Ethiopia. EthSwitch S.C was formed in 2011, as a consortium of all the banks that were then operational in Ethiopia, including the national bank of Ethiopia (NBE), to provide a national Switch system for financial institutions. This means that a client of a single financial institution, who is the member of EthSwitch, would be

able to perform inter-bank electronic payments, including: withdrawing money from ATMs, receiving and giving money through mobile bank payments and internet banking.

However, based on my preliminary discussion with experts in the sector, the adoption of inter-bank electronic payment is seems like poor because of high transaction decline rate and long duration of dispute handling process. As the data obtained from EthSwitch reveals, of the total transaction performed 40% was not successful. This study will try to investigate the factors that may influence customers' adoption of inter-bank electronic payment system in Ethiopian banking industry

The modern E-banking Method like automated teller machine (ATMs), debit card, credit cards, tele banking, internet banking, mobile banking and others are new to the Ethiopian banking sectors. It is a phenomenon of nine years. E-banking which refers to the use of modern technology that allows customers to access banking services electronically whether it is to withdraw cash, transfer funds, and to pay bills, or to obtain commercial information and advices are not well knows in Ethiopia .

Considering the low extent of development of ICT in developing countries, when compared with the developed countries E-banking has not really been able to diffuse into society given the low rate of internet access (Banji, 2004)

Given e-payment's importance, Ethiopia, with a strong vision to advance from a developing to lower-middle-income status by 2025 through implementation of growth and transformation plan needs to promote and migrate all payment stakeholders (especially businesses and consumers) to adopt e-payment (world bank report). However, various stakeholders in Ethiopia, especially consumers, are still reluctant to fully use e-payment technology. For example, in the country's branch outlets, plenty of customers still opt to endure long queues to with draw their cash and to make transfer, rather than use the fastest and the easiest ATM and POS machines that accept electronic cards.

Though there are researches made specifically on the adoption of mobile banking, internet banking and generally on Electronic banking in Ethiopia, to the best of my knowledge there is no a study conducted on the topic which I am going to undertake.

In any case, we need to improve our knowledge of factors affecting customers' willingness to adopt national payment system and the challenges encountered by the technology service providers in providing reliable and efficient services to both parties. Understanding the determinants and the impacts of these critical factors on national payment system adoption will be important to countries seeking to migrate to e-payment. As such, in this thesis, factors that influence EthioPay national payment system adoption are empirically examined

### 1.3 Research questions

The general research questions for this study is what are the factors affecting the adoption of EthioPay payment system?

The specific research questions of this study are as follows:

- To what extent Attitude influence the adoption of EthioPay payment system?
- To what extent perceived ease of use influence the adoption of EthioPay payment system?
- To what extent perceived usefulness influence the adoption of EthioPay payment system?
- To what extent Perceived risk influence the adoption of EthioPay payment system?
- To what extent Reliability influence the adoption of EthioPay payment system?
- To what extent Benefit influence the adoption of EthioPay payment system

### 1.4 Research Objectives

Today, the electronic banking is growing rapidly in consumer banking preferences and attracts more financial institutions offering in electronic banking business in Ethiopia. Financial institutions can take advantage of electronic technology to offer cost-effective Banking solutions. However, electronic banking has not been widely adopted in Ethiopian banking business and is not as developed as developed countries. Therefore, marketers in banks and financial institutions, and academic will benefit understanding the factors which influence the adoption of inter- bank electronic banking and the relative importance of these factors.

#### 1.4.1 General objectives

The main objective of the study was to determine among which variables contributes to Adoption of EthioPay payment system. The specific purposes of this study are as follows:

#### 1.4.2 Specific objectives

- To determine the effect of Attitude on adoption of EthioPay payment system.
- To know the influence of perceived ease of use on adoption of EthioPay payment system.
- To determine the effect of perceived usefulness on adoption of EthioPay payment system.
- To examine the influence of Perceived risk on adoption of EthioPay payment system.
- To assess the effects of reliability on the adoption of EthioPay payment system.
- To determine the effect of Benefit on adoption of EthioPay payment system.

#### 1.5 significance of the study

This study expects to make several contributions to the academic literature and the banking industry. The major contributions of this study will be to identify the factors that would affect the consumers' adoption of inter- bank electronic banking payment, EthioPay in Ethiopian banking business. This study has determined the most important factors that are associated with the adoption of inter- bank electronic banking. This information should also enable banks to strategically plan their products and service offerings.

#### 1.6 The scope of the study

Initially this study will be confined itself for surveying interviewing and documentary analysis of the purposely selected banks, five commercial banks which are accepting EthioPay payment system were purposely selected, one state owned bank & four private banks and exclude other financial institution to explore the intent of the study. Convenience sampling technique has been used to select respondents.

The study was conducted in the city of Addis Ababa only and focused only on factors affecting in the adoption of inter- bank electronic banking, EthioPay payment system in Ethiopian commercial banks in the case of some selected banks.

## 1.7 Organization of the study

The study is organized in to five chapters. The first chapter deals with background of the study, statements of the problem, objective of the study, the research questions, and scope and significant of study, limitations of the study, and definitions of terms and organization of the research. The second chapter presents previous related research done on e-banking, and its adoption both which done in the country and outside country (empirical study) and theoretical background of issues related to e-banking. The third chapter explains types and source of data used for the study, sampling techniques used to determine the sample size, method of statistical data analysis tools and collection. The fourth chapter presents the analysis and result of the study that are arrived using descriptive and inferential statistical tools. The last chapter presents conclusion and recommendation of the study.

## Chapter 2 Literature Review

### Introduction

The purpose of this chapter is to review the literature in the area of E-banking adoption and mainly focused on factors affecting of adopting the adoption of EthioPay national payment system. This review of literature establishes the theoretical frame works for the study and highlights different frame works used in different studies.

#### 2.1. The evaluation of E-banking

Electronic innovation in banking industry can be traced back to 1970, when the computerization of financial institution gained momentum (Malak 2007). However; a visible presence of this was evident to the customers since 1980, with the introduction of automated teller machine (ATM). Innovative banking has grown since then, aided by technological developments in the telecommunications & information technology industry. The early decade of the 1990's witnessed the emergence of automated voice response (AVR) technology. By using AVR technology, banks could offer telephone banking facilities for financial services with further advancements in technology, banks were able to offer services, through personal computer (pc) owned & operated by customers at their convenience, through the use of internet property software. The users of these services were, however, mainly corporate customers rather than retail ones (Sohail & Shanmughan 2003). The security first network bank was the first internet banking in the world that was built in 1995, USA. After that some famous banks introduced their internet banking one after another, such as Citibank and bank of America

##### 2.1.1 Intention

Theory of Reason Action (TRA) was suggested by Fishbein and Ajzen (1975) that a behavior is predicted by a person's intention to engage in a given intention that linking by two factors, the individual's attitude towards the given subjective norms and behavior.

Intention is the component that expected actually influenced by the element of attitude of the individual and subjective norms. Besides that, intention can serve as motivational factors that

influence behaviors on how much effort people are willing to try that resulted to carry out the behaviour. According to research by Sun (2003) which had proved that behavioral intention that use to measure of actual usage is valid and reliable. TRA theorizes that a particular behaviour is anticipated by an individual's intention to participate in. Several studies have being theoretical to have better understanding the relationship between belief structures and backgrounds of intention by examining methods to decomposing attitudinal views (Chau & Hu, 2002; Taylor & Todd , 1995).

According to Dahlberg and Holmberg (2014), Theory of Planned Behaviour (TPB) model had pointed out that diffusion or acceptance theories provide determinants in evaluating the payment habits. Other than that, TPB also is a model that measure intention to adopt payment habits based on evaluating beliefs.

Based on the research done by Norman and Conner (2006), variables consists in TPB success to prove that there is variance in intentions, 66 per cent with self-efficacy, attitude and perceived control over all significant variables. In addition, Venkatesh and Davis (2000) had stated that the intention will effect on the usage behaviour. There are certain users will likely more prefer convenient and user-friendly system as attribute of choices. Moreover, the intention to use may influence by other individual difference and system characteristics variables when users make decision to use.

In addition, information systems (IS) researchers had applied intention models from social psychology in forecasting an individual's intention to adopt the technology (Harrison et al., 1997). Behavioural intention is affected by attitude based on performance, or subjective norm and also by perceived behavioural control (Chiou, 1998). Intentions are meant to affect by few determinants. Firstly, attitude is related to consequences of people's behaviour. Secondly, subjective norm is individual's enthusiasm of performance in accordance with the referents. The third determinants are perceived behavioural control of the important person in a decision making that might affect another's behavioural intentions.

### 2.1.2 Attitude

Attitude is a measurement toward behaviour refers to the level of positive or negative of evaluation or valuation on the behaviour. Davis et al. (1989) had proposed that an individual's

overall attitude towards information technology and the applications is main factor define whether user uses that system. This is supported by the research done by Abrazhevich (2001) that users' perception on e-payment are highly depend on user's attitude that will effect on the acceptance. This also determines the perceived ease of use of the IT application based on attitude toward use.

According to summers (1977), attitude is defined with three modern terms in which consist of cognitive, tendency of action, and emotional. Meanwhile, Cook et al... (2002) had proposed the most important factor is attitude will effect on intention. This is further support with study done by Dejaeghere and Hooghe (2012) the measurements of attitudes implemented by social psychologists and social scientists are include to figure out the anticipate social behaviour. Social behaviour is included in behavioral component that how a person acts towards the attitude. In addition, cognitive component is indicate as what a person's think on and belief on handling the object and emotional is how a person feels toward attitude.

Fishbein and Aizen (1975) had stated attitude towards adopt a technology is through an individual evaluate shape of his attitude. Adopters seek enjoyment by using an appropriate technology when they are aware of their interests and needs (Bhattacharjee, 2000).

According to Al-Gahtani (2001) had stated perceived usefulness is a main factor that influence of user attitude which revealed comparable findings. This is further explained that users would more enjoy using a technology or system if they were able freely access to the information and services.

Previous researcher had highlighted innovation opinions such as complexity and compatibility that were important to improve user attitude (Roger, 1995). Khalil and Pearson (2007) had further stated that findings that trust, complexity and trial ability will have significant influence user attitude.

Eastin (2002) had proved that customers will usually take on a new service that has similarity with what they had experienced before in the prior adoption of IT. In terms of feasibility if technology, security, trusts and efficiency will also influence adoption of e-payment

### 2.1.3 Perceived Ease of Use

Perceived ease of use is the point that in trust with utilizing a specific framework would be free from effort. (Davis et al 1989; Venkatesh & Davis, 2000). Gefen (2000) recommended perceive ease of use as an indicator of the cognitive effort that needed to exploit and learn new Information Technology. Many studies such as Legris et al. (2003) and Zhu et al. (2011) have defined that a user-friendly technology or system which easier to use and apply are more likely beneficial.

In addition, Gao et al. (2004) findings shown perceive ease of use is categorized as the subjective understanding by the customers that required learning and utilizing the website. Thong, Hong, and Tam (2006) and Chiu et al. (2009) had proved that perceived ease of use influence in repurchase intention. For the reason, Guriting and Ndubisi (2006) found that in Malaysia context to use e-payment, perceived ease of use had a significant positive relationship on the behavioural intention of Malaysians.

According to Ainscough (1996), the good connection is an important measure that invites users in e-payment delivery in contact with customer interactivity. Jun and Cai (2001) findings that stated delay of service delivery or slow response time of the e-interaction lead consumers experience or felt uncertainty about whether or not the transaction is done.

Abrazhevich (2001) had concludes that an effective design of e-payment systems in terms of usage is important to attract users' adoption towards e-payment. Hence, perceived ease of use is being said to have a significant relationship with the intention to adopt EthioPay national payment system

### 2.1.4 Perceived Usefulness

Many researchers defined that perceived usefulness in the extent to which an individual have confidence in that using an appropriate system would increase his or her job performance (Davis et al. 1989; Doll, Hendrickson, & Deng, 1998; Erikson et al. 2004; Henderson & Divett, 2003; Lee et al., 2006; McKechnie et al. 2006). This is further support by Gefen and Straub (2003) that stated perceived usefulness is a measure in the brand new information technology in a precise task in related to the context that offered by of the individual's subjective appraisal of the value.

Perceived usefulness is a form of external motivation and encouragement that refers to the potential adopter perceives the use of certain system to be beneficial in enlightening his or her performance (Davis et al., 1989). Additionally, individual are more likely to adopt the technology if the overall improvement on job can result in usefulness in productivity and job efficiency.

In a previous study by Agarwal and Venkatesh (2002), usability indicates the quality of websites while from Szymanski and Hise (2000) study stated that usability factors like site design were strong indicators of satisfaction. The website design has connection with the usability of the system that leads to ease of use. E-payment systems should made users felt impersonal about user friendliness and ease of navigation in order to increase usability.

Hence, based on Davis et al. (1989) findings stated that e-commerce user's decision making on adoption the e-payment system is influenced by perceived usefulness. User's intentionally adopt on e-payment is influenced by perceived usefulness had been proposed in substantial amount of studies.

#### 2.1.5 Perceived Risk

Consumer behavior studies define perceived risk (PR) in terms of the customer's perception of the uncertainty and potential adverse consequences of buying a product or services. The degrees of risk that customers perceive and their own tolerance of risk tacking are factors that influence their purchase decision (Nasri, 2011). On another hand, introducing a new technology may involve both benefits and risks to the user, and before deciding to adopt the technology, the individual may want to weigh risks and benefits. Inter-bank electronic banking services will not be an exception to this general rule. A larger perception of risk will reduce the perceived benefit of the technology (Horst et al. 2007).

Previous studies mentioned that perceived risk was a major factor that influences the adoption of electronic banking services (Polatoglu and Ekin, 2001; Tan and Teo, 2000). Featherman MS and Pavlou PA (2003) defined perceived risk as the potentiality of loss in the pursuit of a desired outcome of using electronic services. It increases with the higher level of uncertainty or with an increased chance of negative consequences (Lu et al., 2005).

Most of the researchers noted that customers' perceived risk was a kind of multi-dimensional construct, and such dimensions may vary according to the product or service type. Five dimensions of perceived risk have been identified in the previous studies (Featherman MS and Pavlou PA, 2003; Kuisma et al., 2007; Lu et al., 2005; Natarajan et al., 2010). These dimensions are: performance risk, social risk, financial risk, privacy risk and time risk. Performance risk refers to losses incurred deficiencies of electronic services. Customers are often worried that a break down in the system servers will occur while conducting electronic services, because these situations may result in unexpected losses (Kuisma et al., 2007).

Littler and Melanthiou (2006) noted that a break down in the system could reduce customers' willingness to use online banking. Social risk refers to the potential loss of status in one's social group as a result of adopting a product or service (Featherman MS and Pavlou PA, 2003). It is possible that one's social standing may be enhanced or diminished depending on how electronic banking services are viewed. Yang et al. (2007) found that social risk has a negative impact on attitude for consumers.

Financial risk is defined as the potential for monetary loss due to transaction error or bank account misuse. Many customers resist using online banking because they fear from such losses (Kuisma et al., 2007). Privacy risk refers to the potential loss of control over personal information which is used without knowledge or permeation (Featherman MS and Pavlou PA, 2003). Horst et al. (2007) stated that the greatest challenge of the electronic banking sector will be winning the trust of customers over the issue of privacy and security.

Finally, time risk refers to the loss of time in implementing, learning how to use and troubleshooting a new electronic service (Natarajan et al., 2010). Consumers are less likely to adopt an electronic service that they consider having high setup and maintenance costs (Featherman MS and Pavlou PA, 2003).

Kurnia and Benjamin (2007) recognize the security concerns of users will affect the adoption of e-payment systems. Furthermore, respondents mentioned that they would reject to use online transactions if they encountered any breach of security. However, the significant relationship in between security and intention of using e-payment systems was substantially perceived in a particular study.

Therefore, by enhancing and developing better and safer security level in the systems could conveniently encourage customers to begin with switching to an e-payment system.

#### 2.1.6 Reliability Factor

Leelapongprasut et al. (2005) indicate that in Thailand, the three most important dimensions of quality in Internet banking are: reliability, serviceability, and durability. Reliability involves consistency of performance and dependability which means that the banking firm performs the services right the first time and honors its promises (Khan, 2007). Reliability involves accuracy in billing and information, keeping records correctly, performing the service at the designated time (Zeithaml et al. 2002; McKinney et al., 2002). Reliability is associated with the technical functioning of the e-banking site, particularly the extent to which the site is available and functioning properly.

Sathye (1999) and Polatoglu and Ekin (2001) find that the reliability dimension is an important factor for consumers who use electronic banking. Furthermore, Sathye (1999) and Liao and Cheung (2002) find that reliability is positively related to the use of electronic banking.

#### 2.1.8 Benefit

Chou et al. (2004) proposed the benefits as significantly important component for e-payment systems usage and adoption. Users only need to pay minimum online transactions fees to the particular banks that offer the services. This is one of the benefits that online transaction is low cost (Gerrard & Cunningham, 2003; Sonia San-Martín et al., 2012; San-Martin & López-Catalán, 2013)

According to Eastin (2002), who proposed four e-commerce online activities such as in the area shopping, banking, investing, as well as e-payment systems had found that convenience and financial benefits in term cost will influence on the adoption decision. This is further supported by the researchers Gerrard and Cunningham (2003) that view perceived benefits in term economic that include fixed and transaction costs in implementing e-payment. Chou et al. (2004) had further explained fixed costs as cost of installing e-payment equipment such as the

readers and software and this cost of transaction need to bear by the merchant and customers in every single business transaction.

Chakravorti (2003) stated that important of users' to keep, spend and transfer the money value in a convenient way through payment systems that save more cost and time. Nevertheless, some researchers claim that e-payment is costly in terms time and cost develop new technology (Kim et al., 2009). Hataiseree (2008) found that consumers tend to choose cash and cheques as common payment modes due to consumers are not convince in the benefits of adopt e-payment.

According to the 2016 Visa Consumer Payment Attitudes survey, there are 73 per cent Malaysian from urban area are reported with cash pay for personal expenses, regardless of high level of internet or mobile penetration across the area. According to the research done by Teoh et al. (2013), statistics of e-payment usage in Malaysia has showed that Malaysians are aware of gradually adoption from using cash payment to e-payment due to various reasons. The report show that convenient use of credit that involve transactions and minimize the users' cash balances are the main reason user convert to e-payment.

## 2.2 Review of Relevant Theoretical Models

### 2.2.1 Information System Acceptance Model

Many researchers have been used different frame works in the study of adopting new technological innovation. Among frameworks that have been developed based on the past studies includes, the Technology-organization-Environment framework (TOE) and Technology acceptance model (TAM)

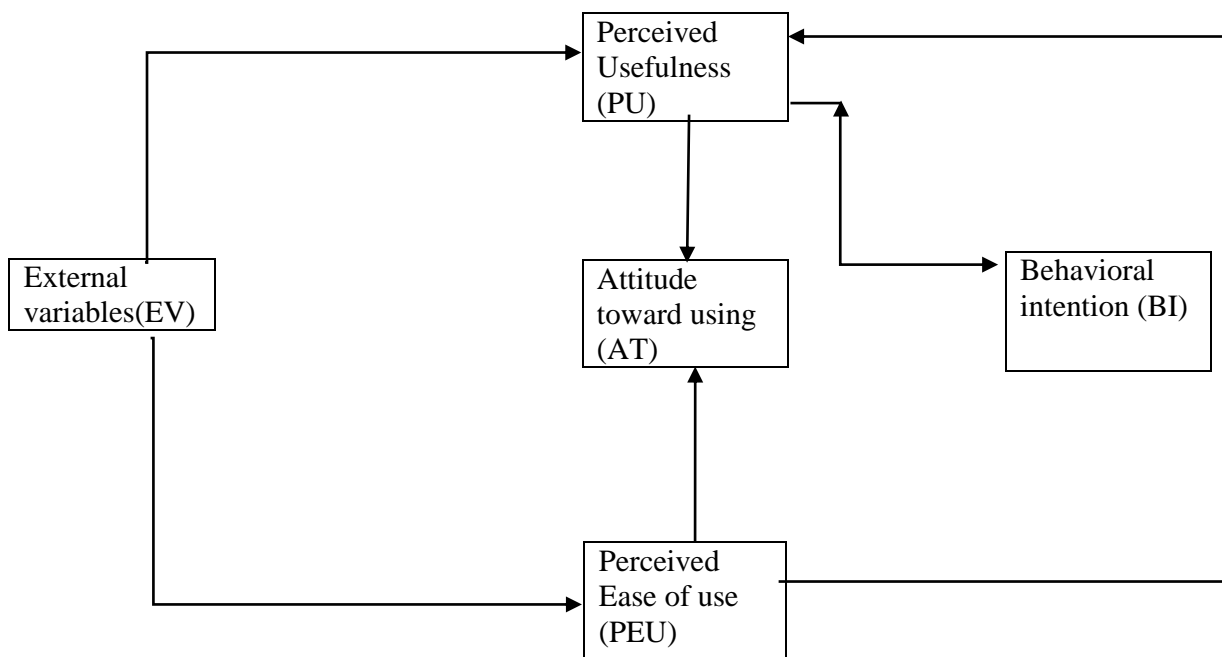
In this study, Technology acceptance model (TAM) and the Technology-organization-Environment framework (TOE) are commonly used in theoretical model. According to Kim and Malhotra (2005), over the past 20 years these few models are used as the theoretic basis of informative system acceptance.

### 2.2.2 *Technology Acceptance Model (TAM)*

To understand, predict and explain why people accept or reject information systems; researchers have developed and used various models to understand the acceptance of users of

the information systems. The technology acceptance model (TAM) that was introduced by Davis et al. (1989) is one of the most cited models that researchers used to study underlying factors that motivate users to accept and adopt a new information system (Al Shibly, 2011). The primary goal of TAM is to provide an explanation of factors affecting computer applications' acceptance in general. In addition, this model helps researchers and practitioners to identify why a particular system is unacceptable (Davis, 1989). Davis suggested that using an information system is directly determined by the behavioral intention to use it, which is in turn influenced by the users' attitudes toward using the system and the perceived usefulness of the system. Attitude and perceived usefulness are also affected by the perceived ease of use.

According to TAM, greater perceived usefulness and the perceived ease of use of an information system will positively influence the attitude toward this system. The attitude, in turn leads to a greater intention to use the system, which positively affects one's actual use of the system. TAM supposes that, other thing being equal, perceived usefulness is influenced by the perceived ease of use because the easier a technology to use, the more useful it can be



**Figure: 2:1. Technology acceptance model**

*Source: Davis et al. (1989)*

The technology acceptance model (TAM) has been used to decide the decisions to adopt on various e-commerce activities and to understand technology acceptance behaviour (Abrazhevich, 2004; Khalifa et al., 2008). Davis et al. (1989) studies on perceived usefulness and ease of use are consistent and relevant with many studies on TAM model that will be the important reasons for the expansion use of e-payment systems.

Individual see the implementation of technology differently in perceived usefulness and perceived ease of use. Individual perception on improvement in career achievement for perceived usefulness while perceived ease of use is how least effort to use a technology (Davis, 1993).

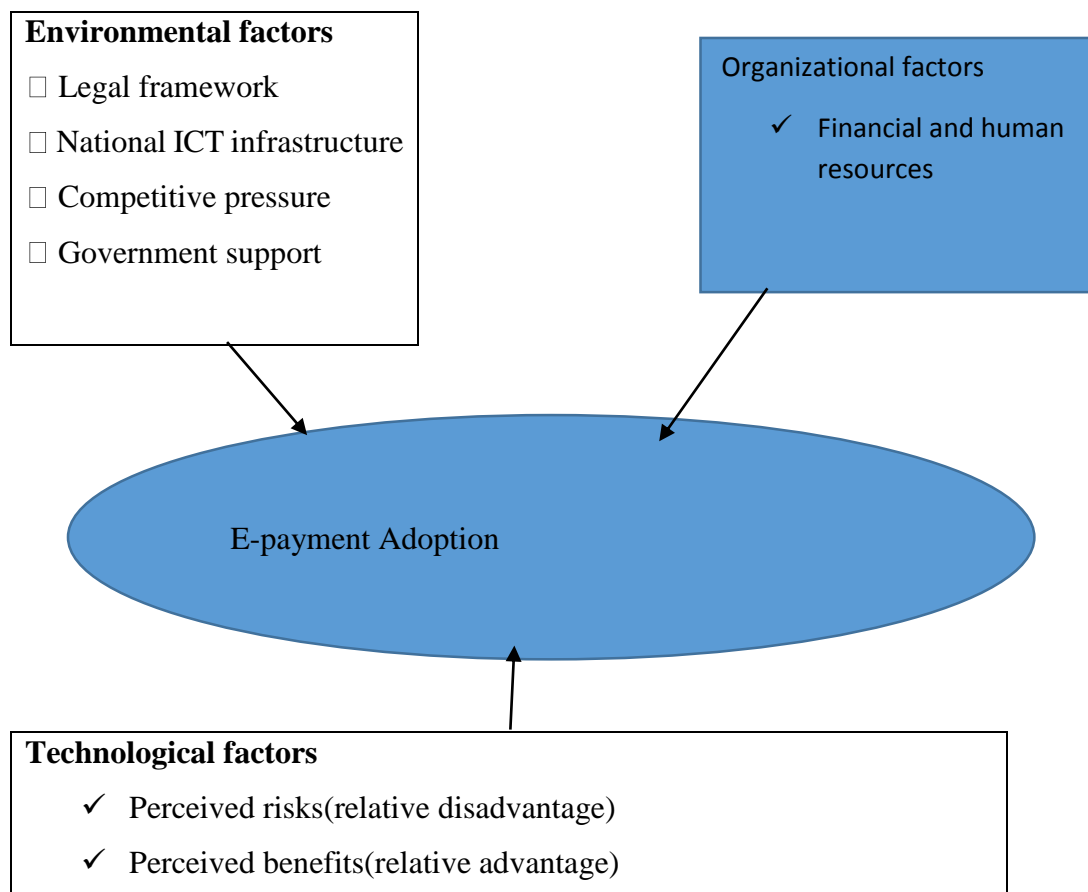
TAM model have better capability to explain attitudes towards using an information system compared to TRA model and TPB model (Mathieson, 1991). TAM model is a precise research framework (King & He, 2006). In order to study user acceptance of different technologies, TAM model had been applied based on a variation of variables.

### 2.2.3 Technology – organization – environment framework (TOE)

The Technology-organization-Environment framework (TOE) (Tornatzky & Fleischer 1990), is among frameworks that have been developed based on the past studies and has identified three basic Factors for the adoption of technological innovation, i.e, technological factors, organizational and environmental factors.

TOE framework was proposed by Tornatzky and Fleischer; it is designed for studying the likelihood of adoption success of technology innovations. This framework is a comprehensive and well received framework in the context of innovation adoption by organizations and has been used in many studies (Salwani, *et al*, & Ellis 2009; Chang *et al* 2007, Zhu & Kraemer 2006).

According to Tornatzky and Fleischer (1990), technology adoption within an organization is influenced by factors pertaining to the technological context, the organizational context, and the external environment. Based on this, the researcher adopts the TOE framework to summarize possible key factors affecting E-banking adoption as shown in Figure 2.2.as follows



**Figure: 2:2. Technology-Organization-Environment framework**

**Source:** Tornatzky and Fleischer (1990)

The *technological factor* refers to adopter’s perception of E-banking attributes. Typical characteristics of technology considered in technology adoption studies are based on the assumption of Roger’s diffusion of innovation (Rogers 2003), Which include relative advantages (perceived benefits), and relative disadvantages (perceived risks).While the *organizational factor* refers to the organization’s characteristics that influence its ability to adopt and use of E-banking system. The *environmental factor* refers to the external environment in which an organization operates and its condition for supporting the development of E-banking services.

### 2.3. Empirical Evidences

Some related studies are conducted by different researchers in different parts of the world. However, there are limited numbers of studies conducted in Ethiopia on the adoption of technological innovation. Specifically, Gardachew (2010) conducted research on the

opportunities and challenges of E-banking in Ethiopia. The aim of his study was focused on analyzing the status of electronic banking in Ethiopia and investigates the main challenges and opportunities of implementing E-banking system. The author conducted a survey on the existing operating style of banks and identifies some challenges of using E-banking system, such as, lack of suitable legal and regulatory frame works for E-commerce and E- payments, political instability in neighbouring countries, high rates of illiteracy and absence of financial networks that links different banks.

Wondwossen and Tsegai (2005) also studied on the challenges and opportunities of E-payments in Ethiopia; their objective was studying of E-payment practices in developing countries, Africa and Ethiopia. The authors employs interview and on site observation to investigate challenges to E-payment in Ethiopia and found that, the main obstacles to the development of E-payments are, lack of customers trust in the initiatives, Unavailability of payment laws and regulations particularly for E-payment, Lack of skilled manpower and Frequent power disruption. According to Wondwossen and Tsegai (2005), an adequate legal structure and security framework could foster the use of E-payments, which is contradicting with the finding of the previous study.

On the other hand the study conducted by Daghfous and Toufaily (2007) on the success and critical factors in adoption of E-banking by Lebanese banks. The research was conducted on the factors that can lead to success the adoption of E-banking and the other factors that can constitute as barrier to its adoption, it focus on the organizational, structural and strategic factors which can accelerate or, on the contrary, slow the adoption of this electronic mode of distribution and communication by the banks, through analyzing the case of the Lebanese market. In order to test the validity of the theoretical framework, structured survey was used, interview questionnaire that was given to E-banking managers or to information technology managers of all the banks on the official list of institutions operating on the Lebanese market, with a total of 57 banks, 31 of them operate internationally and 26 are strictly local were used to gather data. The results of their study shows that the organizational variables (bank size, functional divisions, technical staff, technical infrastructure, perceived risks, decision makers` international experience and mastery of innovation) are variables which exert significant impact on the adoption of E-banking, among the structural characteristics, the result revealed that internal technological environment of the bank is a very important factor in determining the adoption of E-banking, also the result shows that banks which are developing in the

international scale are more likely to adopt E-banking innovations. Finally the result of the study indicated that extent of penetration of E-banking in the growth phase of an emerging market has an important correlation with the improvement of commercial performance.

The other descriptive case study analysis conducted by Khalfan *et al* (2006) on 'Factors influencing the adoption of internet banking in Oman, aimed to identify the main potential factors or impediments that are currently inhibiting the incorporation or adoption of E-commerce applications in the Omani Banking sector. Data, used in their study were collected using semi structured interviews and survey questionnaire as well as reviewing some bank documents. The results of their study provide a Pragmatic picture about the adoption of E-Commerce applications in the core financial sector domain of Oman. One of the main findings is that security and data confidentiality issues have been a major barrier. The banking sector was reluctant to use E-commerce applications as they felt that transactions conducted electronically were open to hackers and viruses, which are beyond their control. Lack of top management support is the other inhibiting factor in the adoption of electronic commerce applications as per their finding.

The study of Shah *et al.* (2005) on critical success factors (CSF) in E-Banking conducted in United Kingdom, aims to determine the critical issues related to financial sector organizations when they establish businesses online. The survey method was used by researchers which target the financial sector in the UK. The study indicates that Understanding the CSFs in E-banking is important for senior management of banking related organizations, because it would potentially help them improve their strategic planning process. The analysis of the study indicates two major types of statistical analyses were conducted, descriptive statistical analyses and factor analysis. In descriptive analyses, the factors (or variables) were ranked in order of their mean score, the highest score being the most important and so on. The top six factors in order of importance were: user-friendly website, systems security, support from top management, fast responsive customer service, promotion of electronic commerce within organization, and all time availability of services and rapid delivery of services.

Factor analysis, which was done to group together, related variables to uncover factors (in terms of factor analyses), found the following factors to be critical for the success in E-banking. Issues related to organizational flexibility and speed of services delivery were found to be at

the top of the importance list. Business processes and systems integration and enhanced customer services were next in the list of importance.

Gerrard *et al.* (2006) in their study in Singapore identify risk to be an important factor for Internet Banking adoption. All respondents who did not use Internet Banking services had a negative perception of the security in Internet Banking. The respondents perceived that there were many security risks when using the internet. They felt the privacy was a concern, feeling all their financial information could be in jeopardy. Risk was one of the two most frequently mentioned factors in their study, "Concern about risk was mentioned by all respondents. An empirical investigation conducted by Sathye(1999) on the adoption of Internet Banking by Australian consumers also identified, security concerns as key factor in internet banking adoption. A report on Internet Banking in Australia finds that, security concerns among banks and customers are keeping both away from Internet Banking" Sathye (1999).

The study of Kerem (2003) on the adoption of electronic banking: underlying consumer behaviour and critical success factors conducted in Estonia, was intended to study the further understanding of, how consumers perceive electronic banking in the heyday of interactive channels in Estonia, as Estonia is internationally renowned for being a pioneer in the acceptance of new technologies. A series of an in depth interviews was conducted with leading industry experts in Estonia. The selection criterion for the respondent was mainly their involvement with the development of Internet banking systems from the early days of its emergence. The survey conducted for this research addressed six different issues influencing the adoption of Internet banking (Better prices, Recommendations, Better service, Marketing efforts, Better access and higher privacy). The most important factors in starting to use Internet banking are first and foremost better access to the services (convenience), better prices and higher privacy. Better service (i.e. preferring self-service over office service) was also of above the average importance. Two factors that the respondents did not consider relevant to their adoption decision were banks' marketing activities and personal recommendations from friends and colleagues.

Also the survey conducted six main obstacles (computers are difficult, no access to internet, internet banking is expensive, low security, have had no chance to try and I prefer personal contact) in adopting Internet banking (results of a preliminary study, 100 respondents), the most important factors discouraging the use of Internet banking are lack of Internet access and

not having a chance to try out Internet banking in a safe environment. Finally the research indicates that banking activities alone may not be sufficient in achieving growth if general infrastructure, economic environment and government initiatives are not supportive. The research conducted on identifying the attitudinal, social and perceived behavioural control factors that might influence the adoption of Internet banking by Hoppe *et al.* (2001) were based on theory of planned behaviour (TPB) and the diffusion of innovations theory (DIT) developed by a previous research in Singapore.

The aim of the study was to collect South African data in order to test out the hypotheses regarding the factors, which affect adoption of Internet banking and compare these results with those collected in other countries. Online questionnaire was used to collect empirical data and the results of the study shows that intention to adopt Internet banking can be predicted by attitudinal factors, perceived behavioural control factors to a lesser degree, and not by subjective norms. All attitudinal factors except banking needs are found to be significant, with complexity and risk showing a negative relationship.

In general, Review of Empirical studies shows that understanding the critical success factors (CSFs) in E-banking is important for banking industries because it would potentially help them improve their strategic planning process.

The main obstacles and barriers that oppose E-banking adoption are the concerns of security, privacy of information and technology investment cost. Also the literature indicates that according to the customers there are different factors that influencing the adoption of E-banking such as, perceived advantages and other factors related to the services itself & how to be accepted and used by the customers, which differ from country to country, reflecting the economic and technological development in each country.

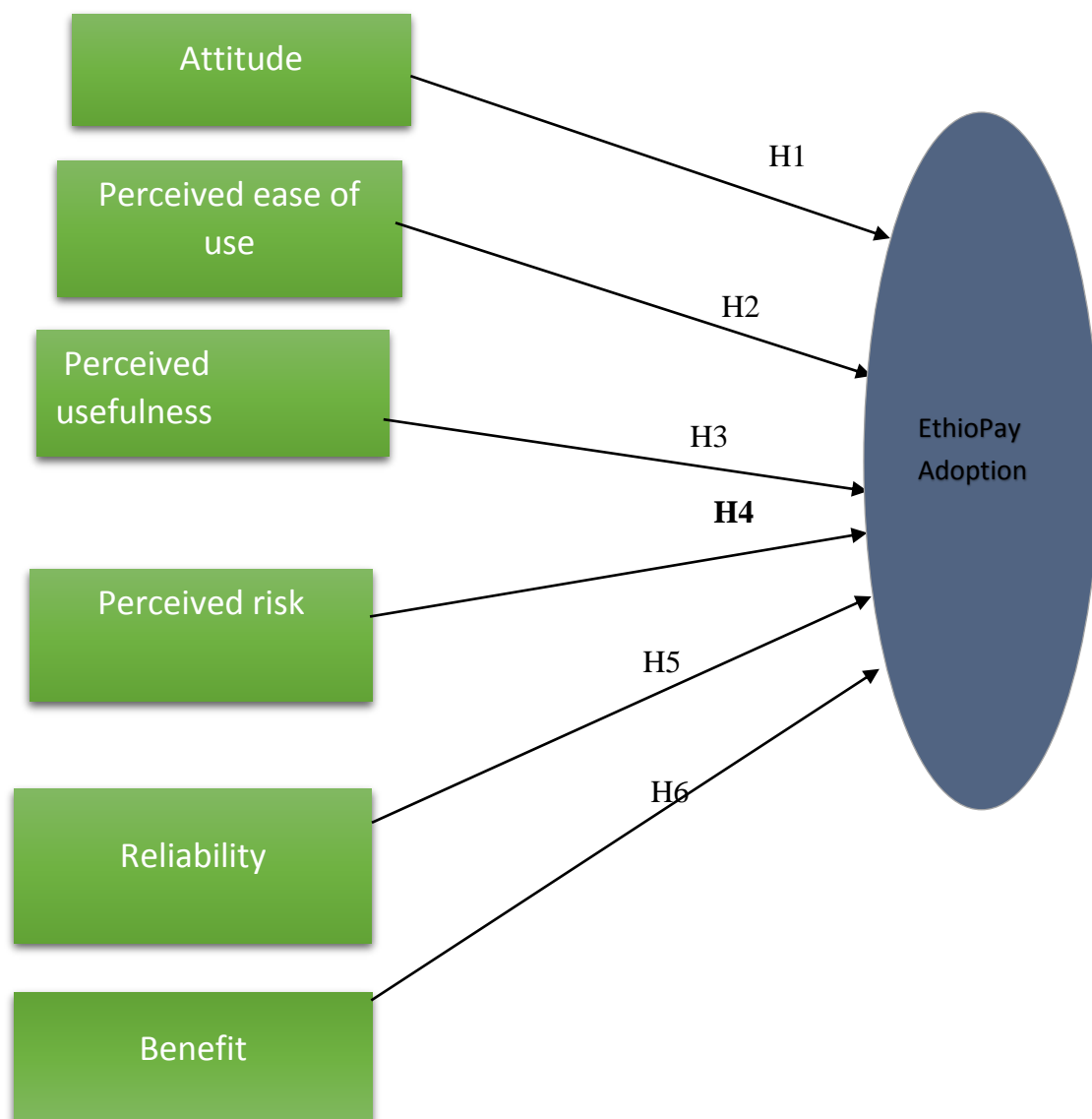
In this study researcher will identify the main factors influencing adoption of EthioPay national payment system in Ethiopian banking industries by using survey and conducting interview with key staffs of the selected banks.

## 2.5. Proposed theoretical / Conceptual framework

The study mainly concerned on factors affecting the adoption of EthioPay National payment system and it deals with theoretical framework and overview of related concepts. For each context, various factors have been identified from the literature but only those that are considered relevant for EthioPay national payment system adoption are included in the framework.

The below conceptual framework shows the relationship between dependant and independent variables.

### Determinants of EthioPay national payment system adoption



### ***Figure 2.3: proposed conceptual frame work***

Source: The researcher

The figure above is to study the relationship between dependent and independent variables for the conceptual framework. The figure shows the conceptual framework is the essential basis of this research project. TAM and TOE model are implemented in this research to form the research framework.

## **2.4 Hypothesis Development**

Based on the proposed research model, the following research hypotheses in the context of adopting inter- bank card transaction (EthioPay payment) are formulated.

- H1: There is a positive and significant relationship between attitude and intention adopt EthioPay payment system.
- H2: There is a positive and significant relationship between perceived ease of use and intention adopt EthioPay payment system.
- H3: There is a positive and significant relationship between perceived usefulness and intention adopt EthioPay payment system.
- H4: There is a negative and significant relationship between perceived Risk and intention adopt EthioPay payment system.
- H5: There is a positive and significant relationship between reliability and intention adopt EthioPay payment system.
- H6: There is a positive and significant relationship between benefit and intention adopt EthioPay payment system.

## Chapter Three: Research Design and Methodology

### 3.1 introduction

This chapter is all set to define the whole procedure through which the research came in to the real shape by explaining the description of the study area, research approaches, Research design, population and sample size, data sources and types, data collection and data analysis methods and furthermore this chapter includes methodological assumptions, so this whole chapter elaborates the kind of systematic way, through which this research was successfully analyzed and resulted.

### 3.2 Description of Study Area

This section describes the banking environment in Ethiopia with respect to technology adoption. The banking industry in Ethiopia is controlled by the National bank of Ethiopia (NBE) acting as the central bank of the country. As per NBE data there are 18 commercial banks registered under the NBE up to date which are connected under EtSwitch and giving inter-bank card payment service named as EthioPay , these comprises 1 state owned banks and 17 other private commercial banks. Five banks are selected for this study and the study focuses on the city of Addis Ababa.

### 3.3. Research approach and design

The study was explanatory and quantitative in nature; the method descriptive and explanatory and research has been quantitative in nature and has typically tested prior hypotheses by measuring relationships between dependent and independent variables, aimed to develop a better understanding on factors affecting the adoption of electronic payment from the customer point of view.

Since Quantitative research approach is usually associated with the collecting and converting data into numerical form as a result of which statistical calculation can be made and conclusions are drawn. Statistical approaches methods were used so as to generalize findings from samples to population of interest. The research was relay on the results which were found with the numeric values and magnitude of the developed constructs measured using questionnaires, thus in order to investigate the objective of the study and test the hypothesis explanatory method is the best suited.

### 3.3.1 Quantitative Research

This research is quantitative in nature, which relevant information is collected from the respondents through questionnaires in order to see which of the variable has more impact on adoption of EthioPay. Primary data were collected through the close ended questionnaire. In this study data of independent variable and dependent variable were collected from the customers of different banks, the selected banks

### 3.3.2 Descriptive Research

Descriptive research are suitable in this study because the researcher could survey a representative sample to expand understanding of factors affecting cardholders of the selected bank customers to use EthioPay. Besides, relationships among variables are also being examined in this study.

According to Burns and Bush (2006), descriptive research is appropriate for large population study's finding that that recognizes the cause of phenomena that will help in defines the variability in dissimilar phenomena during the research. The main purpose of the descriptive research is verify current situation through developed hypothesis.

## 3.4 Population and sample

### 3.4.1 Population

Commercial banks which are operating in Ethiopia are the target population for this study. Sample was drawn purposely from the total population to get rich evidence. As it is known and the present NBE data shows, the total number of Commercial Banks operating in Ethiopia are eighteen. Since all commercial banks have started accepting interbank cards through their ATMs, the study took samples from the selected five banks.

The procedure used for drawing the sample from the available lists were based on the banks current number of card holders and use different technological instruments to deliver service for customers. For this research estimated population is 1,300,000 local card holders of banks customer

### 3.4.2 Sampling technique

In this study, purposive sampling techniques method has been adopted to draw the sample from the population and to collect response from respondents. The population of banks were purposely sampled from commercial Banks in Addis Ababa. Of the total eighteen commercial banks, five banks are used as a sample unit because the selected banks are the pioneers accepting inter-bank electronic payment system, EthioPay. The researcher chooses to take 5 banks; one state owned bank and four private banks namely, commercial bank of Ethiopia, Dashen Bank, Wegagen Bank, Awash International bank, lion international bank as a sample. Krejcie Morgan table has been used to select the sample for research, At 1,300,000 population sample size of 384 were taken into for the collection of data from the respondents to see their intention on the benefit and challenge of adopting EthioPay payment system in Ethiopia.

### 3.5 Data sources and types

Depending on the objective and research question of the study primary, secondary and tertiary source of data were used. Primary data was collected from customers through a structured questionnaire, with a five point Likert scale. Respondents were provided with self-administered questionnaires to complete.

The Secondary data were collected from annual report of the organization. On the other hand, tertiary data were collected from books journals articles, full research paper, internets which discuss the theoretical framework of factors that influence customer's intention to adopt EthioPay payment system.

#### Questionnaires:

As indicated in the above, the customers of the purposely sampled 5 commercial banks are included in the survey. Questionnaires were distributed to 384 customers of 5 purposely sampled commercial banks. Questions were presented in the form of affirmative statements, relating to the concepts on interbank card payment system and to identify their intention on the challenge and opportunities of using EthioPay payment system, in such a way to enable measurement of the respondent's opinions. The respondents will be asked to indicate their level of agreement on a five point linker scale with the following ratings. Strongly agree (SA; or 5),

agree (A; or 4), neutral (N; or 3), disagree (DA; or 2), and strongly disagree (SD; or 1). The numbers will be indicated in the questionnaires to provide a feel of ordinal scale measurement and to generate data suitable for quantitative analysis. The questionnaire will be a close ended questionnaire to elicit guided responses and for easy analysis

#### Secondary data Sources:

The data was obtained mainly from records and reports of the industry, from the website, books, articles and journal.

### 3.6 Data collection procedures

Questionnaire is used for data collection. This research paper intended to examine the main factors affecting the adoption of EthioPay national payment system in five selected banks of both state owned and private commercial banks. To undertake this research, the specific methods of data collection were survey and document sources. Survey for the quantitative strategy were used through distributing self-administered questionnaires to 384 sampled customers of the five selected banks.

#### Measurement and instrument selection

The questionnaire has been used to collect the information for respondents, for measurement, the researcher quantified the respondent's response with the help of Likert 5 point scale. Ranging from (1=strongly disagree to 5=strongly agree)

#### Data Analysis Software used

In this research, the research have used Microsoft Excel and Word software version 2007, and SPSS version 22 coding software to find the results for this research study, and this SPSS helped me to find the Impact of the all variables on the adoption of EthioPay payment system, and understand the influence and relationship between the independent variables on the adoption of EthioPay payment system.

### 3.7 Method of data Analysis

This chapter deal with the data returned from Customers of the five selected commercial banks the first section of this chapter will introduce the demographics information. In the administration of survey, participants' demographics data were collected along with Adoption of EthioPay payment system and Attitude, Perceived ease of use, perceived usefulness, Perceived Risk, Reliability, perceived benefit. The motive of collection of these demographic data was to knowing the general information about the customers of Banks. Those demographics data consisted of participants' age, gender, education and occupation, further analysis such as descriptive analysis, reliability test and inferential analysis are used to examine the data in this study

#### 3.7.1 Descriptive Analysis

Frequency distribution analyses will summary the data on demographic of the sample. In order to summarize the particular value which the number of times of a variable occurs frequency distribution is implemented in this study. Hence, all information gathered will be listed inform of table after all the analyses are done.

#### 3.7.2 Reliability Test

The internal consistency of the instrument was tested via reliability analysis. Cronbanch's coefficient alpha is an internal consistency estimator where the value exceed 0.60 (Hair, 1995) is the lower limit of acceptability

#### 3.7.4 Inferential Analysis

Inferential statistics is conclusion through analyses and observation on a sample that draw from a population. In this study, SPSS is implying to conduct the following analysis: Pearson's Correlation Analysis and Multiple Regression.

## Chapter Four

### Data Presentation, Analysis and Discussion

#### Introduction

This chapter consists of the analysis of results and data that are relevant to this study. In this chapter, the results obtained in the study are analyzed, presented and interpreted in detail. The collected raw data were analyzed through SPSS version 22 software. This chapter consists of four main parts, which are descriptive analysis, factor analysis, reliability test, and inferential test to analysis this research data

This chapter begins by presenting reliability test, background information on the respondent statistics under demographic variables, followed by descriptive statistics, Pearson correlation matrices, multiple linear regression analysis and hypotheses testing.

#### 4.1 Reliability Test:

The survey was conducted during one week time. From the total of 384 questionnaires distributed only 277 were collected, the remaining 107 of them were not returned. Therefore, 277 were effectively used for analysis that indicates 72% response rate which is acceptable to undertake a study.

According to Hair et al. (2006), Cronbach's Alpha Reliability is testing on the reliability of the research that allow researcher to come out with consistent results. The measurement of Cronbach's Alpha is specified as number 0 and 1. Hence, Cronbach's Alpha have better consistency within items in the scale if coefficient that closer to 1.

In this study Cronbach's Alpha is used to measure the internal consistency of the items used. George and Mallery (2003), provides the following rules of thumb: >0.9-Excellent, >0.8-Good, >0.7-Acceptable, >0.6-Questionable, >0.5-Poor, <0.5-Unacceptable (as cited by Gleam and Rosemary, 2003). The results are shown in the below Table (4.1).

**Table 4.0 Reliability Statistics**

Cronbach's Alpha	N of Items
.721	29

**Table 4.1 : Internal Reliability Test**

<b>Variables</b>	<b>Cronbach's <math>\alpha</math></b>	<b>N0. Of Items</b>
Attitude	.702 (Acceptable )	4
Perceived ease of use	.714 ( Acceptable)	5
Perceived usefulness	.783 ( Acceptable)	4
Perceived risk	.835 ( Good)	6
Reliability	.841 (Good )	5
Benefit	.844 ( Good)	5
Intention to adopt	.761 ( Acceptable	4

Source : survey finding 2018

Table 4.1 showed the Cronbach's alpha that was computed for the items that made up each construct used in this study. The alpha values for the six constructs indicated that the items that formed them had reasonable internal consistency reliability – being from 0.702 and 0.844

Based on the results above, all variables are considered variable as alpha values are more than 0.70. The independent variable, Benefit has the highest alpha value of 0.844 with 5 items so this means that Benefit is the most reliable variable. Reliability has the second highest alpha value of 0.841 with 5 items. Followed by perceived risk and perceived usefulness, having the alpha value of 0.835 with a total of 6 items and alpha value of 0.783 with 5 items respectively. In addition, Perceived ease of use has alpha value of 0.714 which consists of 5 items and attitude with alpha value of 0.702 with 4 items. Besides, the variable with 4 items are intentions to adopt with alpha value 0.761

For testing the reliability of the test, can conclude that the test is reliable with independent variables achieved and fulfilled the level of reliability which was measured by Cronbach's Alpha.

## 4.2 Descriptive Analysis

Descriptive analysis provides detailed information about the main characteristics of the sample used in this study. Descriptive analysis was used to present the data collected in relation to the demographic factors for more clarification. It is mainly important to make some general observations about the data gathered with the help of general or demographics questions. The demographics factors used in this research are gender, age and level of education of respondents. Key features of the data are described in table forms to enhance the understanding of the samples.

### 4.2.1 Respondents' Demographic Profile

#### *Gender of respondents*

The gender of the respondents, as shown in Table 4.2, is male dominated. Most of the respondents are male (62.5%) while the females are 37.5%.

**Table 4.2: Gender of respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	173	62.5	62.5	62.5
Female	104	37.5	37.5	100.0
Total	277	100.0	100.0	

#### *Age of respondents*

The respondents' age is presented in the following table. The below table shows that most of the respondents, 55.6 % are fall under ages of 30 – 40 years, followed by the respondents whose ages are below 30 contributes 28.2 %. The rest 10.8 % and 5.4 % are between 41 &50 and above ages of 50 respectively.

**Table 4.3: Age of respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Below 30	78	28.2	28.2	28.2
30-40	154	55.6	55.6	83.8

41-50	30	10.8	10.8	94.6
Above 50	15	5.4	5.4	100.0
Total	277	100.0	100.0	

Source: Survey finding (2018)

#### *Educational level of the respondents*

As it is depicted in the below table, 45.5 % of respondents were degree holders, while 28.9% and 20.9% of respondents were diploma and master's degree holders respectively. The remaining 4.7% of respondents were having below diploma educational level.

**Table 4.4: Educational level of respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid below diploma	13	4.7	4.7	4.7
Diploma	80	28.9	28.9	33.6
Degree	126	45.5	45.5	79.1
Masters	58	20.9	20.9	100.0
Total	277	100.0	100.0	

Source: Survey finding (2018)

#### 4.2.2 Descriptive statistics:

The descriptive statistics of the mean scores and standard deviation of 29 attributes discussed in the subsequent seven tables in each category. The interpretation was made based on the following measurement scale intervals or range. Mean scores 4.51-5.00 excellent or very good, 3.51-4.50 good, 2.51-3.50 average or moderate, 1.51-2.50 fair and 1.00-1.50 is poor (Poonlar Btawee:1987) mentioned by Hailu Demissie-2013.

**Table 4.5: Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Attitude	277	3	5	4.57	.418
Perceived ease of use	277	3	5	4.51	.412
Perceived usefulness	277	3	5	4.47	.494
Perceived risk	277	1	5	1.63	.535
Reliability	277	1	5	1.62	.542
Benefit	277	3	5	4.49	.493
Intention to adopt	277	3	5	4.74	.377

Source: Survey finding (2018)

Based on table 4.5 above:

- The overall mean rating and the standard deviation of the of respondents’ evaluation of Attitude factors was 4.57 and .418 respectively. It indicates that customers’ attitude towards adopting EthioPay is good according to (Poonlar Btawee: 1987) the mean score of 3.51-4.50. All the mean value of the respondents shows a good result. From this it can be understood that, respondents were in a high positive intention to adopt the system, given that the service were convenient, beneficial and with range of services.
- The average mean rating and standard deviation of respondent’s evaluations of perceived ease of use construct was 4.51 and .412 respectively. This implies that the influence of perceived ease of use towards intention to adopt inter- bank ATM services was good. Customer’s response showed that the system were easy to learn and use, less effort is need to perform transactions, and not frustrating.
- The construct Perceived usefulness has scored the overall mean and standard deviation of 4.47 and 0.494 respectively. The result revealed that customers were strongly in agreement regarding the usefulness of the system because of the system helped the make better payment decisions, minimizes the time they spent on payments , improves searching mode of payments.
- Perceived risk factor has scored the average mean rating and standard deviation of 1.63 and .535 respectively. The result showed that respondents were not happy to adopt the

system due to the fact that there are risks like time and financial while they are making transactions.

- Also the evaluation of reliability factor by respondents was not good. It has scored the overall mean rating of 1.62 and a standard deviation of 0.542. From this it can be suggested that customers were not happy to adopt the system because of the payment system is not dependable, not reassuring and sympathetic, the service is not given at promised time and the system doesn't keep accurate records.
- Finally, The mean rating and the standard deviation of the of respondents' evaluation of benefit factor was good. A standard deviation of 0.493 has been scored. whereas respondents overall mean rating was 4.49 implies that customer's intention to adopt the system were excellent because of using or adopting the system has its own advantages such as it saves time and cost, the charge is minimal in comparison to the merit, it is easier to conduct financial transaction.

### 4.3 Pearson Correlation Coefficient Analysis

Correlation matrix is use to check the pattern of relationship in Pearson Correlation Coefficient. This is to ensure all variables in this study have determine strength of linear relationship. Preliminary analysis was conducted before multiple regression analysis to ensure the regression model does not consists of any serious violation. Below is the rules of thumb of correlation coefficient, assume correlation coefficient is statistically significant:

#### 4.6: Rules of thumb about Correlation Coefficient size

Coefficient range	Strength of association
0.91 - 1.00 / -1.00 ~ -0.91	Very Strong
0.71 - 0.90 / -0.90 ~ -0.71	High
0.41 - 0.70 / -0.70 ~ -0.41	Moderate
0.21 - 0.40 / -0.40 ~ -0.21	Small but define relationship
0.01 - 0.20 / -0.20 ~ -0.01	Slight, almost negligible

Source: Hair.et.al (2006).

Like the demographic factors, the data from the scale typed questionnaire were fed to the SPSS software version 22.00, to process the correlation analysis. Based on the questionnaire which

was filled by the Bank card holder customers of the five selected banks, the following correlation analysis was made.

**Table 4.7: Pearson Correlations**

		ATT	PEU	PU	PR	RE	BE	INTADOPT
Attitude	Pearson Correlation	1	.813**	.329**	-.248**	-.291**	.415**	.640**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	277	277	277	277	277	277	277
Perceived ease of use	Pearson Correlation	.813**	1	.247**	-.237**	-.270**	.428**	.591**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	277	277	277	277	277	277	277
Perceived usefulness	Pearson Correlation	.329**	.247**	1	-.233**	-.313**	.468**	.533**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	277	277	277	277	277	277	277
Perceived risk	Pearson Correlation	-.248**	-.237**	-.233**	1	.524**	-.277**	-.456**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	277	277	277	277	277	277	277
Reliability	Pearson Correlation	-.291**	-.270**	-.313**	.524**	1	-.252**	-.448**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	277	277	277	277	277	277	277
Benefit	Pearson Correlation	.415**	.428**	.468**	-.277**	-.252**	1	.620**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	277	277	277	277	277	277	277
Intention to adopt	Pearson Correlation	.640**	.591**	.533**	-.456**	-.448**	.620**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	277	277	277	277	277	277	277

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: survey finding (2018)

By referring to the table above, correlation matrix represents that all variables are significantly connected to one another variables. There are the six variables within the range of 0.41 - 0.70 which have moderate relationship. All variables correlation coefficients is less than 0.9. Hence, Multicollinearity does not exist in these data

#### 4.3.1 Correlation between Attitude and intention to adopt EthioPay payment system

Pearson correlation test was conducted for Attitude and intention to adopt EthioPay payment system and the results are as shown in table 4.7. There is a significant positive correlation between Attitude and EthioPay adoption with a significant value of 0.000 lower than 0.05. In other words attitude dimension and EthioPay adoption are related with moderate relationship ( $r = 0.640^{**}$ ).

#### 4.3.2 Correlation between Perceived ease of use and intention to adopt EthioPay payment system

Pearson correlation test was also conducted to know the degree of relationship between the independent variable, which is Perceived ease of use, and the dependent variable, EthioPay adoption. The results of the correlation between these variables are shown in table 4.7. There is a significant correlation between Perceived ease of use and Adoption of EthioPay payment system with a significant value of 0.000 lower than 0.05. In other words Perceived ease of use dimension and EthioPay adoption are related with moderate relationship ( $r = 0.591^{**}$ ).

#### 4.3.3 Correlation between Perceived usefulness and intention to adopt EthioPay payment system

In order to see the correlation between perceived usefulness and EthioPay adoption, Pearson correlation test was conducted, and the results found were like shown in table 4.7. There is a positive and significant correlation between Perceived usefulness and Adoption of EthioPay payment system with a significant value of 0.000 lower than 0.05. In other words Perceived usefulness dimension and EthioPay adoption are related with moderate relationship ( $r = 0.533^{**}$ ).

#### 4.3.4 Correlation between Perceived risk and intention to adopt EthioPay payment system

Pearson correlation test was also conducted to know whether there is significant correlation between perceived risk and EthioPay adoption, and the results are shown in Table 4.7. There is a negative and a significant correlation between perceived risk and EthioPay adoption with a significant value of 0.000 lower than 0.05. The result of correlation analysis prove that perceived risk and EthioPay adoption are correlated with a relationship ( $r = -0.456^{**}$ ).

#### 4.3.5 Correlation between Reliability and intention to adopt EthioPay payment system

For these variables, reliability and EthioPay adoption, also Pearson correlation test was conducted and the results are shown in Table 4.7. There is a negative and a significant

correlation between Reliability and EthioPay adoption with a significant value of 0.000 lower than 0.05. The result of correlation analysis prove that Reliability and EthioPay adoption are correlated with a relationship ( $r = -0.448^{**}$ ).

#### 4.4.6. Correlation between Benefit and intention to adopt EthioPay payment system.

Similar to other variables, Pearson test was conducted to check the correlation between benefit and EthioPay adoption. As it shown the above depicted table 4.7, there is a positive and significant relationship between benefit and EthioPay adoption with a significant value of 0.000 lower than 0.05. This implies that the two variables have a moderate relationship of ( $r=.620^{**}$ ).

#### 4.5. Multicollinearity test

The researcher uses Variance Inflation factor (VIF) to check the Multicollinearity among the independent variables. Multicollinearity exists if VIF is greater than 10. (Freund and Littell 2000). Multicollinearity is important to interpret whether there is correlation of regression among independent variables. Based on table 4.8, the regression result show no Multicollinearity that the tolerance value is greater than 0.2 and the Variance Inflation Factor (VIF) values are all fall between the ranges 0 to 10. This also meant that predictors in this study must be highly correlated. The result for VIF showing that the variables can be used in the regression analysis and Multicollinearity is minimized (Chatterjee et al., 2000; Kleinbaum et al., 1988).

Table 4.8 also Shows that the value of VIF for each independent variable is smaller than 10, so the problem of Multicollinearity does not exist. In addition, the Multicollinearity value that lesser than 10 shows that all independent variables are uncorrelated with other independent variables.

**Table 4.8: Variance Inflation Factor**

Independent Variables	Collinearity statistics VIF
Attitude	3.129
Perceived ease of use	3.087
Perceived usefulness	1.394
Perceived risk	1.428
Reliability	1.487
Benefit	1.508

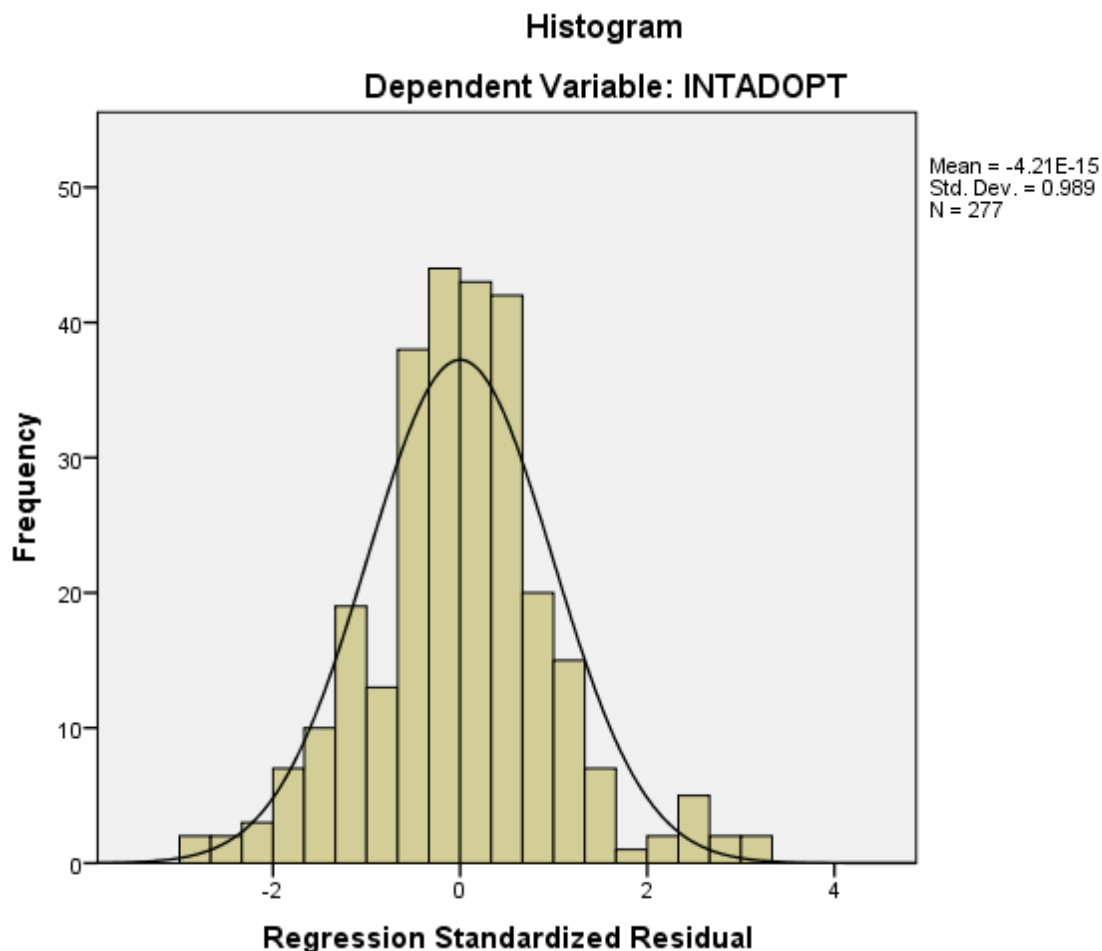
Source: Survey finding (2018)

#### 4.6 Normality test

Shape of data that is normally distribution for a single metric variable is refer to the normality test. In below figure 4.1 and 4.2, both frequency distributions and normal P-P plots of regression show that are normally distributed.

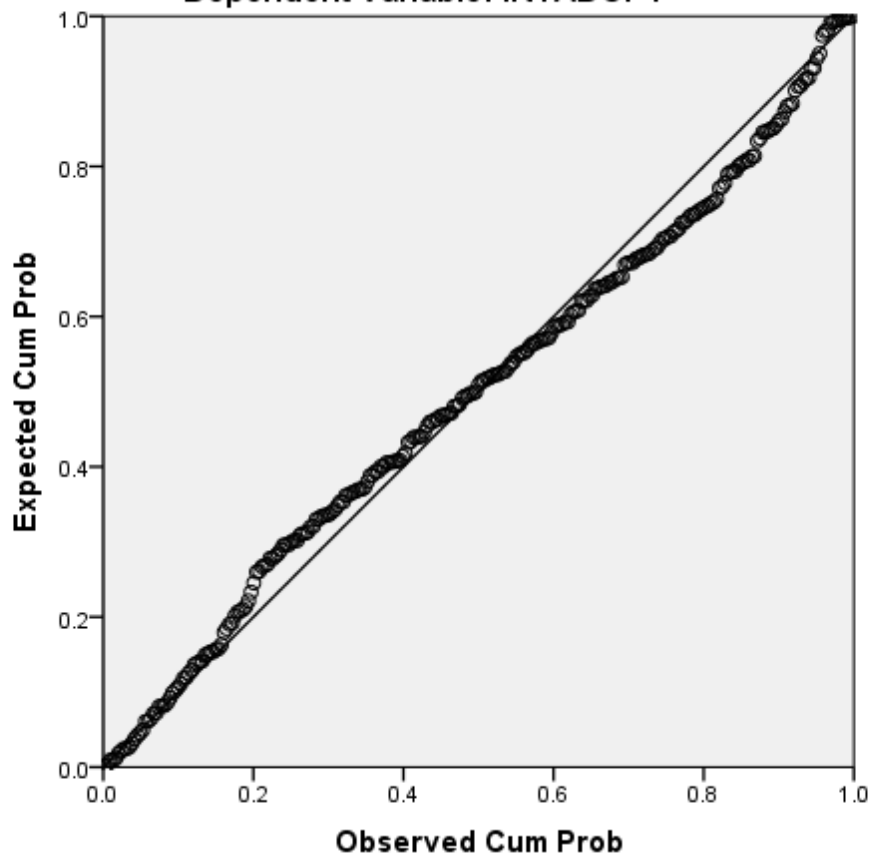
Scatterplot in Figure 4.3 shows the residuals fall within a generally random pattern as it does not exhibit any nonlinear pattern to the residuals. This finding shows that homoscedasticity in the multivariate independent variable set that each value of the predictors should be constant. In addition, the error terms for any pair of observations should be uncorrelated.

The Durbin Watson Test that is also called as serial correlation in residuals that measure the autocorrelation from the regression analysis. According to Field (2009), test statistic consider normal in values that ranges between 1.5 and 2.5. In this study, the Durbin Watson statistic value is 1.685. Hence, it is consider relatively normal.

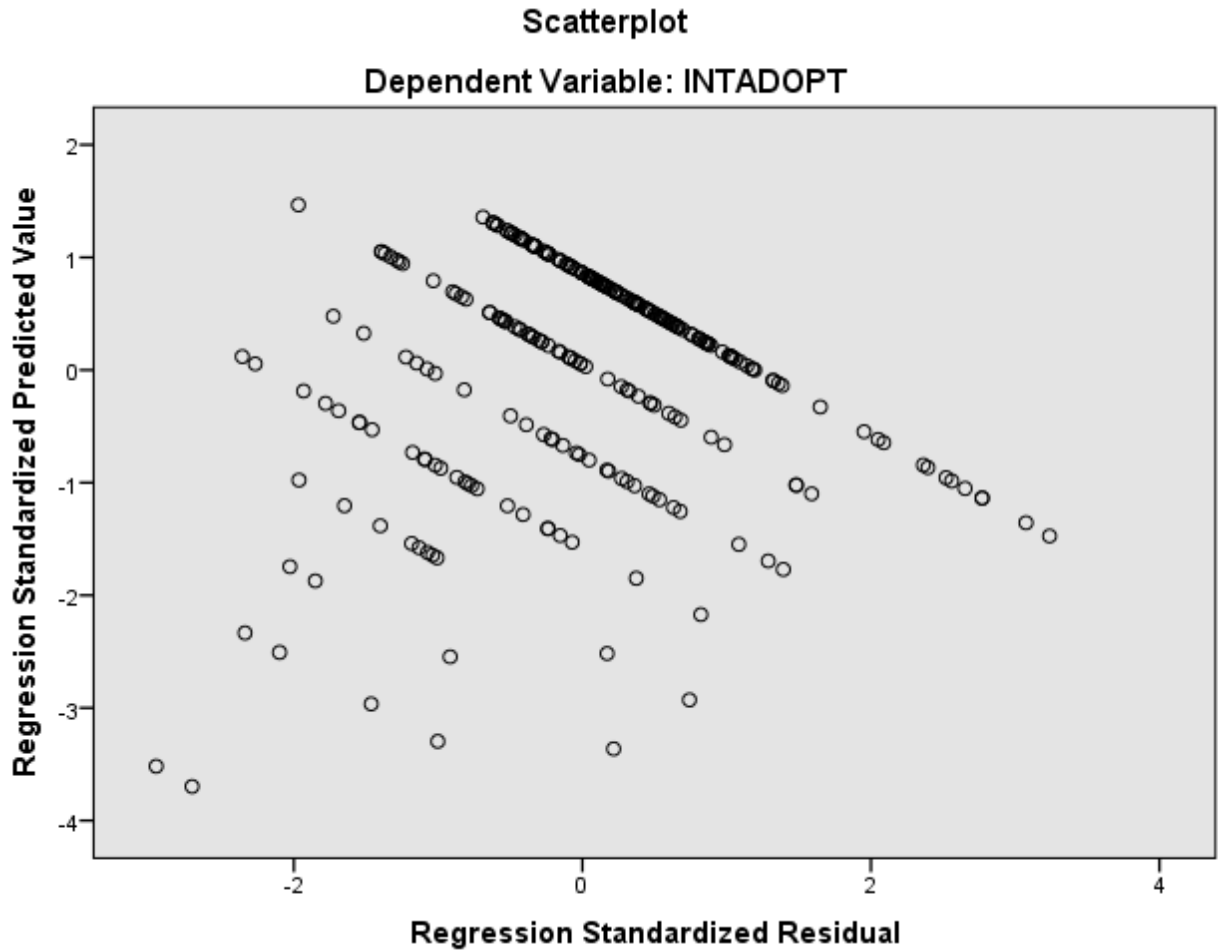


*Fig 4.1 Normal Curve for the regression standardized residual*

Normal P-P Plot of Regression Standardized Residual  
Dependent Variable: INTADOPT



*Fig 4.2 Normal P-P Plot regression standardized residual*



*Fig 4.3 Scatterplot*

### Skewness and kurtosis normality test

Skewness measures the degree and direction of asymmetry. A normal distribution has a Skewness of 0 and a distribution skewed to the left. When the mean is less than a median, has a negative Skewness.

Kurtosis is a measure of tail extremity reflecting either the presence of outliers in a distribution or distributions propensity for producing outliers (Wetfall)

**Descriptive Statistics**

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ATT	277	4.57	.418	-1.088	.146	.706	.292
PEU	277	4.51	.412	-1.271	.146	1.544	.292
PU	277	4.47	.494	-.909	.146	.318	.292

PR	277	1.63	.535	1.589	.146	4.477	.292
RE	277	1.62	.542	1.903	.146	8.438	.292
BE	277	4.49	.493	-1.008	.146	.468	.292
INTADOPT	277	4.74	.377	-1.798	.146	3.611	.292
Valid N (listwise)	277						

#### 4.7. Multiple Regression analysis

Multiple linear regressions were conducted to identify the relationship and to determine the most dominant variables that influenced the EthioPay adoption. This regression analysis was conducted to know and understand by how much each independent variable (Attitude, perceived ease of use, perceived usefulness, perceived risk, reliability and benefit) explains the dependent variable that is EthioPay adoption. In order to show the impact that each dimension has on the dependant variable, the study checked the Standardized Coefficients. The results of the regression analysis are the following.

##### 4.6.1 Regression analysis of determinant variables and intention to adopt

Tables 4.9, 4.10, and 4.11 present the results from the multiple regression carried out using the six constructs: Attitude; Perceived ease of use; Perceived usefulness; Perceived risk, reliability and Benefit as the independent variables and intention to adopt as the dependent variable. This was done to determine the best linear combination of the constructs for predicting intention to Adopt.

**Table 4.9: Model Summary for the constructs**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		Durbin-Watson
					R Square Change	F Change	
1	.814 <sup>a</sup>	.663	.655	.222	.663	88.527	1.685

a. Predictors: (Constant) , Attitude, Perceived Ease of Use, Perceived usefulness, Perceived Risk, Reliability, Benefit

b. Dependent Variable: Intention to Adopt (Adoption)

**Table 4.10: ANOVA for the constructs**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	26.067	6	4.344	88.527	.000 <sup>b</sup>
	Residual	13.250	270	.049		
	Total	39.317	276			

a. Dependent Variable: Intention to Adopt

b. Predictors: (Constant), Attitude, Perceived Ease of Use, Perceived usefulness, Perceived Risk, Reliability, Benefit EU

**Table 4.11: Coefficients for the constructs**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
0	(Constant)	1.730	.216		7.994	.000
	ATT	.257	.056	.284	4.543	.000
	PEU	.110	.057	.120	1.931	.000
	PU	.156	.032	.204	4.896	.000
	PR	-.124	.030	-.176	-4.158	.000
	RE	-.075	.030	-.107	-2.484	.000
	BE	.215	.033	.280	6.458	.000

Source: Survey finding (2018)

As indicated above, Multiple regression analysis is conducted to examine the six independent variables; attitude, perceived ease of use, perceived usefulness, perceived risk, reliability and benefits and significantly explain the intention of card holder bank customers in Ethiopian commercial banks. The regression model contains the six independent variables are statistically significant ( $F=88.527$ ,  $p\text{-value}<0.05$ ). The results showed that there is a significant relationship between the independent variable and dependent variable ( $p<0.05$ ). This means Attitude, perceived ease of use, perceived usefulness, Perceived risk, reliability and benefit determine customer’s adoption on EthioPay payment system. Therefore, the study shows that the factors influence will significantly explain the bank’s card holder customer’s intention in using inter-bank -electronic known as **EthioPay**.

From Table 4.9, it can be seen that the R Square value for the model showed that 65.5% of the variance in the model can be predicted from the independent variables. This is to mean that the adjusted R2 with the value 0.655 show that 65.5 percent of the variation in intention to adopt EthioPay is explained by the factors influence and the rest 34.5 percent is explained by other factors. The R2 which consists 0.663 show that is small but is evidence to define relationship between these six variables and dependent variable.

Table 4.10 presents the ANOVA report on the general significance of the model. As p is less than 0.05, the model is significant. Thus, the combination of the variables significantly predicts the dependent variable (F=88.527; p < 0.05) (Freedman, 2005; Krushkal & Tanur, 1978; Leech, 2005; Lindley, 1987).

Table 4.11 showed the standardized Beta Coefficients that present the contributions of each variable to the model. Table 4.11 helps to understand which variables among the six independent variables is the most important in explaining the variance in EthioPay adoption. The t and p values showed the impact of the independent variables on the dependent variable (Freedman, 2005; Krushkal et al., 1978; Leech, 2005; Lindley, 1987).

From Table 4.9, it was clear that the construct Attitude had the highest impact on EthioPay Adoption (the dependent variable, while Reliability has the least impact on EthioPay adoption. Hence, Attitude with having a high beta value 0.284 is the leader in explaining significantly the intention to adopt EthioPay, followed by benefit, perceived usefulness, perceived risk with, perceived ease of use and reliability with values of 0.280, 0.204,-0.176, 0.120 and -0.107 respectively. The large t value and corresponding low p value buttressed the result for Attitude which had the highest Beta coefficient (both standardized and unstandardized).

Based on the regression equation, the statistical results are shown below:

$$Y=1.730+0.257(ATT) +0.110(PEU) +0.156(PU) -0.124 (PR) - 0.075 (RE) + 0.215(BE)$$

Where: Y = Intention to adopt

ATT = Attitude

PEU = Perceived Ease of Use

PU = Perceived Usefulness

PR = Perceived Risk

RE = Reliability

BE = Benefit

Based on the results, in order to increase 1 unit of intention of EthioPay adoption, there shall be a decrease of 0.124 (PR) and 0.075 (RE) and an increase of 0.257 (ATT), 0.110 (PEU), 0.156 (PU), and 0.215 (BE). Besides that, Attitude considered as main predictor that has the strongest influence on intention to adopt EthioPay where the standardized beta is equal to 0.257, followed by benefit (0.215), perceived usefulness (0.156), perceived risk (-0.124), Perceived ease of use (0.110) , and lastly reliability (-0.075).

The multiple regression analysis findings also revealed that all the dimensions have significant relationship with EthioPay adoption with ( $p < 0.05$ ) hence, they constitute the major determinants of EthioPay adoption in in the five selected commercial banks in Ethiopia, which are the pioneers in providing inter-bank Electronic services. These variables which were used for prediction was found to be significantly related to EthioPay adoption as the p-value is less than 0.01.

#### 4.8 Test of Hypotheses

Table 4.12 showed the results of the hypothesis tested against the p values that were obtained from the results above. These values were shown summarily below.

**Table 4.12: Summary of Values for the constructs**

<b>Variables</b>	<b>Beta</b>	<b>P</b>
<b>Attitude</b>	.284	P< O.05
<b>Perceived ease of use</b>	.120	P< O.05
<b>Perceived usefulness</b>	.204	P< O.05
<b>Perceived risk</b>	-.176	P< O.05
<b>Reliability</b>	-.107	P< O.05
<b>Benefit</b>	.280	P< O.05

Source: Survey finding (2018)

**Attitude ( $\beta = 0.284$ ,  $p < 0.05$ )** was found to have a significant positive effect on the intention towards using Interbank electronic payment known as EthioPay. From the responses, the Attitude of using inter-bank e-payment have made them prefer interbank ATM use than making transactions with own bank only. Some of these attitudes include service convince, wide range of products, availability. The Attitude ( $\beta = 0.284$ ,  $p < 0.05$ ) towards EthioPay positively and

significantly affected the Intention to use the technology. The high impact of Attitude on Intention to use interbank electronic payment expressed the importance of how Attitude could affect the Intention to use EthioPay. A positive attitude meant that a potential adopter or a past user of an interbank ATM would have the Intention to use it in future and vice versa. This implies that customers' intention to use interbank electronic service, EthioPay is mainly determined by their attitude toward using these services. The contribution of Attitude to Intention to adopt in the proposed model has been in line with the findings of other studies such as Olatokun & Igbinedion, (2009). In their study of automatic teller machine adoption they found that the Attitude ( $\beta = 0.712, p < 0.05$ ) towards ATMs positively and significantly affected the Intention to use the technology. Further the result is supported with the findings done of Sanghita Roy, Indrajit Sinha (2014) that customer attitude affects the decision on adoption of electronic payment.

**The contribution of the Perceived ease of use construct ( $\beta = 0.120, p < 0.05$ )** was positively significant to the model and hence supported in this study. The complexity of a technology affects how well that technology diffuses in a social system because if the technology is easy to use, more people are likely to adopt its use (Rogers, 1995). Findings from this study suggested that the interbank electronic payment system were quite easy to use and more likely to be more widely adopted. However, Perceived ease of use contributed less than Attitude, perceived usefulness, perceived risk and benefit to the developed model. Its contribution though, was markedly more than that of the reliability construct. The significant contribution of perceived ease of use to the model was supported by previous studies such as Kolodinsky et al. (2004), Chen et al. (2002), Lau (2002) and GOH (2017)

**The Perceived usefulness construct ( $\beta = 0.204, p < 0.05$ )** was found to positively contribute to the proposed model. The influence of its contribution was found to be higher next to Attitude and benefit with  $\beta = 0.284$  at  $p < 0.05$ ,  $\beta = .280$  at  $p < 0.05$  respectively. This suggested that the usefulness of Interbank ATM usage to the respondents was important. Perceived usefulness contributed being the third higher significant construct regarding the fostering of a positive intention towards adopting the use of interbank electronic payment, EthioPay possibly because indeed it was a great advantage in itself. The use electronic payment now belong firmly in the “modern” way of doing things. The result is consistent with the study done by GOH (2017) that perceived usefulness will influence customer’s decision making in adopting the e-payment system. The significant contribution of perceived usefulness to the adoption also highlighted

in other studies particularly by Roy and Sinha (2014) that perceived usefulness affects the decision to adoption of electronic payment. This suggests that the easier electronic banking services are to use, the more useful customers would perceive it.

**Notably, the Perceived risk construct ( $\beta = - 0.176$ ,  $p < 0.05$ )** was found to have a negative impact on intention to adopt towards using interbank electronic payment, the so called EthioPay. This could be because the system deducts customer account without dispensing the cash, there is a long dispute management process, the wrongly deducted money may not be returned to customers unless they apply to their bank. From the result it can be conclude that still customers have fear in doing interbank electronic payment transaction, as they are concerned with security and privacy aspects of such system. It is noted that although consumer's confidence and attitude in using the EthioPay payment system was strong, yet their confidence in the technology was weak. Mohammad O. A. (2012) had significantly proved that consumers are less likely to adopt an electronic service that they consider having high risks such as time and financial risk.

**The contribution of Reliability construct ( $\beta = -0.107$ ,  $p < 0.05$ )** similar to perceived, risk was negatively significant to the model and hence not supported in this study. The reliability of the payment system affects how well that the payment system diffuses in a social system because if the technology is more reliable enough, more people are likely to adopt it and use it. If not customers may refuse to use the system. Based on respondent's response this could be because the payment system is not sympathetic and reassuring when get problems, the payment system doesn't meet it's promised time – frame for response, the system is not dependable and the service is not given as the times promised, the promised time is 24 hours per a day, 7 days per a week and 365 days per a year. The result of this study is not in agreement with the findings of, Sathye (1999) and Liao and Cheung (2002) that reliability is positively related to the use of electronic banking.

**Of the six constructs, Benefit ( $\beta = 0.280$ ,  $p < 0.05$ )** had the second highest impact on the intention to adopt towards using Interbank electronic payment, EthioPay. Also it was positively significant. The results implied that the respondents have gained benefits such as less expensive and time saving, minimum charge and easier to conduct financial transaction in line with adopting the system. The significant contribution of customer benefit to the developed model

is consistent with previous research involving information system acceptance (Horton et al., 2001; Morris & Dillon, 1997).

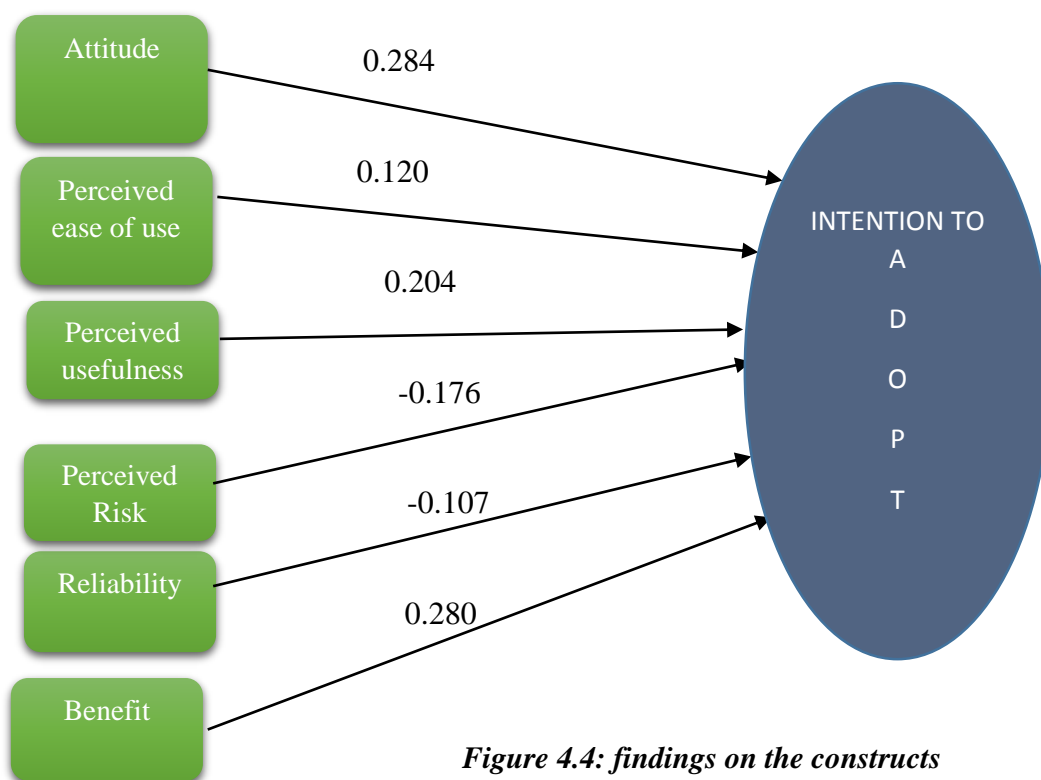
These findings have shown what the developed model portends in the adoption of interbank electronic payment service, EthioPay. It is therefore noteworthy for Banks and EtSwitch, the owner of EthioPay examine the attributes of the model in the light of their local situations to see how they could improve on their services and customers' satisfaction with interbank electronic payment service(s). If more people are gratified by their use of electronic payment system, the customer base of banks is likely to increase, subsequently improving the profit margins.

#### 4.9 Hypotheses Results

The results are summarized in the below Table 4.16

<b>H1:</b> There is a positive and significant relationship between attitude and intention adopt EthioPay payment system.	Supported
<b>H2:</b> There is a positive and significant relationship between perceived ease of use and intention adopt EthioPay payment system.	Supported
<b>H3:</b> There is a positive and significant relationship between perceived usefulness and intention adopt EthioPay payment system.	Supported
<b>H4:</b> There is a negative and significant relationship between perceived Risk and intention adopt EthioPay payment system.	Supported
<b>H5:</b> There is a positive and significant relationship between reliability and intention adopt EthioPay payment system.	Not Supported
<b>H6:</b> There is a positive and significant relationship between benefit and intention adopt EthioPay payment system.	Supported

## Adoption of EthioPay payment system in Ethiopian Banking Industry



### 4.10 Discussion of findings

The findings showed that the developed constructs significantly influence use of inter-bank ATM service branded as EthioPay. All the six constructs have strong influences on adoption and intention to use interbank electronic payment. From the Factor Analysis for the attitude construct, it was evident that the respondents believed that the information concerning their use of EthioPay was convenient, easily accessible and easy to use.

Perceived ease to use also has significant relationship with intention to adopt interbank electronic services, EthioPay. This result corroborates the findings of Cheung et al. (2000). Findings in relation to the perceived ease of use (complexity) construct revealed that ATMs were quite simple to use, and were efficient (at least relative to transacting with a human cashier). According to Rogers (1995) the harder an innovation is to use, or perceived to use,

the less likely that an adopter would use it. In addition, the study findings of Olatokun & Igbinedion (2009) on Automatic tell machines adoption in Nigeria suggested that ATMs were quite easy to use and more likely to be more widely adopted. Therefore, as interbank electronic payment (EthioPay) seemed to be easy to use, it means their use would be more widely adopted in the nearest future. This finding suggests that easy to use technologies should be put in place by banks in order to enhance usage. Providers should also offer tutorials or guidance of various e-payment channels for consumers that will be able to ease of navigation when use the e-payment system. The system design should prioritize on ease of use and also the usability of the system. Impact on the perceived usefulness can be conceived and it will lead along of increasing intention of adoption among consumers.

Perceived usefulness is another factor that influences the intention to adopt interbank electronic payment, EthioPay service. As confirmed by respondents this could be because the system improves their desire to search mode of payment, the payment system minimized the time they usually spent on payment, and the system helps them in terms of making better decisions. Given that individuals have already established personal banking relationships, mode of payments and account monitoring mechanism prior to the advent of new model of payment that is EthioPay, their acceptance or rejection of the technology will rely greatly on the extent to which it enhances their job performance.

Previous studies have shown that there is a significant relationship between perceived usefulness and intention to adopt e-payment. It was also revealed that ATM's use is widespread today because of its usefulness. This supports previous studies that modern systems accept and adapt to innovation faster and easier than traditional systems (Blackwell et al., 1995). The results are consistent with the study done by Davis, Bagozzi and Warshaw (1989) and Goh (2017) that the customer made decision in adopting the e-payment system will be influenced by perceived usefulness. Banking and financial institutions can stress on the usefulness of adopting e-payment through marketing campaign.

From the Factor Analysis for the Perceived risk construct, it was found that it has a significant relationship but negative with intention to adopt interbank electronic payment service, EthioPay. It was evident that the respondents believed that the information concerning their use of interbank ATMs was not secure and safe due to the fact that their account may be affected without cash received, there is a long dispute management process in case of decline

transactions, the system may not perform well and there are conditions which the system process payments incorrectly. Based on the discussion made with experts, a plenty of customers are complaining about the service due to the fact that they have got their account is debited without cash is dispensed. On average one thousand Dashen bank customers are issued complain to the bank per a month because of their account is deducted wrongly while they are using at other bank ATMs. In order to get a refund they need to wait more than two weeks which is too long. This could happen because of the long process between the bank and the EthSwitch, the owner of EthioPay. Besides to this unless the customer issued a request to the bank in case of unsuccessful transactions, there is no a mechanism on which customers are getting a refund. This supported Sheth's (1981) proposition that lowered perceived risk increases the likelihood of consumer adoption. This is to mean that higher perceived risk lowers the likelihood of customer intention to adopt.

Findings on the Reliability construct showed that the observations made by the respondents effectively convinced them not to use interbank electronic payment service, EthioPay. In addition, it was not strongly felt that all the transactions with ATMs were all good experiences, which meant that at one time or the other, an adopter might experience a fault with the use of an interbank ATM. It was strongly felt that withdrawing from other than own bank ATM was less safe and reliable than withdrawing from a bank teller or own bank ATM. This was probably due to the fact that there is high transaction decline rate, high down time or being offline.

Another construct that influenced positively and significantly EthioPay adoption supported in this study is Benefit. It was evident that the respondents believed that the payment system was beneficial in terms of time saving, minimum charge, less expensive and easier to conduct financial transactions. Thus, potential ATM adopters will be more inclined to use it if they get a benefit. The significant contribution of customer benefit to the developed model is consistent with previous research involving information system acceptance (Horton et al., 2001; Morris & Dillon, 1997). But The results is not consistent with previous results that Kim et al. (2009) and Goh (2017) stated with the time that need to learn how to implement new technology and internet in adoption of e-payment will be more costly.



## Chapter Five

### Conclusions and Recommendations

#### 5. Introduction

This chapter presents the summary, conclusions of the findings that have been obtained, where it presents the results of the analyses and the classification of the dimensions of technology adoption which have impacts on customers' intention to Adopt EthioPay payment system in Ethiopian commercial Banks, vis-à-vis recommendation

##### 5.1 Summary of the findings

The purpose of this study was to examine the factors affecting the adoption of EthioPay payment system in Ethiopian commercial banks; it was also explanatory and quantitative in nature, which was conducted from November 2017 to May 2018. The sample size was taken from the population of ATM Card holders of the five selected banks, Namely; commercial Bank of Ethiopia, Dashen Bank, Awash bank, Wegagen and lion international Bank. From these banks a total of 384 customers were sample and the study were conducted in the city of Addis Ababa only. Having identified the constructs that are Attitude, Perceived ease of use, perceived usefulness, perceived risk, reliability and benefit, the researcher had developed and tested the following hypotheses

- H1: There is a positive and significant relationship between attitude and intention adopt EthioPay payment system.
- H2: There is a positive and significant relationship between perceived ease of use and intention adopt EthioPay payment system.
- H3: There is a positive and significant relationship between perceived usefulness and intention to adopt EthioPay payment system.
- H4: There is a negative and significant relationship between perceived Risk and intention adopt EthioPay payment system.
- H5: There is a positive and significant relationship between reliability and intention adopt EthioPay payment system.
- H6: There is a positive and significant relationship between benefit and intention adopt EthioPay payment system.

As it is already mentioned in the analysis of this study all the developed hypothesis except hypothesis 5, were supported. The previous chapter presented in detail the extent of constructs or dimensions impact on interbank electronic payment services (EthioPay) in different commercial banks as it perceived by sample respondents. In this section of the chapter, the findings of the respondents are presented in summarized and informative manner. The respondents were asked to answer the influence of the six independent variables on EthioPay Adoption. The researcher have tested the questionnaires before he goes to the analysis by using the reliability test and the result showed that, the coefficient alpha for this study's instrument was found to be 72.1% . Since all the dimensions are greater than 70%, it is acceptable for further analysis. The assessments made on the dimensions was made by analyzing the independent variables i.e. Attitude, Perceived ease of use, perceived usefulness, perceived risk, reliability, benefit and dependent variable i.e. intention to adopt by using correlation and regression analysis there in. Accordingly, the following correlation and regression analysis results were found. As it is tabulated in the analysis part of this study and the correlation analysis results stated below, all the constructs have moderate relationship magnitude with intention to Adoption.

#### Correlation analysis

- **Attitude and intention to adopt**

Attitude construct and customers' intention to adopt EthioPay are related with a moderate relationship ( $r = 0.640^{**}$ ).

- **Perceived ease of use and customer's intention to adopt**

The construct Perceived ease of use and customers' intention to adopt EthioPay have a moderate relationship ( $r = 0.591^{**}$ ).

- **Perceived usefulness and customer's intention to adopt**

The independent variable, perceived usefulness has a moderate relationship with dependent variable, intention to adopt ( $r = 0.533^{**}$ ).

- **Perceived risk and customer's intention to adopt.**

Perceived risk construct and customers' intention to adopt are connected with a moderate relationship ( $r = - 0.456^{**}$ ).

- **Reliability and customer's intention to adopt**

The construct Reliability and customers' intention to adopt are connected with a moderate relationship ( $r = - 0.448^{**}$ ).

#### • **Benefit and customer's intention to adopt**

Again the benefit construct and customers' intention to adopt are related with a moderate relationship ( $r = -0.456^{**}$ ).

Eventually the six constructs were also examined their extent of explanation to intention to Adopt EthioPay jointly using multiple regression analysis, but before the researcher has made the regression analysis, the independent variables were tested Multicollinearity .As per the VIF results all variables correlation coefficients is less than 0.9. Hence, Multicollinearity does not exist in these data. Then after as the multiple regression analysis shows below and depicted in the tables of the previous chapter all independent variables explain the dependent variable with different extent.

The Multiple regression analysis result showed that:

- ✓ All the six constructs jointly explain 65.5 % customer's intention to adopt EthioPay payment system.
- ✓ Customers intention to Adopt EthioPay were explained by Attitude, perceived ease of use, perceived usefulness, perceived risk, reliability and benefit, individually with percent's of 40.7, 34.7,28.1, 20.5,19.8 and 38.3 respectively

## 5.2 conclusion

Electronic banking enhances the development of the banking system, and it is considered as a strategic weapon for banks. Of the electronic services being alternative branch outlets for customers, ATM contribution is very high. Although the EthioPay payment service provides various benefits for both banks and customers, low level of customers' adoption of interbank electronic payment services is noted in Ethiopia. However, this electronic banking services cannot achieve expected benefits if it is not used by banking customers.

Therefore, the main objective of the study was to identify factors affecting the adoption of EthioPay payment system, the system which allows Bank card customers to get ATM and POS services from anywhere any time by using ATM machines and POS terminals located in the country among the banking customers. This would deepen the knowledge of the factors which facilitate or limit the customers' attempt to transfer to the electronic banking services in Ethiopia. In order to fill this important gap, a research model was developed through integrating Technology acceptance model (TAM) with the Technology-organization-Environment

framework (TOE) and incorporating six constructs and intention to adoption to provide a comprehensive investigation. The model was applied in this study particularly to discover how the interplay of the six major constructs: Attitude, Perceived ease of use, Perceived usefulness, Perceived Risk, Reliability and benefit would impact on the intention to adopt Interbank electronic payment service, EthioPay. From the results, it could definitively be said that the Attitude of using EthioPay; how hard it was to use interbank electronic payment, how useful interbank ATMs were to users; how much reliable the system was by customers, the risks and benefits associated with using the payment system were issues that influence users' intention towards adopting Inter- bank ATM service, said to be EthioPay.

To test the hypotheses, a paper questionnaire was developed and distributed to the convenient sample of banking customers in the capital city of Ethiopia, Addis Ababa. Based on the statistical analysis and the results of the study, a number of conclusions can be drawn.

First: the results of the study revealed that Attitude, perceived ease of use, perceived usefulness and benefit has a positive and significant impact on customers' intention towards adopting EthioPay payment system or interbank electronic payment services. While perceived risk and reliability has a negative impact on it. Among the factors attitude and benefit are found to be the most significant predictor. Conversely, reliability was found to have least significant effect on adoption of interbank electronic payment services, EthioPay. From the finding it is clear that customer have to use more and more this payment system. More we use the new technology more it will be friendlier with us.

Second: the results showed that attitude as a positive and significant influence on customers' intention to adopt or use interbank electronic payment services, EthioPay. Banks in Ethiopia generally and EtSwitch particularly should announce the features of electronic banking services to create a positive attitude among its customers toward EthioPay services.

Third: the result showed that perceived ease of use and perceived usefulness have a positive and significant influence on customer's intention to adopt EthioPay payment system. Banks should make such services more useful and usable. In this regard EtSwitch, the owner of EthioPay could achieve this by increasing the customers' awareness of the usefulness of using electronic banking services through advertising and long term customer services.

Forth: the results revealed a negative and significant impact of perceived risk on the customers' intention to adopt inter- bank ATM services, EthioPay. Banks in Ethiopia and EtSwitch, the Owner of EthioPay need to develop risk reducing strategies that could reduce the customers' concerns about such services. These strategies include the development of the security of electronic banking services, shortening dispute management process, giving unconditional loss guarantees, reducing the possibility of delays of payment and waiting time and providing accessible customer services and educating customers, which might assist in inspiring high confidence in potential customers

Fifth: the results of the study showed that reliability has a negative and significant impact on customer's intention to Adopt EthioPay. This suggests that banks need to pay attention to this important factors. For example, by providing reliable and efficient services could lead to better acceptance of the service. Moreover, banks should emphasize the full functionality of their ATMs to response efficiently to the different banking needs of users. In addition, banks should improve help and facilities in their services to enable customers to accomplish their operations effectively. Furthermore, customers' feedback about electronic services should be elicited and analyzed.

Sixth: the results of the study revealed that benefit has a positive and significant impact on customers' intention toward using inter-bank ATM service or to adopt EthioPay. Ethiopian banks and EtSwitch can benefit from social influences that could result in potential customers transferring to electronic banking services. Hence, banks may need to work on improving normative and coercive forces and need to build an electronic banking users base to create normative expectations through a different way such as mass media channels, which remind them all the time of the benefit of electronic banking services.

### 5.3 Recommendations

In light of the findings and conclusions made above, the following possible recommendations are suggested as being valuable to those which are rendering interbank electronic payment services, EthioPay for the enhancement of the desired service. In addition to recommendations given step by step with the conclusion for every constructs here the researcher would like to stress on those findings which have a negative impact on customer's intention to adopt EthioPay. The results of the study showed that perceived risk and reliability have a negative

and significant influence on EthioPay adoption. This finding pointed out that a special emphasis should be given on this adversely affected variables.

Member Banks and EtSwitch may adopt following strategies in order to make EthioPay payment service popular.

1. Banks in Ethiopia generally and EtSwitch particularly should announce the features of electronic banking services to create a positive attitude among its customers toward EthioPay services.
2. Banks should make such services more useful and usable. In this regard EtSwitch, the owner of EthioPay could achieve this by increasing the customers' awareness of the usefulness of using inter- bank electronic banking services through advertising and long term customer services.
3. Banks in Ethiopia and EtSwitch, the Owner of EthioPay need to develop risk reducing strategies that could reduce the customers' concerns about such services. These strategies include the development of the security of electronic banking services, shortening dispute management process, giving unconditional loss guarantees, reducing the possibility of delays of payment and waiting time and providing accessible customer services and educating customers, which might assist in inspiring high confidence in potential customers. Banks should ensure that transaction is safe and secure like traditional banking transaction.
4. EtSwitch should shorten the dispute management process. The existing waiting time to get refund for wrongly deducted customer account is eight days. But practically it takes more than two weeks. This could happening because of their must be a communication between the issuing bank, where the card issued and the acquiring bank, which ATM transaction has takas placed. The processes is as follows.
  - ✓ The customer applies for his bank, help desk officers at the e- banking registers and passes the document to the risk analyst, and risk analyst again registers and send the document to EthSwitch. Then The EthSwitch sends the confirmation back to the applicant bank within eight days. And the confirmation may be approval or declined. After receiving of documents from EthSwitch the requesting bank

prepares a ticket and passes the document to the accounts section for posting. It is after this process that the customer could get the wrongly deducted money. This can upset and discourage customers not to use the payment system. This may intern produces a negative word of mouth and switch users from adopters to non-adopters. Hence, potential adopters may not show their willingness to adopt the system in the contrary of National bank of Ethiopia's and EthSwitch vision that is creating cashless society. Therefore, the central company, EthSwitch shall have a significant role in finding amicable solution for the dispute and there shall be a short dispute handling process.

5. As per the finding the reliability of the system was almost ignored. EtSwitch, the owner of EthioPay and EtSwitch member banks should aggressively work on the issue. The services reliability should be evaluated and checked against the actual practice. It was promised to provide 24 hours service but when it comes to practical it did not as it was promised, the system is not dependable as that of branch banking. There should be service quality assurance and monitoring to get the expected benefit. Service surveillance should be carried on regularly. Also Banks need to pay attention to this important factor. For example, by providing reliable and efficient services could lead to better acceptance of the service. Moreover, banks should emphasize the full functionality of their ATMs to response efficiently to the different banking needs of users. In addition, banks should improve help and facilities in their services to enable customers to accomplish their operations effectively. Furthermore, customers' feedback about electronic services should be elicited and analyzed. Besides reliability involves consistency of performance and dependability which means that those banks who are providing inter-bank card transaction service shall perform the services right the first time and honors its promises
6. Ethiopian banks and EtSwitch can benefit from social influences that could result in potential customers transferring to electronic banking services. Hence, banks may need to work on the benefits of customers to enhance their competitive advantage and need to build an electronic banking users base to create normative expectations through a different way such as mass media channels, which remind them all the time of the benefit of electronic banking services. Moreover Banks must emphasize the

convenience that electronic payment can provide many benefits to people, such as avoiding long queue, in order to motivate them to use it

7. Accordingly, the development of the national payment system is a shared responsibility and contribution of the National Bank, the government and the private banks. The central bank should, however, be at the Centre of this process, with the banking sector as an active partner. Hence the objectives of the National Bank are to increase safety and efficiency in the national payment system.

#### 5.4 Limitation of Study

There are few limitations relate and revealed in this research. Firstly, the samples were collected from Addis Ababa where level of literacy is relatively higher that the main limitation is on the geographical bias. Even though Addis Ababa city have more condense population compare to other cities in the country, but the finding in this study may not represent whole view of intention of customers in adoption of inter-bank e-payment, EthioPay. Hence, the results cannot be generalized and Study from other part of the country may reveal a different result due to demographic and economic differences.

Secondly, this study also limits the adoption of e-payment with the perspective of theory of TOE and technology acceptance model. This study data collected at one point of time that consumers' intention are very volatile and dynamic fields of study like intention to adopt e-payment which has been studied for many years yet still lack of predictive accuracy. There are less documented studies concerning the predictive measure. Thus, the pattern of intention to adopt e-payment may be inappropriate based on results of these findings.

Thirdly, majority of the respondents are from education sector and also sample size is relatively small. Moreover, the study excludes the voice of non-users

Nevertheless, consumers with lower educational qualification might have different intentions to adopt e-payment. The findings will provide better generalization if targeted on respondents from wider range of education qualification in future research.

In this research, the measures of constructs are study only conducted from a quantitative perspective. Therefore, individual's intention to adopt inert-bank electronic payment, EthioPay

may change over time for better or worst. Nevertheless, in order to have a better promising result that suggests incorporation of qualitative methods is advisable.

### 5.5 Recommendation for Future Research

Researcher proposed some opinions and suggestions that can overcome the limitation that mentioned. Firstly, researchers should include the broader range of age category or geographical coverage in order to collect variety of perspectives. In order to have further improvement to examine the hypotheses accurately and specifically, increase and expanding the total of sample size will result on the hypotheses without difficulty. Besides that, it is recommended future research to build results that is feasible to challenge the currently adopted practices. New research is encouraged to use more others analytical tools such as qualitative to be carry out in exhaustive finding.

In addition, , future researches are suggested to use longitudinal research to collect even more precise than accurate and most updated results as the intention of adoption on inter-bank e-payment among customers may change over time due to the technologies advancement. Thus, it is very important to study the intention to adopt inter-bank e-payment, EthioPay at different point of time throughout the decision making process.

There is a need to understand the intention on adoption of e-payment should be developed wisely so more research can be done in this particular field in others countries in order to provide better data and finding. Therefore, other models and factors should be considered as another possibility that to be examined the contrasting experiences between consumer's expectations and e-payment in real market thus gap analysis can be considered and conducted

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## Appendix 1

### Questionnaire

**Dear valued respondent,**

I am a postgraduate student at Addis Ababa University, school of commerce. In partial fulfilment for the award of the degree of masters in marketing management, I am conducting a thesis titled **factors affecting the adoption of EthioPay national payment system.**

I am very pleased to have you as my respondent & really appreciate your contribution to this academic study. Your inputs will provide the most valuable information in disseminating findings for my research. This is an opportunity to share your experience and concerns to help the adoption of EthioPay national payment system. The information submitted will be treated as private & confidential and will only be used for the purpose of this research.

Sincerely yours,

Ayalew Lake

#### **Part I: Background information**

1. Your age

- (a) Below 30 years ( )      (c) 41- 50 years ( )  
(b) 30 – 40 years ( )      (d) above 50 years ( )

2. What is your sex? (a) Male ( )      (b) Female ( )

3. What is your level of education?

- (a) Below diploma ( )      (c) Degree ( )      (e) above Masters ( )  
(b) Diploma ( )      (d) Masters ( )

4. Occupation (a) Gov't Employee ( )      (c) self-employed ( )  
(b) Private Employee ( )

**Part II:** Please answer each statement below by putting a circle around the number or mark that best reflects your degree of agreement or disagreement with each statement using 5 points Likert Scale.

**Key:**

**1 = SD: Strongly Disagree**

**2 = D: Disagree**

**3 = N: Neutral**

**4 = A: Agree**

**5 = SA: Strongly Agree**

**Factors affecting the adoption of EthioPay national payment system**

Please circle one number per line to indicate the extent to which you agreed or disagreed with the following statements

<b>1. Attitude</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
1.1. I intend to use EthioPay payment system because it is very convenient	1	2	3	4	5
1.2.I intend to use EthioPay because it provides a wide range of products	1	2	3	4	5
1.3.I am likely to use EthioPay payment because I think it is beneficial to me	1	2	3	4	5
1.4.I intend to use EthioPay payment system because it is not complex	1	2	3	4	5
<b>2. Perceived ease of use</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
2.1.I do not get frustrated when use EthioPay	1	2	3	4	5
2.2.EthioPay payment system is easy to learn and use.	1	2	3	4	5
2.3.I feel flexible in performing a transaction through EthioPay	1	2	3	4	5

2.4.EthioPay provides various payment channels that ease my payment process	1	2	3	4	5
2.5.Less effort is needed when I perform a transaction through EthioPay.	1	2	3	4	5
<b>3. perceived usefulness</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
3.1.EthioPay payment system improves my search for mode of payment that I desired	1	2	3	4	5
3.2.EthioPay payment system minimize the time I usually spent on payment	1	2	3	4	5
3.3.EthioPay helps me in terms of making better payment decisions	1	2	3	4	5
3.4.EthioPay payment makes it easier for me to make products comparison among payment modes	1	2	3	4	5
<b>4. Perceived risk</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
4.1.EthioPay –payment system provides adequate payment security.	1	2	3	4	5
4.2.EthioPay payment system has minimum financial risk.	1	2	3	4	5
4.3.When transaction error occurs, I don't worry that I cannot get compensating from bank	1	2	3	4	5
4.4.My account can be deducted without cash is dispensed	1	2	3	4	5
4.5.I have the right to claim the bank when my account is wrongly debited	1	2	3	4	5
4.6.EthioPay national payment system services may not perform well and process payment incorrectly	1	2	3	4	5
<b>5. Reliability</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
5.1.EthioPay payment system meets its promised time – frame for response	1	2	3	4	5

5.2.The payment system is sympathetic and reassuring when get problems	1	2	3	4	5
5.3.I get the service at the times promised	1	2	3	4	5
5.4.The system keep accurate records of transactions	1	2	3	4	5
5.5.The payment system is dependable					
<b>6. Benefit</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
6.1. It save my time and cost for using an EthioPay payment system	1	2	3	4	5
6.2. The billing and transactions process are accurately handled	1	2	3	4	5
6.3. EthioPay charges minimum fee transaction fee.	1	2	3	4	5
6.4. Speed of e-payment system flow faster than traditional payment system.	1	2	3	4	5
6.5.I find that it is easier to conduct my financial transaction	1	2	3	4	5

### 7. Intention to do / perform EthioPay payment

The following statements reflect a person's intention to do / perform EthioPay payment. Please rate how closely these statements reflect your intention of perform EthioPay payment in the near future.

Circle the number that best describes your response to each statement.

I have the intention of performing transaction through EthioPay Payment system in the near **future**

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
7.1. Because my friends and family are using e-payment.	1	2	3	4	5
7.2. Because I like the feeling of using e-payment	1	2	3	4	5
7.3. Because I don't want to be the only one who does not use EthioPay payment	1	2	3	4	5
7.4. Because I feel proud of using EthioPay payment system	1	2	3	4	5