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ORIGINAL PAPER

The adoption of financial technology in Ethiopia: a study of bank customers perspective

Wondwossen Jerene[1] · **Dhiraj Sharma**[2]

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Abstract
Developing countries like Ethiopia in Africa highly striving to adopt financial technologies in order to modernize the financial system. However, the acceptance of financial technologies from consumers' side faces many challenges. Financial technologies include the electronic-based platforms that designed by bankers to allow their customers for accessing financial services whenever they demand it without time and distance barriers. Those technologies considered in this study includes; internet banking, mobile banking, and card banking. The aim of this study was to identify factors that determine bank customers' intention to adopt e-finance technologies in Ethiopia. It was confirmatory study to validate the integration of technology acceptance model (TAM) with customer awareness and subjective norm factors. Self-administered questionnaires were distributed to 412 bank customers from technologically leading banks in Ethiopia. The structural equation model (SEM) analysis was used for testing the hypotheses. The major findings of the study revealed that bank customers' intention to adopt the financial technology was influenced positively by customer awareness, subjective norm, and perceived usefulness. The integration of customer awareness and subjective norm with the TAM results in a parsimony model to measure the acceptance intention of financial technologies. The study forwarded scientific recommendations for bank practitioners and policy makers.

Keywords Electronic finance · Banking technology · Financial technology · Ethiopia

1 Introduction

The financial institutions are highly influenced by the advancement of information technology. Delivering financial services are shifted from the bricks and mortar to the most advanced digital financial technology in many developed countries. The banking service in developing countries like Ethiopia is also striving to introduce advanced customer-oriented financial technologies and expanding its acceptance among users. E-finance is the commonly introduced banking service that delivers its financial and other bank related information through electronically. The pushing factors for introducing financial technology were; change in technology, deregulation, competition, capital, entrepreneurship, and globalization [1]. The expansion of internet service is the widely used technology that facilitates the spreading of technology across the world [1, 2]. However, the acceptance of such financial technologies hindered by many factors; poor infrastructure [3–5], security concerns [6–8] and users level of limited awareness about the technology how to use it [9–11].

Previous researchers were also stated that bank customer in less developed countries trusts the traditional banking system over electronic services and highly sensitive to security concerns [12, 13], lack of awareness [11], the complexity of the technology to manage easily [14]. The intention of bank customers to accept electronic finance is positively motivated by its convenience to access banking services. However, customers' intention to adopt the service influenced by different factors as it was aforementioned [14]. Generally, users' intention might be affected by their personal perception about the technology or by the external factors that pushes them to stay offline. The ultimate objective of this study was to study the factors that determine the users' intention to accept or not to accept the financial technologies

✉ Wondwossen Jerene
darewonde2016@gmail.com

Dhiraj Sharma
dhiraj.pbiuniv@gmail.com

[1] Department of Accounting and Finance, Arba Minch University, Arba Minch, Ethiopia

[2] School of Management Studies, Punjabi University, Patiala, India

in Ethiopia by integrating the TAM factors with customer awareness and subjective norm.

2 Review of literature

The advancement of information technology is considered as a driving factor that shifting the conventional way of delivering services to digital platforms. Many organizations now days became accessible to their customers regardless of time and distance barriers. Financial institution is one of the service sector that highly influenced by the development of information communications technology and as well as investing huge capital to introduce new financial technologies [15]. Financial technologies includes those financial services that delivered through electronic-based platforms such as mobile banking, internet banking, card banking, and other digital media based services [15]. The conventional branch based bricks and mortar financial services almost shifted to electronic financial services and even we are in the era of cloud banking and the diffusion of digital currency such as Bitcoin [16]. It is believed that the electronic-based platforms makes accessing financial services easy to bank customers and helps to deliver fast services to bankers compared to the conventional banking services [17]. Many authors agrees that delivering fast and convenient services would enhance bankers operational efficiency, service quality, and increases their profitability [18–20]. Beyond its benefit to bankers and banked communities; it is highly recognized that using financial technology enhances the financial inclusion of unbanked rural community too [21]. However, the adoption of financial technologies is not easy decision for customers as it was expected by bankers. Some researchers were reported few of the challenges particularly facing the developing countries like poor infrastructure and illiteracy [22–24]. But, the challenges of adopting such electronic finance technology is not only limited to those external factors rather it includes or even more hindered by users' free decision that based on their attitude or intention of using the technology [25–27].

Different theories were developed by many researchers that deal with the adoption of new technologies, for example; theory of reasoned action (TRA) [28], theory of planned behavior (TPB) [26], theory of innovation diffusion (TID) [29], unified theory of acceptance and use of technology (UTAUT) [30], technology acceptance models [25, 31, 32] and others. Theory of reasoned action (TRA) mainly focused on social rationality to choose technology in their daily tasks [28]. Accordingly, the behavior of an individual to perform something is determined by his intention to behave, but the intention of individual affected by his or her attitude and subjective norm [28]. However, this theory was criticized for not clearly stating behavior control and its' failure to consider volitions beyond the individual capacity [33, 34]. According to the theory of planned behavior (TPB), the individuals' actual behavior to perform jointly depends upon his pure intention to perform and the ability of a person because of the opportunity and resources had in favor [26]. This theory was tried to overcome the limitations of theory of reasoned action that clearly stated the individuals' intention to use technology influenced by subjective norm, users' attitude, behavioral belief, normative belief, and control belief [26]. Technology adoption model (TAM) was developed based on the previous two models (TRA and TPB) and introduced two unique factors; perceived ease of use and perceived usefulness that influences technology users' intention to adopt through attitude [31, 35]. Technology acceptance model was later extended to TAM2 and TAM3 that incorporated additional variables [25, 32]. Though there are mixed trend of adopting either of those theories, there is high tendency of using technology acceptance model (TAM) over others in the field of banking technology adoption [36–40].

Technology acceptance model (TAM) was a widely accepted theory that was designed based on the theory of reasoned action (TRA). The TAM was embedded on the two commonly known factors; perceived ease of use and perceived usefulness [31]. Accordingly, the users' intention primarily affected by both perceived ease of use and perceived usefulness [31, 35]. The perceived usefulness was defined as the users perception of technology that if he use, it would make him more effective and perceived ease of use was defined as the belief of users for the technology is not difficult to manage it [31]. Therefore, if a technology user perceives that a given technology is useful for performing the task as well as easily manageable; he or she would be positively motivated to accept it. This theory was later extended by [32], which was included additional constructs of "social influence process" and "cognitive instrumental processes". Similarly, after eight years of validating the model, it was extended to TAM3 by considering the adoption of technology in the environment of managerial intervention [25]. The technology acceptance model (TAM) was confirmed by many authors empirically as it can strongly explain the intention of an individual either to accept or not to accept technology [25, 31, 39, 41, 42].

Technology acceptance model (TAM) was also criticized for its failure for clearly stating external factors [43], the model was not considered the effect of social factors (subjective norm) but many authors confessed that subjective norm was an important factor that influences users intention [32, 44]. Others have criticized the model for its limitation to include important variables for adopting information technology like customer awareness, perceived risk and perceived trust whereas these variables were reported significantly influencing users intention [23, 24, 45]. Nevertheless its limitations, many authors preferred the technology

acceptance model for studying factors determine technology adoption [2, 25]. Similarly, the model was authenticated in banking technology adoption researches too [39].

2.1 Influencing factors of adopting financial technologies

Bankers' are investing a significant amount of money in introducing new technologies. It was reported that 60% of banks in UK and USA investing about 40% of their finance on adopting "cloud banking" [16]. Service quality was found one of the important factors that increase customers' satisfaction and motivate others to accept technology [46, 47]. However, the positive intention to accept e-finance service is expected to be influenced by many factors like users' self-efficacy and their awareness about the technology. Some of the factors investigated by previous researchers and confirmed in empirical studies were discussed as follows:

2.1.1 Perceived ease of use and perceived usefulness

Technology acceptance model (TAM) states that users' intention primarily affected both by perceived ease of use and perceived usefulness [31, 35]. These two factors were the core variables that were used in TAM for indicating how the users' intention was influenced [31, 32, 44]. Accordingly, if the user perceives that the technology in question can be easily used for the service the user interested to, he or she would positively be motivated for accepting it. In the case of financial technology, if a customer perceives that the technology is easy to manage, he or she would be positively motivated to accept it for accessing bank services. Many empirical studies were confirmed that perceived ease of use positively influenced users intention to accept electronic finance technologies [2, 30, 31].

Perceived usefulness was another important variable in TAM that positively influences users intention to accept technology [14, 31]. Accordingly, if the user perceives that the new financial accessing technology is useful for accessing banking services when he or she needs financial services, he or she would intend to adopt it. Conversely, if the user perceives that the technology in question for adoption would not enhance his or her performance, this in turn, might hinder the user interest not to adopt it [32]. Empirical studies revealed that perceived ease of use positively facets the relationship with individuals' intention to adopt electronic banking [2, 26, 32]. Though the users perceive the banking technology would be useful for accessing financial services, if they perceive that it would be difficult for managing, they might not adopt it [31, 35]. Therefore, the relationship between perceived usefulness and perceived ease of use is not detachable to measure their effect on users' intention to adopt technologies.

2.1.2 Customer awareness and subjective norms

Awareness was expressed as "amount of information" about the new technology which composes about its benefit and how to use [48]. As [48] stated, if customers have more information about the new technology they would respond more confidently. Similarly, awareness was defined as having information about the technology in advance how to manage and its benefit [49]. Sufficient information and knowledge about new banking technologies would result in positive intention to accept it. The effect of customer awareness confirmed in different countries like Finland [48], Australia [50] and in many more other countries [11, 51] as positively influencing factor of electronic finance acceptance such as internet banking, online banking, and mobile banking users. Since new information about technologies includes its benefit and how to use it, awareness significantly influences users' perception to feel the technology is useful to perform their task (perceived usefulness) and consider the technology is not complex to use (perceived ease of use).

The subjective norm was first constructed in TRA and defined as "the person's perception that most people who are important to him think he should or should not perform the behavior in question" [28]. Accordingly, the response of potential technology users influenced by people around them that they perceive as a good model. Therefore, if those friends, colleagues or family members perceive that their close friend, colleague or family member should use a given technology or not to use it, they would respond either positively or negatively. As researchers confirmed, the subjective norm has positive significance role in customers' decision of either using or not using electronic commerce and banking technological services [52–54]. According to the theory of social network when there is high social interaction, there is a great possibility of sharing new information among each other [55], as the result, it would increase awareness. Bank customers who are already actively using financial technology expected would insist their peer group to use the technology [29]. Similarly, those non-technology users might perceive that to comply with their friends' expectation, they may be positively motivated to try the technology. Therefore, it is expected that subjective norm (the social factor) might positively contribute to create additional awareness among their group. Authors also confirmed that there is a strong positive relationship between subjective norm and perceived ease of use and perceived usefulness [25, 56, 57].

3 Research model and hypotheses development

Based on the theory of technology acceptance model (TAM) the research model was developed by integrating with two other factors in consideration of the study area; customer awareness and subjective norm. The rationality behind adopting the TAM is; firstly, the two corner stone variables of this theory; perceived ease of use and perceived usefulness are comprehensively embodies factors explained under other models. For example two factors in UTAUT; performance expectancy and effort expectancy that was anchored itself on eight other antecedents [30] can be explained by these two factors. Secondly, this model was based itself on measuring the individual users' intention to adopt computer based technologies in the early time rather to focus on the spread of technology among users as that of innovation diffusion theory (IDT) [29]. Moreover, this theory was suggested by authors to study in the field of electronic based services; like internet banking, mobile banking and other e-commerce areas [39, 40, 58]. However, in this study some factors like computer anxiety, computer playfulness were not considered as important factors as it was in TAM3 [25]. This is due to since financial transaction is not a hedonic activity like playing a game, the study excluded to consider those issues. Similarly, this study was failed to include attitude as a mediating factor between users' intention and other exogenous factors as it was excluded in TAM3 [25]. Even though it was originally included in TAM, there is a suggestion of authors that reports the inclusion of attitude has no significant role to study factors affecting technology adoption intention [59]. However, there is another recommendation to include attitude as a mediator but it has to be in the volunteer condition [60].

In this study attitude was excluded to be considered as a mediating factor for three main reasons. First, as it was confirmed in the four longitudinal studies by [35] that was excluded attitude to consider as a mediator variable, there was a strong significant direct relationship between perceived usefulness and perceived ease of use and users' behavioral intention. Second, there was no strong direct relationship between perceived usefulness, perceived ease of use and attitude. Third, attitude has no fully mediation role of perceived usefulness and perceived ease of use on users' intention rather it was partially mediates. More importantly, many previous studies were confirmed that without including attitude in TAM results in equally parsimony model that predicts users' intention of adopting technologies [25, 35, 56, 61]. This implies that the original TAM [31] that was based itself on TRA [28] and TPB [26, 62] was later on excluded attitude in extended model of TAM2 and TAM3 [25, 35, 61] and empirically demonstrated that intention can be directly predicted by perceived ease of use and perceived usefulness without mediated through attitude. Similarly, in this particular study the researcher expects that the independent variables would directly measure the banking technology users' decision either to adopt or not to adopt the financial technologies without mediated through attitude. Accordingly, to study the determining factors of bank customers' intention to adopt the financial technology, the two TAM factors, perceived ease of use and perceived usefulness were integrated with customer awareness and subjective norm. The conceptual research model was developed in structural equation model and presented in Fig. 1

Based on strong theoretical and empirical studies it was hypothesized as follows:

3.1 Customer awareness, subjective norm and TAM factors

Having information about something new would help the user to respond either positively or negatively. Awareness about new financial technologies like internet banking,

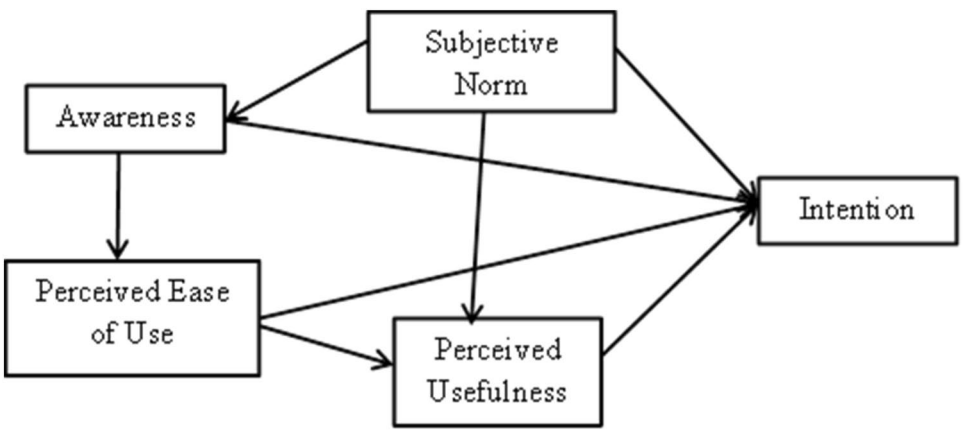

Fig. 1 Research model

mobile banking, card banking and other electronic or internet-based financial services expected to motivate bank customers to adopt it. New awareness about the benefit of financial technology expected to help potential technology users' to perceive it is useful for accessing their bank accounts. Previous empirical studies were confirmed that customers' awareness significantly contributes for adopting new technologies [11, 48, 51]. The relationship between customer awareness and subjective norm was not tested in previous studies. However, it is highly expected and rational to consider the effect of actively technology user on not yet adopted one. In most collective culture society [13] like Ethiopian, the positive word of mouth about the financial technology by users would increase new awareness about the technology to non-users and as the result; it would positively motivate them to adopt it. In some studies authors argues that subjective norm and customer awareness has dual relationship but tested the positive effect of awareness on subjective norm [63]. Of course, the new information about the financial technology expected to include the issue of its benefit (helps to perceive the technology is useful) and easily manageability (helps to perceive the technology is easy to use) [31, 35]. But, the influence of subjective norm on potential users' perception to perceive the financial technology is easy to use would be less compared to its influencing power on their perception of the usefulness. It means that people who are important to bank customers would easily help them to perceive the technology is useful. Rather, the users' confidence to perceive the technology in question is easy to use is highly depends on their internal self-efficacy of using the technology devices or platforms like internet [32, 35] than mere word encouragements. Based on this it was hypothesized as follows:

H1: Customer awareness would have a positive direct effect on customers' intention.
H2: Subjective norm would have a positive direct effect on customer awareness.
H3: Customer awareness would have a positive direct effect on perceived ease of use.
H4: Subjective norm would positively influence bank customers' intention.
H5: Subjective norm would have a positive direct effect on perceived usefulness.

3.2 Perceived ease of use and perceived usefulness with intention

These two factors; perceived ease of use and perceived usefulness important factors that were studied and confirmed in many previous studies as positively influencing users' intention to adopt technologies [32, 58, 59]. According to the originators of the theory of technology acceptance, the two variables are highly interdependent and the absence of one perception without the other one had no meaningful effect on users' decision to adopt technology. It means that if customers perceived that the banking technologies is useful for accessing financial services but if they found the technology is complex to manage, it is meaningless and the opposite is true. Therefore, based on its strong theoretical support and empirical evidences as it was mentioned in the literature section, the following hypotheses were formulated:

H6: Perceived ease of use would positively influence bank customers' intention.
H7: Perceived ease of use would positively influence perceived usefulness.
H8: Perceived usefulness would have a positive direct effect on customers' intention.

4 Methodology of the study

Data was collected from 412 bank customers who were already using the e-finance services like mobile banking, internet banking, card banking and other self-managed financial technologies. Five technologically leading banks (Commercial Bank of Ethiopia, Dashen Bank, Awash Bank, United Bank, and Wegagen Bank) in Ethiopia were purposively selected and their respective customers in 26 branches were addressed through self-administered structured questionnaires. A multi-stage sampling technique was used for addressing the bank customers.

4.1 Validation of measurement items

Five-point Likert scale questionnaires were developed based on previous studies and strong theory concepts. Accordingly, for the issue of measurement validity for each variable proposed in the model, items were adapted from previous studies with rewording to contextualize in terms of electronic financial technologies. Measures for perceived ease of use (PEOU) and perceived usefulness (PUS) were primarily adapted from [18, 24], intention to accept (INT) was based on [25, 56] whereas items for variable subjective norm (SJN) was constructed from [25] and items for customer awareness (AWRN) was adapted from [64]. Although, all measurement items were constructed based on previous empirical studies, in the context of banking technology adoption and electronic financial services particularly in the consideration of bank customers in Ethiopia, questionaire were examined by senior researchers in univeristy and transalated to Amahric langauge using back trnsalation technque as it was suggested by authors [65].

5 Data analysis

A total of 500 copies of five pointed Likers scale questionnaires were distributed to bank customers. 412 fully completed relevant questionnaires were returned back and used for farther analysis. The demographic characteristics of respondents (see Table 1) revealed that 274(66.5%) were male while the age category of respondents shows that the majority 297 (72.1%) were under age of 18–29. The education level of respondents shows that majority (59%) were first degree holders and more than 50% of respondents had three up to six years' experience of being the bank customer. The descriptive statistics reveals that the majorities of financial technology users are young age groups and educated. This study was a confirmatory study in nature and hypotheses were tested using SEM analysis by help of AMOS 18.

Table 1 Characteristic of respondents

	$N=412$	%
Gender		
Male	274	66.5%
Female	138	33.5%
Age		
18–29	297	72.1
30–40	88	21.4
41–55	23	5.6
Above 55	4	1.0
Bank experience		
Below 2 years	104	25.2
3–6 years	207	50.2
7–10 years	74	18.0
11–15 years	17	4.1
Above 15 years	10	2.4
Education		
Elementary	12	2.9
High school	52	12.6
College diploma	66	16.0
First degree	245	59.5
Second degree	33	8.0
PhD and above	4	1.0
Occupation		
Student	143	34.7
Govt employee	119	28.9
Private employee	107	26.0
Business owner	31	7.5
Unemployed	7	1.7

The confirmatory factor analysis (CFA) of the measurement model was resulted in well-fitting model for structural equation analysis. To arrive at the final parsimony model only minor modification was done on the research model like deleting relatively low loaded item in one factor. Accordingly, the final model fitness criteria value for NCI was between 1 and 3 (NCI = 2.335), GFI = 0.925, AGFI = 0.898, CFI = 0.942, which strongly meets the conventional cut point and RMSEA = 0.057 ($p = 0.086$) that is acceptable value which is below 0.5 [66, 67]. Similarly, the measurement model was checked for convergent and discriminant validity issue. Accordingly, it was confirmed that the construct reliability was greater than 0.7 and the average variance extracted (AVE) of each construct was above 0.5 [68]. The construct reliability (CR) value of each factor was found above 0.7. In the same manner the diagonal correlation result among constructs were above the AVE value of the model as it was depicted in Table 2.

6 Hypothesis testing and discussion of the result

Based on the CFA result of the measurement model, the SEM analysis was done using AMOS software. The final SEM was checked for fulfilling the fitness criteria and found the model fitted with all goodness indices. Accordingly, NCI = 2.195; GFI = 0. 996; AGFI = 0.968, CFI = 0. 998, RMSEA = 0.054 ($p = 0.361$) and TLI = 0.989) as it was suggested by different scholars [66, 69]. The maximum likelihood estimation of the regression result (see Fig. 2) revealed that all hypotheses were found statistically significant except the effect of perceived ease of use on bank customers' intention.

As the SEM result was presented in Fig. 2, it was hypothesized that customer awareness would have a positive direct effect on customers' intention to adopt the financial technology. It was confirmed that awareness ($B = 0.36$, $p < 0.001$) positively affects bank customers' intention to accept the

Table 2 Reliability and discriminant validity

Factors	CR	AVE	SJN	INT	PEOU	PUS	AWRN
SJN	0.850	0.587	0.766				
INT	0.822	0.607	0.429	0.779			
PEOU	0.740	0.507	0.296	0.391	0.698		
PUS	0.809	0.507	0.455	0.490	0.712	0.678	
AWRN	0.772	0.531	0.410	0.498	0.507	0.488	0.729

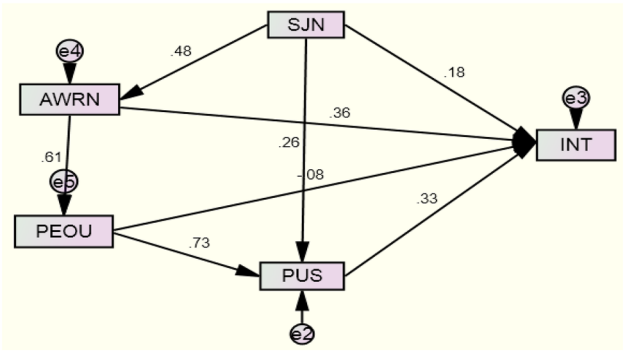

Fig. 2 The SEM result

technology and thus, the result validated the hypothesis (H1). Similarly, it was also hypothesized that customer awareness would positively influence perceived ease of use and subjective norm would positively influences customer awareness. The statistical result for both hypotheses was assured its effect positively with the coefficient of $B = 0.61$, 0.48, respectively at p value < 0.001; thus, it validates both H2 and H3. Awareness well explained perceived ease of use by $R^2 = 0.23$ and subjective norm explained customer awareness by $R^2 = 0.37$. Accordingly, customer awareness positively contributes for the adoption of financial technology like internet banking, mobile banking, card banking and others. This finding was consistent with previous results that assured customer awareness significantly affects bank customers' intention to adopt banking technologies [11, 51, 70]. However, as it was suggested by [63] there is bi-directional relationship between subjective norm and customer awareness with the same size coefficient. Having sufficient information about the new financial technology would significantly influence the users' decision to accept it. If bank customers aware about the e-finance, they would positively perceive that the technology is easy to use. Similarly, actively using customers, people who are important to the non-technology user (friends, colleagues, family etc.) through subjective norm positively increase the level of awareness about the technology.

Subjective norm was also hypothesized that it would positively predict both customer intention and perceived usefulness. It was statistically found significant ($B = 0.18$; $B = 0.26$; $p < 0.001$ respectively) and confirmed that the social factor positively contributes for the adoption of financial technologies. Previous empirical studies were also confirmed that the social factor positively influences bank customers' intention to accept e-finance technologies [71, 72]. Accordingly, if bank customer's peer group or any referent group perceives an individual has to accept the financial technology, then the customer might positively motivated to accept it. Subjective norm and perceived ease of use explained powerfully perceived usefulness by $R^2 = 0.72$ compared to other factors. Thus, the result validated H4 and H5. Perceived ease of use was hypothesized that it would have a positive direct effect on customers' intention to accept financial technology perceived usefulness. The regression coefficient result confirmed that perceived ease of use ($B = 0.73$; $p < 0.001$) positively predicts perceived usefulness but its' effect on customer intention was failed to be supported statistically ($B = -0.08$, $p > 0.05$).

Perceived usefulness ($B = 0.33$, $p < 0.001$) was statistically found significant and positively affects the bank customers' intention to adopt financial technology. This finding was supported by previous studies in the field of e-banking and e-commerce [2, 25, 31, 32, 73]. In many previous studies, it was found that both the TAM factors; perceived ease of use and perceived usefulness positively predict the users' intention to accept financial technologies. More importantly, as it was reported in TAM [32, 35, 61] there was a strong relationship between perceived ease of use and perceived usefulness. However, perceived ease of use was found statistically not significant in this study to predict intention. It was suggested by previous authors that the social culture difference might influence the factors that influence the users' decision. In a more individualistic culture, perceived ease of use would be more significant factor than in collective society [13]. The result of this study might reflect the cultural difference in collective culture. In other way the negative magnitude of perceived ease of use might indicate that customers are not perceives the financial technology is easy to use. Since the introduction of financial technology is at infant stage in the country and technology illiteracy is a serious problem in developing countries like Ethiopia [22], people might perceives using electronic-based financial service is complex to manage among other reasons. Together with all other factors the independent variable; intention explained by $R^2 = 44\%$. Therefore, this result was validated H7 and H8 but failed to accept H6 due to aforementioned reasons.

The integration of TAM with customer awareness and subjective norm indicated that the model can predict users' intention to adopt financial technology powerfully. Customers awareness was an important factor that positively predicting customers' intention and perceived ease of use [10, 11, 48]. The social influence variable, subjective norm was also an important factor that was positively predicted bank customers' intention to adopt electronic finance technology. In many previous studies, it was reported that subjective norm directly predicts users intention as it was in this study too [37, 49]. Beside this, it was found that subjective norm has a positive direct effect on perceived usefulness and customers' awareness. Therefore, in countries like Ethiopia, where there is strong social interaction, subjective norm significantly important factor to increase customer awareness,

which it may be due to positive word of mouth and as the result, it motivates users to accept new electronic banking technologies.

The two TAM factors; perceived ease of use and perceived usefulness were important factors confirmed by many previous studies [74]. However, in this particular study, perceived ease of use was failed to predict customers' intention to adopt financial technology. The justification for its failure in influencing customers' intention might be due to the cultural difference in the study area. Authors' indicated that a user living among "individualistic society" usually focus on the easiness of the technology to use since the users decide in his own risk [13]. However, a user living among "collectivistic society" highly depends on others' opinion or subjective norm that emanates from their personal experience about the technology. Nevertheless, perceived ease of use strongly predicts through perceived usefulness on customers' intention to adopt the financial technologies.

7 Conclusion

Based on the finding of the study, the bank customers' intention to adopt financial technology in Ethiopia influenced by customer awareness, subjective norm and perceived usefulness directly. Similarly, customer awareness directly influences the perceived ease of use while subjective norm; in turn, directly predicts customer awareness and perceived usefulness. Perceived ease of use was failed to directly predict customers' intention to adopt e-finance technology. However, perceived ease of use positively and strongly predicts perceived usefulness. This may imply bank managers demanded to introduce easily manageable technologies for electronic financial services and as well as introducing the benefit of technology. However, in developing countries like Ethiopia illiteracy and poor infrastructure may hinder bank strategies of introducing new technologies [22] including multi-lingual problem for designing applications. Therefore, designing a reliable trustworthy system is also another assignment of bank management. The emergence of cybercrime news in developed countries including the expansion of digital currency like Bitcoin [16] including in developing continents like Africa, increases the frustration of users to adopt new electronic financial technologies.

Customer awareness was another important concern of bank customers about electronic banking technologies and electronic financial services. If once customers had sufficient information about how to use the technology and its benefit, they would be positively motivated to adopt it [64]. The advantage to improve bank customers' awareness, alongside bankers' direct role of introducing about the technology and its services, people who are important to users would significantly influence their awareness level through subjective norm. It was also confirmed in previous studies that, in countries like Ethiopia, where there is high social collaboration, the perception of other friends, colleague or family is an important factor that influences the motivation of others. Customer awareness significantly influences technology users' intention to adopt it [11]. However, the bank management should minimize service error rate or unsuccessful transactions for minimizing the negative word of mouth of referent groups to their customers. This is due to if people important to bank customer frequently complaining about the new financial technology for mistakes, that would erode their confidence to adopt it [75]. Therefore, increasing their customers' awareness by providing full information would be another concern of bank management.

8 Recommendations

Increasing customer awareness about the financial technology benefit and its operation would significantly motivate bank customers to accept it. High social interaction among customers would synergistically increase the dissemination of positive word of mouth about the technology. Minimizing the confusion of digital currency or "block-chain" technology and ensuring the security concern of customers might positively encourage bank customers to use the e-finance system by their own. Therefore, bankers should continuously work on increasing customer awareness about the usefulness and its operation through different media (television, radio, web etc.). Moreover, instead of giving incentives to bank employees for recruiting and registering new financial technology users, it would be more fruitful incentivizing those active customers who invites new non-technology users. Because rather than bankers who meet customers in branches for few minutes, friends, colleagues, family members and other important people to potential technology users would create more awareness, as the result, might play a significant role in increasing new financial technologies.

The complexity of the technology for accessing financial services is the concern of many non-technology adopters. In developing countries illiteracy and poor infrastructure is common challenge [22]. Though perceived ease of use was failed to be significant in this study it was negatively related to intention that might imply bank customers perceiving the technology is not easy to use. To improve the computer skill and self-efficacy of using technology arranging computer skill training to the citizen or including computer skill courses in the formal education curriculum might improve their perception and confidence. However, most of financial technologies are designed in English version and there is language constraint too. Therefore, the government of Ethiopia and financial institutions should encourage financial technology entrepreneurs to design easily manageable and multi-lingual reliable

applications. Likewise, the adoption of e-commerce platform might attract customers to use the financial technologies for buying online products. Ethiopia is currently in the virtue of launching e-commerce system as the center of East Africa. This might ignite the adoption of new financial technologies like mobile banking, card banking and internet banking. Therefore, the government should facilitate new infrastructures for introducing e-commerce system. Similarly, the establishment of agent banking system might play a significant role for introducing financial technologies to the rural and retail business group and as well as it would strength the financial inclusion of less privileged group of the community.

9 Limitations and future research directions

This study has many contributions for bank practitioners and policy makers. However, the study is not free from limitations and based on the limitations future direction is forwarded to coming future researchers. First, in this study data was collected from bank customers who have been already adopted the financial technology but the future researchers can collect data from non-technology users. But, evidence from dormant users or branch customers might confidently give light that which factors really determines users' intention either to adopt or not. Therefore, future researchers can collect data from non-technology users or dormant users to identify why they preferred to stay offline. Second, variables included in this study focused on those positively influencing only and failed to include factors expected would negatively influencing like; perceived financial risk [49], security concern and privacy. Since financial technologies are used for transacting financial information and transferring money, considering such factors in studying the adoption of financial technologies would result in a holistic finding. Therefore, it would be better if the future interested researchers include the aforementioned factors and other relevant variables in their study and test their effect on bank customers' intention to adopt financial technologies. Third, this study was targeted on all type of financial technology users (mobile banking, card banking, internet banking and any other customers who have been using self-managed financial technologies). However, any interested future researchers in the field of e-banking and financial technology can focus on a particular financial technology and exhaustively test which factors significantly affects the potential users' intention to adopt a specific financial technology.

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