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E-Financing and the Quest for Financial Inclusion in Tanzania

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Abstract

Electronic money transfer (e-finance) has gained support by the government of Tanzania as an innovative payment system that provides financial opportunities to both rural and urban populations. However, despite the fact that e-finance offers many advantages to both public and private institutions and individual clients; and that it has been promoting financial inclusion through the provision of affordable, accessible and relevant financial products to individual as well as firms, yet it is not without challenges. Therefore, this paper sets out to examine current trends in relation to financial inclusion, and issues and challenges associated with electronic money transfers in Tanzania. It focuses on the dynamics of financial inclusion and challenges of electronic money transfers such as security risks, including cybercrimes (theft, spies, hackers, and fraudsters). Also, it delves into how low level of understanding by some clients and service providers is a challenge in e-finance since the two parties share sensitive information through company computers as well as pin codes when transacting electronic money. The paper recommends that it is imperative for the government and other stakeholders to train both clients and service providers on the safe use of e-finance and establish anti-cybercrime control mechanisms.

Keywords: *information and communication technology; e-finance; e-service; financial inclusion; mobile money.*

1. Introduction

The advent of information and communication technology (ICT) offers opportunities for public services to strive for higher efficiency and provide better services in a rapidly changing environment (CS, 2004). In capitalizing on the use of ICT as a key enabler of the transformation process, public sector agencies are now poised to better manage and share information seamlessly to reap the real benefits of the digital era (ibid.). In developing countries such as Tanzania, the application of ICT has led to the establishment of robust systems of financial inclusion to all groups in rural and urban areas. In addition, ICT has facilitated electronic (e-finance) transfer of money in a quick and cost-effective way (Kramer et al., 2007; Kirui et al., 2012).

The application of ICT has accelerated the process of deregulation, thereby facilitating the development of e-finance (Zekos, 2004). Before the adoption of e-financing, less than 10 percent of adults had access to a formal banking service in Tanzania (URT, 2012). Furthermore, in addition to a majority of citizens being excluded from formal financial services, the country's payment system suffered from several weakness, including:

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(a) Cash continued to be the dominant payment instrument mainly due to low levels of technology and confidence in other payment modes;
(b) Low level of banking coverage that undermined efficient and effective financial inclusion to most of the Tanzania population;
(c) Infant financial markets with low activity to facilitate liquidity management;
(d) Delays and associated floats in the clearing system due to inefficiency and attitudes in processing transactions;
(e) Fraudulent activities facilitated by weaknesses in processing and internal controls;
(f) Inadequacy of supportive institutional structures and comprehensive laws governing payment;
(g) Inefficient infrastructure to support payment systems;
(h) Low level of automation in payment systems;
(i) Limited payment products in the banking industry; and
(j) Inadequate knowledge and expertise in payment system issues (URT, 2011).

In this period Tanzania had only three state-owned banks—the National Bank of Commerce (NBC), Tanzania Housing Bank (THB), and Cooperative and Rural Development Bank (CRDB)—which provided financial services to all sectors and individuals mostly living in urban areas (URT, 2013). As a result, only 25 percent of the money in circulation was carried out by the banking system, while the remaining 75 percent circulated informally (TBA, 2012).

The mode of financial transaction used was restrictive and exclusive, as it required a lot of paper work for an individual or a company to open an account. This not only excluded most of the population, it also discouraged some individuals from seeking financial services from banks as it was associated with red tape that delayed the offering of financial services. This affected not only individuals in need of financial services, but also financial institutions efforts to reach more clients. For example, the interbank clearing service was done manually, which took at least three days to clear financial transactions in urban areas, and 28 days for remote clearing (URT, 2015). All the three banks used telegraphic transfers (TT) and mail transfers for local inter-branch payments, and physical delivery/payment where telecommunication was not available; while mail and telegraphic transfers were restricted to intra-bank transfers (URT, 2011). Because of the low level of technology used in financial transfers, inefficient and ineffective financial transactions were the order of the day; and the result was financial exclusion of most citizens in both rural and urban areas in Tanzania.

In addressing these bottlenecks, the Tanzania government launched a national payment system (NPS) project that envisaged establishing an efficient and customer-centred national payment system by the year 2005. Specifically,

the system meant to increase reliability, security, convenience, and accessibility; be more cost effective and universal; and integrate to meet the payment needs of the economy (URT, 2011). To meet the stated objectives, several private banks were established, and electronic money transfers were also instituted. With the establishment of private banks and other small and medium financial institutions, the central bank of Tanzania had to adopt new mechanisms for overseeing and regulating the operations of the financial industry. Among of these initiatives were e-finance mechanisms. E-finance was seen to facilitate financial transactions through cyberspace or other public networks such as online banking, electronic trading, and the provision and delivery of various financial products and services such as insurance, mortgage and brokerage, electronic money, electronic payment, and communication of financial information (URT, 2015). All these mechanisms, which were facilitated by ICT, aimed at increasing financial coverage/inclusion to individuals and firms.

In the country's agricultural sector, for example, ICT is also said to play an important role in its development by facilitating the storing and sharing of agricultural knowledge via cellular phones with some farmers, and also facilitating electronic payment of agricultural tools and other related bills (Mtega & Msungu, 2013). Currently, electronic money transfers, facilitated by ICT, has made significant changes in the way government institutions communicate among themselves, to citizens and to private sector organizations, including financial institutions. The adoption of electronic money transfers (e-financing) and other innovative information technology has largely affected financial systems moving from restricted proprietary systems to open networks (Zekos, 2004). For example, the 2000s second-generation financial sector reforms in Tanzania focused more on establishing and promoting a viable and sustainable microfinance industry with a wider outreach (inclusion) through the application of ICT, and efficient payment system through e-financing that brings about financial deepening (BoT, 2011). E-finance involves no physical delivery: it is based on personal computers, mobile phones or interactive digital, which facilitates sending and receiving electronic money transfers in a quick and cost-effective way; and it is easy to use and inclusive. Also, e-financial transfer systems have led to an increased government revenue as all financial transactions are recorded by the Bank of Tanzania (BoT) and the Tanzania Communication Regulatory Authority (TCRA), thereby facilitating collections.

Despite the positive results recorded after the adoption of electronic money transfers in terms of financial transactions (inclusion) in Tanzania, this has exposed the country to new and emerging threats such as cyber-terrorists, spies, hackers, and fraudsters who are increasingly targeting the country's ICT infrastructure (Serianu, 2016). It is against this background that this paper sets out to examine the dynamics of financial inclusion facilitated by electronic money transfers, and the key issues and challenges associated with electronic money transfers in Tanzania.

The materials for the paper are based on secondary data gathered from a number of relevant government documents such as the BoT's 2016/17 and 2015/16 annual reports; acts of parliament such as the Bank of Tanzania Act, 2006; Banking and Financial Institutions Act (Cap 342); National Payment Systems Act, 2015; and the Electronic Money Regulations, 2015. Other documents include the Public Financial Management Reform Program, project documents, strategic plans, medium term strategies, and internal and external evaluation reports.

2. E-finance: Conceptual Issues

E-finance activities include all types of financial activities carried out over cyberspace or other public networks, such as online banking, electronic trading, the provision and delivery of various financial products and services such as insurance, mortgage and brokerage, electronic money, electronic payment and communication of financial information (Zekos, 2004). E-finance is also about financial inclusion, among other things. Financial inclusion refers to the regular use of financial services through payment infrastructures; the provision of affordable, accessible, and relevant financial products to individuals as well as firms through an established broad and robust infrastructure to support the growth of appropriate financial services; and the use of technologically driven delivery channels (Ndulu, 2016). Technically, e-finance is any financial product whose sale or consumption is facilitated electronically—or more specifically, via the Internet (Hans, 2001; Punjabi, 2016). E-finance is simply the use of electronic means to transfer funds directly from one account to another through the Internet and/or wireless communication networks, and by the use of service delivery products such as electronic cards, electronic payment transfers systems, mobile banking, internet banking, automated teller machines, point of sales terminals, payment switches, and any other type of electronic payment transfer systems (URT, 2007). It is also known as digital money or electronic monetary value stored in an electronic device that serves as an alternative to cash used to make payments (Shrier et al., 2016).

In principle, e-financing is facilitated by digital information and communication technology. It caters across several forums used on either purchase transactions or deposits using computer and other electronic devices as alternative to cheques and other paper transactions. In this regard, e-financing has been a pioneer and a powerful catalyst in addressing the needs and interests of low-income communities by reducing operating costs, and expanding financial services to rural and low-income areas (Hishigsuren, 2006; Kramer et al., 2007). Unlike pure cash-based transactions, e-finance-based transactions can take place with less time, and fosters financial inclusion (ibid.).

Therefore, e-finance—and particularly e-payment systems—have been the most promising areas of e-commerce as financial services are information-intensive, and often involve no physical delivery (Zekos, 2004). E-finance reduces transaction costs, thereby improving productivity; widens the geographic scope

of potential; and channels knowledge and financial transactions (Krameret al., 2007). In Tanzania, for example, e-financing via mobile phones, automatic teller machines (ATMs), and other services has rapidly spread to rural and urban areas. In Tanzania, the cost of maintaining sufficient physical bank branches in both rural and urban areas is very prohibitive due to the minimum balance requirements set to maintain a bank account, which most customers cannot afford; and the regular bank charges from individual bank accounts, which also discourages many low-income earners to use financial services from conventional banks. As such, e-financing has offered individuals, as well as institutions, the alternative of using cyberspace to access financial services in an efficient, cost-effective, and effective way to cater for various needs.

As mentioned earlier, among the notable benefits of e-financing in Tanzania is enhancing financial inclusion of the unbanked citizens in rural and urban areas in the country. The government has been promoting the implementation of e-financing by authorizing the central bank (BoT) and the TCRA to regulate and facilitate investment on electronic money transfers. However, data on the state of financial inclusion in Tanzania is scant: there is no consolidated information to evidence the access and use of more sophisticated financial services (serving, credit, and insurance) that could prove far more beneficial to the poor. The implementation of e-finance has been taken as a driving force toward modernizing the landscape of the finance industry mostly in areas where infrastructures, institutional and individual technical capacities are well-developed.

However, we should note that e-financing cannot meet all development challenges by itself: it must be a part of a mix of sound government policies, enhanced workforce skills, and infrastructure investments (Kramer et al., 2007). The potentials of ICT require clean and constant power supply; a robust, accessible, and affordable connectivity network; technical literacy; skilled users and support systems; functional markets; and supportive regulatory and policy frameworks (ibid.). In Tanzania, for example, in addition of the lack of sound government policies, enhanced workforce skills, and infrastructure investments, e-financing has been facing numerous challenges ranging from spies, hackers and fraudsters (Serianu, 2016). This has been due to the reluctance of financial institutions to invest on skilled workforce and infrastructure, and cyber control systems: most have only instituted internet-based system to operate their financial needs, from managing bank accounts to bill payments.

3. Dynamics of E-Financing and Financial Inclusion in Tanzania

The dynamic nature of e-financing is one of the characteristic features that facilitate financial inclusion in developing countries, including Tanzania. It largely depends on the internet and/or wireless communication networks, electronic cards, mobile banking, among others (URT, 2007). The implementation of e-financing has transformed the lives of many poor and middle-income earners

in urban and rural areas to hold recorded cash privately in non-bank electronic accounts; and has enabled them to carry out regular financial transaction easily, fast, and cost-effectively through mobile phones (Inter Media, 2013). It has also facilitated the growth and spread of financial service providers and clients, particularly unbanked local communities. More importantly, it has opened opportunities for innovation, investment, growth, and financial inclusion of unbanked local communities in rural Tanzania. The ability of unbanked local communities to transact money has relatively improved. In this regard, the surveyed literature revealed that 35 percent of households in Tanzania have at least one registered m-money user (Inter Media, 2013).

Evidence from the surveyed literature also revealed that the implementation of e-services has enhanced access to government services through multiple electronic delivery channels, including electronic payment of bills (CS, 2004). Thus, e-finance is one among the new innovative mechanisms facilitating smooth implementation of e-services, which in turn are a driving force towards increasing access to financial services, as well as promoting financial inclusion to most citizens. Other developments include the emergence of mobile telecom networks as major providers of financial services, bypassing the sparse retail networks of traditional banks in developing countries, particularly in Tanzania (Economides & Jezirski, 2016). For example, before the implementation of e-financing in Tanzania, only less than 10 percent of adults had access to a formal banking service, such as a bank account; leaving more than 90 percent outside the reach of mainstream banking systems (FSDT, 2016).

Thus, e-finance is offering essential opportunities for enhancing financial inclusion as it has narrowed down the gaps left by traditional banking systems (Hawaiju, 2013). Unlike conventional banking system operations, e-financing offers new possibilities for making financial services more inclusive in Tanzania. Mobile network operators have made huge investments to create networks that reach further and deeper into rural areas, which were historically marginalized, in an effort to satisfy their demand to communicate (UN, 2012).

On the part of the government, the adoption of e-finance facilitated the establishment of electronic clearing house in 2002 that was tasked to undertake cheque clearance electronically. In 2010, this office had a capacity of clearing an average of 4,320 items valued at TZS13bn per day (URT, 2011). In addition, the central bank (BOT) also launched a web-based government security system (GSS), which offers a combination of online bidding and central depository facilities such as collateral management and transfer of ownership (Mutahaba et al., 2017). The system is open to banks and brokers/dealers. It is robust and conforms to international best practice, including the Know Your Customer (KYC) principle (Mutahaba et al., 2017). In a similar vein, the government has simplified the transferring of bulk payment—such as salaries, inter-bank fund transfers between participants (commercial banks, financial institutions, TRA, ZRB and the Ministry of Finance), or on behalf of their customers, and other payments—through the use of ICT (ibid.).

E-finance has also enhanced the work of the BoT in retail payment, which entails the provision of settlement services such as card payments, ATMs, Point of Sell (POS), internet banking, mobile phone payments and retail payment clearing system (Switch) (URT, 2011; Mutahaba et al., 2017). Another development includes the enhancement of electronic fund transfer (EFT) services for clearing high volume, and low value interbank payments such as salaries and recurrent expenses. To underscore the use of e-finance, cheque capping limit of USD10,000 was introduced in March 2012 (Mutahaba et al., 2017). Also, the BoT began to provide settlement services for inter-bank payments emanating from card payments. These are processed through card switches, namely the VISA (Tanzania National Net Settlement Services), Umoja Switch (owned by a consortium of local banks) and MasterCard. The number of ATMs connected to these switches increased to 1,906 in 2016 from 1,005 in 2010/11 (URT, 2013; Mutahaba et al., 2017).

As mentioned earlier, mobile telecom networks have emerged as major providers of financial services, bypassing the sparse retail networks of traditional banks in developing countries, including Tanzania (Economides & Jezirski, 2016). Unlike conventional banking systems, e-financing offers new possibilities for making financial services more inclusive in the country. With six mobile money service providers (Tigo Pesa, M-Pesa, T-Pesa, Ezy Pesa, Halo Pesa and Airtel Money), mobile banking presents the potential to extend beyond the tradition bank coverage to include rural areas. With this wide coverage, by 2014 there were over 30m mobile banking subscribers (Masamila, 2014). The coverage has been attributed to huge investments made by mobile network operators, which have created networks that reach further and deeper into rural areas that were historically marginalized (UN, 2012). For example, Hawaiju (2013) has observed that M-Pesa not only increased the activities of monetary financial institutions, but it has also been used as a medium of storage of money by both banked as well as unbanked customers as it is easily accessible.

The rapid growth of mobile phone subscriptions in the light of a relatively slow growth of commercial bank accounts over the same period is a clear indicator of the ability of mobile money to extend financial services to new groups of people in Tanzania (USAID, 2013). For example, by 2012 only 17 percent of the adult population (about 3.7 million) had bank accounts (TNCFI, 2016). However, with the advent of mobile telephone technology, by 2013 nearly 43 percent of the adult population (9.8m) had active mobile payment accounts (ibid.). Table 1 shows the status of mobile banking from 2011 to 2016. According to the table, the number of registered customers increased from 21,184,803 in 2011 to 64,404,419 in 2016, while the number of register mobile money agents also increased from 83,795 in 2011 to 299,060 in 2016. The volume of transactions (money) increased from 134,922,457 to 131,823,715 in the same period. The data also indicate that mobile payment has enlarged the scope of financial coverage in Tanzania despite the fact that many Tanzanians—in both rural and urban areas—still face a number of challenges, including unreliable network connections, and low levels of knowledge with regard to the use of ICT tools and its associated risks.

Table 1: Mobile Payment System in Tanzania (2011–2016)

Mobile financial services	Year					
	2011	**2012**	**2013**	**2014**	**2015**	**2016**
No. of Registered Customers (Cumulative)	21,184,803	26,871,176	31,830,289	41,380,791	53,843,917	64,404,419
No. of Agents	83,795	97,613	153,369	238, 461	267,047	299, 060
Volume	134,922,457	546,732,134	1,005,113,297	125,147,719	128,445,214	131,823,715
Value (TZS millions)	5,563,281	17,407,725.74	28,852,294.02	40,893,000	42,902,000	45,011,000

Source: Hawaiju (2013); IFC (2015); Paelo (2017); BoT (2018)

The government has enacted several legislations to increase the efficiency and effectiveness of e-financing. These include:

(a) National payment system, 2015,
(b) Electronic money regulations, 2015,
(c) Banking and financial Act, 2011,
(d) Electronic Payment Schemes Guidelines and the Mobile Payment Regulations, which intend to promote competition and innovation and offer legal certainty and predictability of mobile payment operations in the country, and
(e) TISS, ECH, and EFT systems and rules and regulations that provide guidance and a view of enhancing payment systems (URT, 2015).

To enforce these, the BOT Act of 2006 was amended in 2007 to incorporate admissibility of electronic evidence, thus creating certainty of acceptance of electronic information as prima facie evidence in court cases (URT, 2015).

4. Key Issues on E-Financing and Financial Inclusion in Tanzania

The implementation of e-financing in Tanzania has raised several issues ranging from legal, security, regulation, overseer, coordination and cooperation, inclusion, to law enforcement concerns. By its nature, e-finance is by no means the only option for extending access to financial services to the poor, particularly where physical infrastructures of conventional banks are limited. In Tanzania, for example, e-financing emerged as a key tool to facilitate financial inclusion as a matter of priority for the government. Despite of the potential benefits of electronic money transfer, however, most service providers in this regard largely act as intermediary cash agents, and do not offer any other kind of financial services.

Also, many of the features of e-finance are convenient and attractive to cyber-theft, money laundering and other cybercrimes. For example, the cross-border nature of e-financing raises critical concerns that require effective coordination, regulation, and co-operation among countries (Mutahaba et al., 2017). Moreover, the development of e-financing has raised some policy issues on the

oversight function for payment systems, the operation of money policies and the extent to which central banks have supervisory responsibilities, and the possible financial risks borne by issuers of e-money (BIS, 1996). All these, among others, are issues that need addressing regarding e-financing.

In Tanzania, for example, one of the issues regarding the implementation of electronic money transfer relates to the roles of the BoT and TCRA. For instance, the central bank has instituted agency banking regulations with the aim of enabling banks to extend their outreach through non-banking retail outlets such as supermarkets, petrol stations, and others (Mutahaba et al., 2017). Furthermore, the BoT has spearheaded efforts to coordinate issues related to financial inclusion by forming various committees (e.g., the National Financial Inclusion Team, Steering Committee, and National Council) charged with the responsibility of coordinating and developing financial inclusion strategies/ frameworks (ibid.). These initiatives aimed not only at financial inclusion, but also to enhance the oversight functions of the BoT.

The electronic money services are potentially made available to anybody, provided that s/he has an access and can use mobile phone, internet banking, among others. E-financing is inclusive to all: the under-banked and unbanked rural poor who are not targeted by commercial banks. Electronic money can be stored or withdrawn as cash via a coded secure text message without having a formal bank account. In addition, it provides an alternative method of paying for goods and services, and making a wide range of financial transactions via electronic messages without the necessity of a paper instrument of exchange (OTA, 1982). The implementation of e-financing programme has enabled the central bank to successfully effect a large value transfer system called Real Time Gross Settlement (RTGS), known as the Tanzania Interbank Settlement System (TISS) (BOT, 2011). This is an inter-bank fund transfer system through which large value and/or time critical credit transfers are made between participants in the system for their own account or on behalf of their customers. The system has significantly improved efficiency in the payments system by eliminating the settlement time lag (float) and minimizing settlement risks (ibid.). On average, the system has been able to process about 5,000 transactions valued at TZS16bn per day (BOT, 2011).

For mobile money, the total number of mobile phone payment accounts operated by Vodacom (M-Pesa), MIC Tanzania (Tigo-Pesa), Zantel (Easy-Pesa), and Airtel (Airtel Money) increased to over 28 million, with total trust account balances of about TZS161bn in 2011 (URT, 2011). Mobile banking is the only available feasible means to provide a mass market alternative to branch banking in Tanzania (Masamila, 2014). More importantly, all public and private institutions, including microfinance institutions, are using mobile phone services to disburse and collect loans from their clients. Several banks have introduced internet and mobile banking services as alternative payment channels. Examples of these products are PesaFasta (NMB), TPB Popote (TPB),

and SimBanking (CRDB). Barclays, Citibank, CRDB, NBC, Standard Chartered, UBA, and Stanbic are offering internet banking service (BOT, 2011; URT, 2011; Mutahaba et al., 2017).

However, the extent of the spread of e-financing will depend on the incentives made available to issuers, consumers, and merchants such as revenue generation, cost of savings from reduced cash handling, and others. Also, another constraining factor in Tanzania is the degree of the penetration of the Internet as a measure of customer readiness to access and transact on-line, which is a key issue in explaining customer conversion to e-financing. The cost of accessing internet services and the cost of PCs inhibit access to e-finance market development. In addition, the trust, confidence, and awareness for most of the citizens in using e-finance are on the lower side. It is important to create awareness as well as building confidence on matters related to security systems on individuals pin codes, the way private data will be used by banks, and how consumer privacy will be protected. These are among issues to consider in the development of e-financial services.

In building trust and confidence in the operations of e-financing, the government legislated a parliamentary Act of 2006, which among others, regulates the implementation of e-financing in the country. For example, section 22 (1) states:

> An electronic money issuer shall not commence business until (a) the business security facilities, communication facilities, processing equipment, ant-money laundering system and accounting system are in place and have been inspected, reviewed, and approved by the BoT (URT,2006; 2007).

On a similar vein, section, 26(1) reads:

> An electronic money issuer shall not issue electronic money without opening a trust account or a special account in accordance with the regulations and (2) subject to sub-regulation (1) an electronic money issuer who is- (a) a non- bank or non-financial institution shall be required to open and maintain a trust account in a bank or financial institution (ibid.).

The law also requires BOT to set transaction limit on electronic money transfers by non-financial institutions, including money issued via mobile phones. Section 35 (1) of the 2015 Act states that electronic money issued shall be subject to transaction limits based on categories of electronic money holders that include daily transactions and account balance limits (URT, 2015). In addition, section 32 states that an electronic money issuer shall prepare and implement risk mitigation plans to address risks that arise in the issuance, and management of operations of the electronic money business (ibid.). Other requirements include: business licence, tax identification number (TIN), tax clearance certificate for retail wholesale agents. In addition to the aforementioned requirements, they also need to be registered as corporate entities (ibid.). Tables 2 and 3 summarize more of the details.

Table 2: Mobile Money Transaction Limits for Individual Customers Under Mobile Money Financial Services

Customers Category	Customer Tier	Maximum Transaction limits (Per day)		Risk Mitigation Measures		
		Limit	**Amount (TZS)**	**Customer Verification Requirements (KYC)**	**Institutional Governance and Management Information Systems**	
					MIS	**Governance**
Individual Customer (Handset Transactions	***Tier I*** (Electronically registered)	Maximum single transaction	1,000,000	▪ National ID; or ▪ Voter's registration card; or Employment ID; or ▪ Social Security ID; or ▪ Letter from ward/village ▪ executive officer	Automatic system block on exceeding limits, Audit trail reports of transaction of each customer Alerts Anti-money laundery-AML intelligent System, Electronic records of transactions auditable in Mobile Network Operators-MNO system, Electronic statement sent to customer and agent,	Segregation of duties and clear approval procedures that are documented, Existence of a risk mitigation Unit, Anti-money laundry-AML compliance officer and reporting, AML Reporting of suspicious transactions,
		Maximum daily transfer	1,000,000			
		Maximum daily balance	2,000,000			
	Tier II (Electronically registered plus physical registration and storage of documents in the mobile money customer account registry applying KYC controls)	Maximum transaction counts should not exceed the maximum daily transfer limit		For mobile money (e-money) transfers transactions: ▪ Registered phone number ▪ Registered mobile money account customer ▪ For cash-in transactions: - ▪ Registered phone number and registered mobile money account customer, ▪ Acceptable photo ID For cash-out transactions: ▪ Acceptable photo ID: ▪ National ID; or Voter's registration card; or Employment ID; or Social Security ID; or Letter from ward/village executive	Automatic system block on exceeding limits, Audit trail reports of transaction of each customer, Alerts AML intelligent System, Electronic records of transactions auditable in MNO system, Electronic statement sent to customer and agent	Segregation of duties and clear approval procedures that are documented Existence of a risk mitigation Unit, AML compliance officer and reporting, AML Reporting of suspicious transactions Small
		Maximum single transaction	3,000,000			
		Maximum daily transfer	3,000,000			
		Maximum daily balance	5,000,000			
		Note: Maximum transaction counts should not exceed the maximum daily transfer limit				

Source: URT (2015)

Table 3: Mobile Money Transaction Limits for Small and Medium Enterprises, Retail Agents, Super Agents and Large Businesses

Customers Category	Customer Tier	Maximum Transaction limits (Per day)		Risk Mitigation Measures		
Small and Medium Enterprises	Tier III (Electronically registered plus physical registration and storage of documents in the mobile Money customer account registry applying KYC controls	Maximum single transaction	10,000,000	Full KYC Terms and conditions for operating the Micro-Enterprise mobile money account, Tax Identification Number, Business License Number, VAT registration, Other verification documents,	Automatic system block on exceeding limits Audit trail reports of transaction of each customer, Alerts, AML intelligent System, Electronic records of transactions auditable in MNO system, Electronic statement sent to customer and agent.	Segregation of duties and clear approval procedures that are documented, Existence of a risk mitigation Unit, AML compliance officer and reporting, AML/CFT Reporting of suspicious transactions,
		Maximum daily transfer	50,000,000			
		Maximum daily balance	50,000,000			
		NOTE: Maximum transaction counts should not exceed the maximum daily transfer limit				
Retail Agents	Tier IV (Individuals or SME registered as Retail Agents with full KYC	Maximum single transaction	ZERO*	Full KYC Agent, Agreement/ Terms and conditions, Agent Number, Tax Identification number, Business License Number, Agreement of agency business,	Automatic system block on exceeding limits, Audit trail reports of transaction of each customer	Segregation of duties and clear approval procedures that are documented, Existence of a risk mitigation Unit
		Maximum daily transfer	ZERO*			
		Maximum daily balance (Float)	100,000,000			
	Documentation and agreements with clear terms for provision of agent services. Copies retained in registry)	*Note: Agents are not allowed to send person to person payment transfers. They are only for cash in and cash-out		VAT registration, Other verification documents	Alerts, AML intelligent System,	AML compliance officer and reporting, AML Reporting of suspicious transactions
Super Agents	Full business KYC shall apply and each MNO shall submit to the Bank a list of Super-Agents with copies of the business service agreement and quarterly updates of registered Super Agents. Submission of monthly reports of transactions volume and values of super-agency service					
Large Business	Full business KYC shall apply and each MNO shall submit to the Bank a list of large business with copies of business service agreement and quarterly updates of registered large business. Submission of monthly reports of transactions volume and values of large business service					

Source: URT (2015)

In the light of the information in Tables 2 and 3, mobile money transfers is constrained by limited capacity of agents as many have inadequate capital in rural areas (floats and cash money). In urban areas, the issue of transaction limits for electronic money issued via mobile phones is also a constraining factor towards financial inclusion as some clients fail to attain their planned goals.

5. E-financing and Its Related Challenges in Tanzania

The implementation of e-financing in Tanzania is faced with several challenges. One of the most critical challenges is the lack of awareness amongst technology users (Venkatakrishnan & Nicholaus, 2013; Serianu, 2016). Many users—mostly customers and employees—have little knowledge of the level of risk they are exposed to; which range from well-meaning conversations and sharing of sensitive information on unsecure website using company computers (Serianu, 2016). According to the Tanzania Cyber Security report of 2016, the estimated cost of cybercrime in Tanzania was USD85m for banks, mobile money, and e-services. This can be partly attributed to the limited investment on cybercrime control tools as compared to the number of investments in ICT in the country.

Another challenge is the control of technology issues and security codes. Concerning technology issues, e-financing is carried out via ICT, which requires some level of knowledge and skills for both service rovers and customers. In this regard, the degree of preparedness to cope with fast changing information communication technological advancements across the country is relatively low. Many people, particularly in rural areas, are not using e-financing in the fullest due to limited knowledge and skills (Inter Media, 2013). The use of e-finance is also throttled by unreliable internet connection, and by low or the lack of technical competency to use ICT-mechanisms. Regarding security codes control, electronic money transfer is ubiquitous since anyone can transact any amount according to set limits using security code/pin code at any time from any place (Venkatakrishnan & Nicholaus, 2013).

Thus, increasing electronic financial transactions pose cyber security as the main challenge to both government and all digital money operators. E-financing in Tanzania is also constrained by sophisticated virus infecting all users (public and private), stealing of password details by hackers who use fake versions of login screens to access legitimate identification.

The number of incidences of frauds for customers' money stored in banks is increasingly being reported in police stations (World Bank, 2017). As Tanzanian organizations increasingly move to digitize their business transactions and connect to the Internet, the potential of cyber-attacks has risen across the country (Serianu, 2016). Many of the reported cases involved automated teller machines (ATMs), where hackers access other peoples' pin codes and steal their money. Cybercrimes resulting from accessing and using un-authorized personal details such as emails have also been reported in Tanzania.

Despite the challenges listed above, e-financing (or digital financial services) has had a remarkable impact on financial inclusion in Tanzania (FSDT, 2016). For example, since its inception in 2008, mobile money usage had grown to 17m active users in 2015, enabling millions of previously unbanked Tanzanians to have convenient and affordable access to payment services (ibid.).

To minimize the noted challenges, it will require a multi concerted frontal efforts in awareness raising to all electronic money users. It is important for all stakeholders (government and digital money operators) to cooperate to raise citizens' awareness to increase trust, knowledge, and confidence in the use of e-finance. E-finance providers should also address matters related to security systems on customers' pin codes, emails, and the protection of consumer privacy.

6. Conclusions

E-finance in Tanzania has proved to promote financial inclusion, economic growth and contributed significantly to stable and inclusive financial transaction services. Electronic money transfers have stimulated the creation of jobs, besides allowing for a better, easy, and faster financial transaction services to all. E-financing/electronic money transfers have increased the reliability and predictability of financial transaction services via ICT devices across groups when compared with other means of payment systems. All financial institutions in Tanzania are now applying ICT to deliver services—particularly financial transactions via internet services, ATMs and mobile phones—and to collect and pay bills from consumers without physical delivery.

However, although e-financing offers many advantages—both to institutions and individual clients—it is not without challenges. These include, among others: (i) security risks to cyber-terrorists, spies, hackers, fraudsters, and (ii) low level of knowledge and skills of clients and service providers on the advantages and risks associated with e-financing. The convenience of e-finance and its ubiquitous nature attracts many people to use it. Thus, it is important for all stakeholders (government and digital money operators) to invest in instituting cyber-crime controls, and on training service providers as well as service users to raise awareness on the security risks of the use of e-finance, and how to minimize them.

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