

# **MOBILE PHONES ARE STRATEGIC TOOLS FOR PROMOTING ACCESS TO FINANCIAL SERVICE IN UNDERPRIVILEGED COMMUNITIES IN DEVELOPING COUNTRIES**

*Article Review by Osman Haruna, Ghana  
(PhD In Management Student of Texila American University)  
Email: - harunasafuro@yahoo.com*

## **ABSTRACT**

The unprecedented rate at which mobile phone is penetrating the socio-fibre of society, especially its ability not only to facilitate communication but also aid in money transfer to loved ones and relations in sub-urban and rural communities makes it crucial for researchers to investigate the relationship between this communication device and administration of financial services. Besides the article being reviewed the reviewer consulted other reputable current publications on the role mobile phone plays in delivery financial services to the poor thereby extending the scope of the literature material. The article itself examined various papers on “how banks can translate the potential of mobile phones into greater financial access for poor people”. It came out unequivocally that the potential of mobile phones to assist in meeting the financial services needs of the poor has been driven by rapid expansion into previously un-served regions and communities of developing countries over the last decade. In most developing economies, governments five-year tax holiday and favourable regulatory environment for promoting investments in the mobile telecommunications sector all goes a long way to explain why a good number of international companies have thrown in heavy investment to reach a lot more rural and sub-urban communities. The study further revealed that the various governmental interventions such as waving import duty and taxes on mobile handsets and accessories all help in rendering the prices of handsets very affordable thereby enabling the masses to procure these devices at very reasonable prices to enhance the mobile banking business. It is doubtless to assert that the mobile phone technology has really revolutionized the socio-economic set-up of mankind. Despite its ability to stimulate effective and timely communication it also facilitate the administration of financial services to alleviate poverty in developing economies. It is therefore essential for stakeholders especially developing partners and manufacturer to join forces and make the device much cheaper for the poor so as help reduce poverty.

## **INTRODUCTION**

Traditionally, banks have been noted for rendering financial services to various sectors of the economy so as to make life more palatable for mankind. Unfortunately, one has to go through certain formalities prior to being registered by a bank to operate a bank account. Even where individuals without bank accounts, have to be paid through the bank, it is a pre-requisite that one presents some form of identification such as national identification card, voter ID or studentship card. Such an identity will help verify the authenticity of the cash payee. Unfortunately, these requirements have acted as a barrier to a good number of people in the rural and sub-urban areas. It is therefore welcome news when mobile phone service providers introduced a service which sought to assist relations in the urban and city centers in transferring various amounts of money to their relatives in other parts of the country especially in the developing economies where illiteracy is very high leading to a huge percentage of unbanked people.

The article sought to examine the “relationship between the suggested potential for mobile phone applications and the reality of financial service preferences and behaviour that the poor majority exhibit”. In doing this the article provides a literature review and analysis of research concerning mobile phones and finance (m-finance) in developing countries. Special emphasis is placed on how the facility would assist the currently unbanked, underserved and excluded from the formal financial system. This review therefore takes a good look at conceptual approaches for understanding m-finance in developing countries as outlined by the article and other pertinent sources, takes a quick look at the research methodology used to conduct the study as well as identify trends of prevalence of the mobile finance service in some developing economies.

## **ARTICULATION OF THE OBJECTIVES OF THE STUDY**

The researchers set out to examine the correlation between the potential of mobile phone facility to assist in reducing poverty through transfer of financial service to larger segments of the underprivileged population with developing countries. The objectives appeared to be well articulated especially where specific objectives touched on:

- The provision of literature review and analysis of information from mobile phone and finance (M-finance) from developing countries
- Repositioning and analyzing conceptual approaches for understanding M-finance issues in developing countries
- Properly assessing the methodologies employed to undertake research studies as well as
- Coming up with key research trends and gaps necessary to facilitate understanding of how the use of mobile phone can be strengthened to assist promote distribution of financial services to the less privileged in society.

## **DEFINITION OF FINANCIAL SERVICES, CONCEPT OF MOBILE**

### **BANKING AND RESEARCH GAP AND ISSUES**

Financial services can be defined as the products and services offered by institutions like banks of various kinds for the facilitation of various financial transactions and other related activities in the world of finance like loans, insurance, credit cards, investment opportunities, and money management as well as providing information on the stock market and other issues like market trends (Porteous & Pradip, 2005). Financial services refer to services provided by the finance industry. The finance industry encompasses a broad range of organizations that deal with the management of money. Tiwari et al (2006) indicate that, among these organizations are banks, credit card companies, insurance companies, consumer finance companies, stock brokerages, investment funds, and some government sponsored enterprises.

In today world mobile banking is a popular term. Drexelius & Herzig, (2001) defined mobile banking as the ability to conduct bank transactions via a mobile device, or more broadly to conduct financial transactions via a mobile terminal. In recent time Mobile banking is most often performed via SMS or the Mobile Internet but can also use special programs called clients downloaded to the mobile device. Samudra & Phadtare (2012) explain that mobile banking is the provision and availment of banking and financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customised information, (Dahlberg et al, 2008).

Poor (2010) asserts that mobile commerce or m-commerce as any business activities conducted over a wireless telecommunications network. This includes business to consumer and business to business commercial transactions as well as the transfer of information and services via wireless mobile devices. Al-Jabri & Sohail (2012) submit that, mobile devices create an opportunity to deliver new services to existing customers and to attract new customers. The first targets for these applications were consumers in the developed world, for whom the mobile is usually an additional channel for these activities, complementing services offered by bricks-and-mortar financial institutions, checkbooks, ATMs, voicemail/landline interfaces, smart cards, point-of-sale networks, and, of course, internet resources (Sadi & Noordin, 2011). In these cases, it may be the convenience of the mobile as a platform for these transactions which is most appealing.

Akturban & Tezan (2012) note that, mobile banking services have penetrated in both countries compared to internet banking which has very low penetration. Reshouri et al (2010) mention that, for Mobile client applications to be implemented, a mobile device with GPRS, WAP enabled and java compatibility should be used. These applications implement secure API and web service technology. In view of Skinner & Alavi (2010), mobile banking features on a mobile phone have been provided to users in which it is secure and easy to use. This concept is a competitive advantage on the market of mobile phone manufacturers in which competitive advantage is the possibility of success. Angbasi & Otubu (2009) indicate that, offshore transfer of WAP mobile banking was a disaster based on an internet-based technology applied to the mobile which was a slow, unreliable and costly system for

customers with poor coverage, handset limitation and inadequate customer awareness to the system. Botchway-Anang (2011) submits that, at the moment, the SMS system of banking is dominant for mobile banking transaction.

According to Blakes (2004), with the SMS system, the user can request for his current balance by (requesting) sending a text to a bank message code and then get a response. Drexelius & Herzig (2011) point out that, the message code helps to identify the user and then recognise his request, in which it will initiate a response (sending his current balance). In Buch & Mathisen (2005) indicate that, the disadvantage of SMS system of banking is that scammers send SMS messages identifying themselves as the bank, and also request for further bank details from the user such as PIN number, account number etc. This fraud has made the SMS system of banking insecure (Laukkanen & Pasanen, 2000). Another disadvantage, according to (Chowdhury & Ahmmad, 2011) is the user cannot store his credit card information on the mobile devices to pay a bill due to poor mobile infrastructure in place in West Africa. Anamuah-Mensah & Marfo (2009) further note that, no payment history can be derived from the mobile device when using an SMS system of banking.

The WAP system, according to Sathye (2001), uses an internet browser on a mobile device. The user accesses his account from the bank's website. This is similar to internet banking practiced on a PC or laptop. A major constrain in the WAP system, in view of Batcherlor et al (2007) is old mobile handsets have no built-in mobile browser, therefore restricting users in using such method. Mallat et al (2004) indicate that, most mobile handset users use sophisticated handsets with GPRS, 3G and wireless enabled. Dankwah et al (2011) submit that, few banks such as Diamond, Intercontinental, Bank PHP and Ghanaian Commercial bank have adopted this method of banking, but yet to completely introduce it to all their customers. This is due to the long wait and procedure their customers have to take in registering for the facility.

According to Fanawopa (2006) mobile device users communicate using wireless networks anywhere at any given time. Mobile devices can be connected as well at any place and at anytime to the wireless network. Mas & Kabir (2008) assert that, wireless network connectivity are regulated by frequencies. The user receives wireless network connection on his mobile on the frequency and wavelength of the antenna. Mattila (2003) indicate that, signal problems may occur based on the blocking and reflection of large buildings, the size of wavelength may be too small and the distance of the wireless antennas (mast) may be too far. Boadi et al (2007) notes African countries still experience these problems. Signals can take many different paths and may cause delay (3-12 micro seconds). The effects of low or no signals in West Africa are based on short and long term fading of the signals (Nair & Fissaha, 2010). According to Gamos et al (2003), the short-term fading can be classified as buildings, hills, trees etc., while the long term fading can be said to be the distance between the sender and the receiver, for it may change when the user moves to a different coverage area.

## **IMPORTANCE OF MOBILE BANKING**

Mobile banking, according to Adomi (2006), provides banking services to inaccessible (mountainous and remote) areas. It provides financial services to clients, allowing them the flexibility of accessing their account details from anywhere in the world. Beshouri et al

(2010) explain that, M-commerce increases financial institutions visibility and strengthen its brand, especially as consumers are increasingly researching products and services on the Internet prior to purchase. Mattila (2003) further indicates that mobile banking also remove the barriers of time and distance, allowing potential buyers to visit bank website on their mobile phone at any time of day and night. Unlike 'real' office or warehouse, Wireless banking is open for business 24/7, allowing customers the freedom to transact or view account at a time that suits them, wherever they are located (Ciuci, 2010).

Mas & Kabir (2008) state that customers are provided with valuable information about business by showcasing products and services and allowing them to purchase goods; ask questions and receive further information quickly and easily. And it can generate qualified leads for business organizations. Mobile commerce (m-commerce) reduces the costs for the customer because the direct cost-of-sale for an order taken through a mobile phone is lower than traditional means. Hammonds (2006) indicates that, niche products often appeal to a much smaller market but the Internet opens up the marketplace to a global audience and enhances customer service by providing more efficient and timely advice, fulfillment of orders and problem resolution.

Mobile commerce (m-commerce) according to Blake (2004) reduces marketing and advertising costs because mobile marketing can be highly targeted to customer base. This can provide a higher return on investment than traditional media advertising and the results can be more easily measured. Balachandher et al (2001) note that, small business owners can quickly gather intelligence on their competitors' promotional activities and discover what the market is saying about them. Which increase customer loyalty, help organizations to learn more about customers and provide a valuable source of qualified leads-business provide overall operational benefits by streamlining processes, improving delivery times, reducing errors, decreasing inventory and generally reducing both the time and personnel required to complete normal business activities. Dahlberg et al (2011) submit that, in effect, mobile commerce can help reduce costs and free up cash flow.

Blake (2004) explains that, Mobile commerce (m-commerce) provides excellent customer service and support to gain smooth transactions and good feedback if an issue arises. Customers also want to receive and rely on getting good after sales service and support should they need it. Drexelius & Herzig (2001) state that, M-commerce make customer services best practice competitive edge. Security risks of conducting financial transactions online are high, requiring the need for specific security technologies such as encryption and authentication protocols. Buchs & Mathisen (2005) indicate that if one intends to generate a lot of revenue through your site, it needs to be online and functioning reliably.

Moreover, Hammonds (2006) notes out that, m-commerce ensures sound governance and risk management practices which are in place. Operating m-banking means one will be transacting in a 'virtual world'. All of the transactions need to be supported by upgraded rules, practices, and procedures and fail safe mechanisms so that your trading partners feel they can trust. They need confidence in all aspects of the transaction process such as privacy, returns and shipping, including the security of the transactions. Governance may need to extend beyond an organization to include elements of the infrastructure of customers, suppliers and business partners.

## **MOBILE BANKING SERVICES**

According to Barnes & Corbitt (2003), mobile banking can offer services such as mini-statements and checking of account history, alerts on account activity or passing of set thresholds, monitoring of term deposits, access to loan statements, access to card statements, mutual funds/equity statements, insurance policy management, pension plan management, status on cheque, stop payment on cheque, ordering check books, balance, checking in the account, recent transactions, due date of payment (functionality for stop, change and deleting of payments), PIN provision, change of PIN and reminder over the Internet, blocking of (lost, stolen) cards, domestic and international fund transfers, micro-payment handling, mobile recharging, commercial payment processing, bill payment processing, peer to peer payments, withdrawal at banking agent as well as deposit at banking agent.

In the view of Botchway-Anang (2011), basic mobile banking services include familiar activities such as account balance/credit limit checking and funds transfer not different from the services offered in many of the other customer formats. While customers expect new types of services to be offered by the new technology, innovation in mobile banking faces some challenges. Donner (2008) points out that mobile banking is likely to supersede PC-banking over the Internet just as Internet banking took over PC-banking over private networks.

In the view of Gamos et al (2003), the offer a mobile banking service, a telephone banking service, or an Internet banking service as a separate consumer-oriented application is not enough. According to Ciuci (2010) customer demand will bring the convergence of mobile- and Internet banking into an integrated platform able to support all customer interfaces (including branch banking). Integration will affect not only specific, but also diverse services. Cases include companies which first buy services from source providers (e.g. long-distance phone service, Internet connectivity, or wireless telecommunication) and then resell them as bundle to their customers – typically medium- and small-size companies. Nair & Fissah (2010) observes that the banking industry, financial institutions offering wireless transactional banking bundled with brokerage services (called “bankerage”). In the future, mobile customers will be able to utilise the information retrieval capacity of their services provider to track and analyse their own service usage patterns and customise the “bundle”.

A mathematical model of banking technology and production developed by Anim et al (2007) also support the notion of bundling. According to the model, the diversification of financial services occurs at two separate levels, the first of which represents an expansion of the existing level of basic banking services. Bundling of services occurs at the second level of diversification, where the expanded set of services is offered to the customer. Krugel (2007) suggests that in certain circumstances new information technologies tend to create new markets for bundled financial products and services. There is no single solution to the question ‘what to offer’. Ultimately each bank will decide for itself what service to offer and which interface to utilise. Fanawopa (2006) remarks, banks face the risk of disintermediation if they do not align with wireless network providers and try to capture their share of the evolving electronic commerce payments

## **CHALLENGES FOR A MOBILE BANKING**

Mas (2009) indicates that, mobile banking has some challenges when compared to other types of banking systems, such as Internet banking. Mobile devices are limited in processing speeds, screen sizes and battery life. Mobile banking, like other types of traditional and online banking systems, is susceptible to security breaches. Some banks limit mobile banking services to balance inquiries, transaction alerts and service requests to limit and reduce security vulnerabilities and protect sensitive financial data from falling into the wrong hands. In the view of Nair & Fissaha (2010), key challenges in developing a sophisticated mobile banking application include handset operability, security, scalability and reliability, application distribution as well as personalization. Though the expected benefits in the adoption of Wireless Payment or M-payment are enormous, Turban et al (2010) mention that, firms' adopting this way of doing business can also expect some challenges as well. Some of the challenges are specific to doing business in Africa. Blake (2004) notes that, these include low level of economic development, limited information and technological infrastructure, culture and high cost of investments. Key challenges in developing a sophisticated mobile banking application are:

### **HANDSET OPERABILITY**

In the view of Beshouri et al (2010), there are a large number of different mobile phone devices and it is a big challenge for banks to offer mobile banking solution on any type of device. Some of these devices support Java ME and others support SIM Application Toolkit, a WAP browser, or only SMS. According to Botchwat-Anang (2011), initial interoperability issues however have been localized, with countries like India using portals like R-World to enable the limitations of low end java based phones, while focus on areas such as South Africa have defaulted to the USSD as a basis of communication achievable with any phone. AlJabir & Sohail (2012) submit that, the desire for interoperability is largely dependent on the banks themselves, where installed applications (Java based or native) provide better security, are easier to use and allow development of more complex capabilities similar to those of internet banking while SMS can provide the basics but becomes difficult to operate with more complex transactions.

Poor (2010) indicates that, there is a myth that there is a challenge of interoperability between mobile banking applications due to perceived lack of common technology standards for mobile banking. In practice it is too early in the service lifecycle for interoperability to be addressed within an individual country, as very few countries have more than one mobile banking service provider. In practice, Medhi et al (2009) mention that, banking interfaces are well defined and money movements between banks follow the ISO-8583 standard. As mobile banking matures, money movements between service providers will naturally adopt the same standards as in the banking world. On January 2009, Mobile Marketing Association (MMA) Banking Sub-Committee, chaired by CellTrust and VeriSign Inc., published the Mobile Banking Overview for financial institutions in which it discussed the advantages and disadvantages of Mobile Channel Platforms such as Short Message Services (SMS), Mobile

Web, Mobile Client Applications, SMS with Mobile Web and Secure SMS (Chowdhury & Ahmmad, 2011).

## **SECURITY**

Angasi & Otubu (2009) are of the opinion that, security of financial transactions, being executed from some remote location and transmission of financial information over the air, are the most complicated challenges that need to be addressed jointly by mobile application developers, wireless network service providers and the banks' IT departments. Krugel (2007) submits that, the following aspects need to be addressed to offer a secure infrastructure for financial transaction over wireless network:

- Physical part of the hand-held device. If the bank is offering smart-card based security, the physical security of the device is more important.
- Security of any thick-client application running on the device. In case the device is stolen, the hacker should require at least an ID/Password to access the application.
- Authentication of the device with service provider before initiating a transaction. This would ensure that unauthorized devices are not connected to perform financial transactions.
- User ID / Password authentication of bank's customer.
- Encryption of the data being transmitted over the air.
- Encryption of the data that will be stored in device for later / off-line analysis by the customer.

One-time passwords (OTPs) are the latest tool used by financial and banking service providers in the fight against cyber fraud (Singh et al, 2010). Instead of relying on traditional memorized passwords, OTPs are requested by consumers each time they want to perform transactions using the online or mobile banking interface. When the request is received the password is sent to the consumer's phone via SMS. Varshney & Vettler (2002) explain that, the password is expired once it has been used or once its scheduled life-cycle has expired. Because of the concerns made explicit above, it is extremely important that SMS gateway providers can provide a decent quality of service for banks and financial institutions in regards to SMS services. Therefore, Skinner & Alavi (2010) note that, the provision of service level agreements (SLAs) is a requirement for this industry; it is necessary to give the bank customer delivery guarantees of all messages, as well as measurements on the speed of delivery, throughput, etc. SLAs give the service parameters in which a messaging solution is guaranteed to perform.

## **SCALABILITY AND RELIABILITY**

Adomi (2006) points out that, another challenge for the CIOs and CTOs of the banks is to scale-up the mobile banking infrastructure to handle exponential growth of the customer base. With mobile banking, the customer may be sitting in any part of the world (true anytime, anywhere banking) and hence banks need to ensure that the systems are up and running in a true 24 x 7 fashion. Reshouri et al (2010) point out that, as customers will find

mobile banking more and more useful, their expectations from the solution will increase. Banks unable to meet the performance and reliability expectations may lose customer confidence. Porteous (2006) states that, there are systems such as Mobile Transaction Platform which allow quick and secure mobile enabling of various banking services. Recently in India there has been a phenomenal growth in the use of Mobile Banking applications, with leading banks adopting Mobile Transaction Platform and the Central Bank publishing guidelines for mobile banking operations.

## **APPLICATION DISTRIBUTION**

Due to the nature of the connectivity between bank and its customers, Medlin et al (2009) acknowledge that, it would be impractical to expect customers to regularly visit banks or connect to a web site for regular upgrade of their mobile banking application. It will be expected that the mobile application itself check the upgrades and updates and download necessary patches (so called "Over the Air" updates). However, there could be many issues to implement this approach such as upgrade/ synchronization of other dependent components.

## **PERSONALIZATION**

It would be expected from the mobile application to support personalization such as preferred language, date/ time format, amount format, default transactions, standard beneficiary list and alerts

## **RESEARCH METHODOLOGY**

The researchers adopted the mixed research designs i.e. using both quantitative and qualitative methods. According to them this helped in collating existing studies and comparing them with their own findings. Certainly, examining the latitude of existing studies from the year 2000 to 2008 and adding their own study between 2008 and 2009 imply that a mixed research design adopted was in the right direction since qualitative design will enable them to use the simple random sampling technique to solicit views from patrons of the mobile phone finance facility.

Interviewing people across various socio-economic spectrums presuppose that one listens to people who are both literate and illiterate who have experienced the product. The use of the quantitative technique according to Kothari (2004) will enable the researchers to apply the questionnaire technique to extract information from respondents. Although the use of the random sampling technique is fair for a study of this magnitude, I would have employed the Action research technique which in the opinion of Beri (2009) enables the researcher to easily identify himself with the respondents thereby relaxing with them and building up their confidence to comfortably come up with the anticipated remarks. Critiques of the Action research technique such as Marczyk et al (2005) point out that the method sometimes makes the respondent talk too much thereby sacrifices accuracies in their delivery.

Cooper & Schindler (2006) also argues that Action research places the respondents and researcher face to face and respondent who might wish to be respected by the researchers often tell lies to boost their image. It is therefore essential according to Kothari (2004) for

promoters of action research to examine the mannerism and countenance of respondents prior to accepting and registering data emanating from their quarter.

The researcher indicated in their article that they also used the panel research technique to review some earlier workers by consultants and conference papers. Such an approach is laudable in that it would enable the necessary trend analysis to be conducted in order to fairly compare results of primary study with such secondary materials. Workshop papers on Grameen VPO special bank in Bangladesh were very helpful to the study and underscored the importance of mobile phones as a communication device with the propensity of transmitting information concerning finance and commercial as well as a potential channel for financial exchange. Studies from Egypt where 700 users and 300 non-users of the M-finance were interviewed also highlighted one of many novel adaptations of mobile phones as electronic money.

### **M-BANKING TREND IN SELECTED DEVELOPING COUNTRIES**

The use of mobile phone to facilitate transfer of funds to some selected developing economies has been studied by Bech-Kalim et al (2014) in which various conclusions have been established concerning the importance of the device as a strategic tool for reducing poverty in the economies of developing countries. Table 1 reflects the findings of the group.

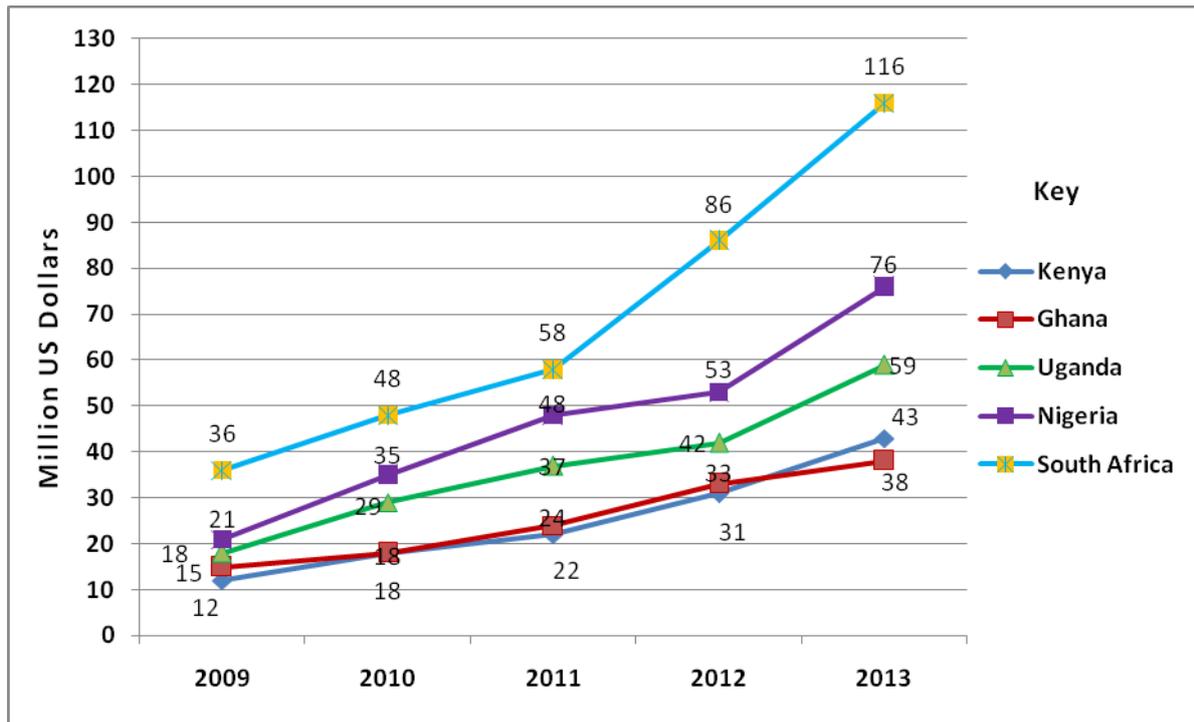
**Table 1: Quoted in US Dollars**

<b>Country</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>Total</b>
Nigeria	21	35	48	53	76	233
Uganda	18	29	37	42	59	185
Ghana	15	18	24	33	38	128
Kenya	12	18	22	31	43	126
South Africa	36	48	58	86	116	344
<b>Total</b>	<b>102</b>	<b>148</b>	<b>189</b>	<b>245</b>	<b>332</b>	<b>1,016</b>

**Source: Bech-Kalim et al (2014)**

Table 1; shows the quantum of funds transferred through the mobile phone facilities in some developing economies. Table 1 also illustrates the fact that an amount of US\$ 233 million was transferred through mobile phone in Nigeria for the period 2009 to 2013. Uganda used mobile phone to facilitate the movement of US\$ 185 million from the city centre and urban areas to less privileged places of the east African country.

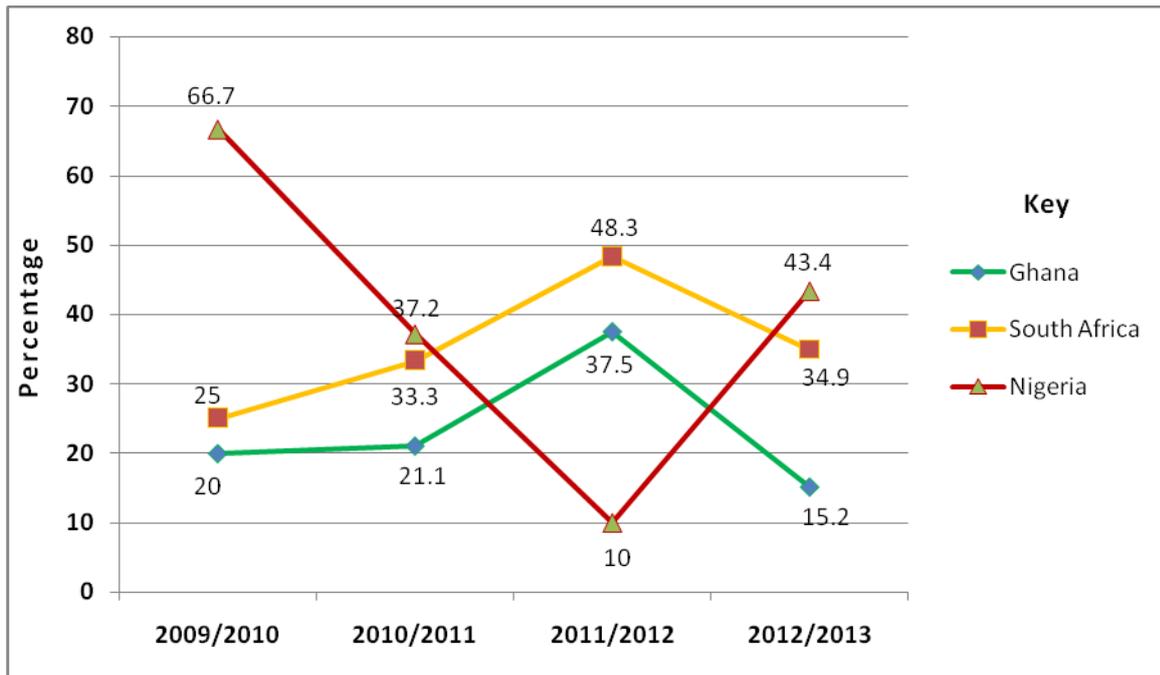
### **GRAPH ON USE OF MOBILE PHONE TO TRANSFER FUNDS FOR SOME AFRICAN COUNTRIES QUOTED IN US DOLLAR**



**SOURCE: ANALYSIS OF BECH-KALIM ET AL (2014) DATA**

For the same five year period of i.e. 2009 to 2013 Ghanaians transferred US\$128 million funds through the mobile money arrangement while Kenya capitalized on the facilitate to transfer US\$ 126 million across its citizenry. South Africa which is on the threshold of becoming an industrialized country transmitted US\$ 344 million from its urban elite to rural and sub-rural communities. Funds transferred through mobile phones in Nigeria increased by 66.7% from 2009 to 2010, shot up again by 10% in 2011 and moved up by 43.4% from 2012 to 2013.

In the Ghanaian situation increase in using mobile phone for financial services increased by 20% from 2009 to 2010 and further pushed up by 33.3% from 2010 to 2011. Percentage increment from 2011 to 2012 was 37.5% while the increment was 15.2% from 2012 to 2013. In the case of the continental giants, South Africa, the use of mobile phone for enhancing financial services increased by 23% on the average from 2009 to 2011 and moved up considerably by 48.3% in 2012 and again increased by 34.9% from 2012 to 2013. The percentage increment for these three countries for the past 5 years has been shown on figure 2.



**FIGURE 2: GRAPH OF GROWTH IN MOBILE BANKING PENETRATION**

Figure 2 is a pictorial representation of fluctuation in the use of Mobile Phone to facilitate the administration financial services in Ghana, Nigeria and South Africa. There seems to be a similar trend in the movement of cash through the Mobile Phone in Ghana and that of South Africa in that in both countries there seems to be an increasing trend from 2009 to 2012 and declined in 2013.

In the case of Nigeria the trend reduced from 2009 to 2012 and increase again. It is difficult to understand why the trend appreciated markedly in the case of Nigeria from 2012 to 2013. Perhaps more studies ought to be conducted to attempt to explain the rationale behind the drop in patronage of the service from 2012 to 2013 both in Ghana and South Africa.

## CONCLUSION

The review indicated in no uncertain terms that mobile phones devices are really helping to transfer financial services to the unbanked people in most developing economies. This therefore calls for collaboration between policy makers burnt on seeing the realization of millennium development goals (MDG) on poverty reduction to work hand in hand to ensure that mobile handset devices are highly affordable for the underprivileged to easily access.

Studies in most developing economies like Bangladesh, Egypt and other African countries like Nigeria, Ghana, South Africa, and Kenya all pointed to the fact that financial services are currently reaching the previously unbanked group through mobile phone device. It is therefore essential that stakeholders especially governments liaise with manufacturers to ensure some concessionary priced equipments for the rural and sub-urban dwellers to continue to receive reliable periodic stipends from their benefactors in the town and city centers. This way, poverty levels will be greatly reduced for many a developing country to grow.

Governments in such economies should also create the favourable environment through tax incentives for more mobile phone network service providers to extent their operation to the hinterlands in order to promote the M-finance practice. Improving the infrastructural base of the various countries through uninterrupted supply of electric power is certainly a pre-requisite since this would reduce the operation cost of network communication service providers. The use of mobile phone to transfer money to the poor is helping such people to access better and timely health care as well as live better fulfilling lives therefore all hands must be on deck to ensure that the practice is adequately promoted.

## REFERENCE

1. Adomi, E.E. (2006) "Mobile phone usage patterns of library and information science students at Delta state University, Abraka, Nigeria". *Electronic Journal of Academic and special librarianship*, vol. 7, no. 1, pp. 1-11.
2. Akturan, U., & Tezcan, N. (2012) "Mobile banking adoption of the youth market: Perceptions and intentions". *Marketing Intelligence & Planning*, 30(4), 444 – 459.
3. Al-Jabri, I. M., & Sohail, M. S. (2012) "Mobile banking adoption: Application of Diffusion of Innovation Theory. *Journal of Electronic Commerce Research*, 13(4), 379-391.
4. Al-Mudimigh, A.S., (2007) "E-Business strategy in an online banking service: A case study". *Journal International Banking Commercial*, 12(1).
5. Amin, H., Baba, R., & Muhammad, M. Z. (2007) "An analysis of mobile banking acceptance by Malaysian customers". *Sunway University College Academic Journal*, 4, 1-12
6. Anamuah-Mensah, E. and Marfo, G. (2009) "E-business adoption in the banking industry in Ghana". MA. Thesis, Lulea University of Technology.
7. Anyasi, F.I. and Otubu, P.A. (2009) "Mobile phone technology in banking system: its economic effect". *Research journal of Information Technology*, vol. 1, no. 1, pp. 1-5.
8. Balachandher, K.G., S. Vaithilingam, N. Ismail and R. Prasad, (2001) "Electronic banking in Malaysia: A note on evolution of services and consumer reactions". *Journal Internet Banking. Commercial.*, 5 (1).
9. Barnes, S.J. and Corbitt, B. (2003) "Mobile banking: concept and potential". *International Journal of Mobile Communications*, vol. 1, no. 3, pp. 273-288.
10. Batchelor, S., Scott, N., and Hearn, S. (2007) "Senegal household survey: M-payment analysis". Reading, UK
11. Beri, G.C. (2009). *Business Statistics*, 3<sup>rd</sup> Ed. Tata McGraw Hill Pvt. Ltd.; India.
12. Beshouri, C.; Chaia, A.; Cober, B.; & Gravråk, J. (2010) "Banking on mobile to deliver financial services to the poor. *Global Financial Inclusion*". McKinsey & Company's Social Sector office.
13. Blake, M. (2004) "Growing mobile market in Africa", *The electronic library*, vol. 22, no. 4, pp. 370.
14. Boadi, R.A., Boateng, R., Hinson, R. and Opoku, R.A. (2007) "Preliminary Insights into M-commerce Adoption in Ghana", *Information Development*, 23, 4, 253-265.

15. Booth, W.C, Colomb, G.G. & Williams, J.M, (2008). *The craft of Research*. Chicago: University of Chicago Press.
16. Botchway-Anang, B.N.A., (2011) "Major issues and challenges on computerization of rural banks by the ARB Apex Bank Ltd"., Ghana. Unpublished MBA Thesis, Sikkim Manipal University, Accra, Ghana.
17. Buchs, T. D. and Mathisen, J. (2005) "Competition and Efficiency in Banking: Behavioral Evidence from Ghana"., IMF Working Paper, 5 17 International Monetary Fund, Washington, DC.
18. Buellingen, F. and Woerter, M. (2002) "Development perspectives, firm strategies and applications in mobile commerce". *Journal of business research*, vol. 57, no.12, pp. 1402-1408.
19. Chowdhury, S & Ahmmad, N (2011), "Factors Affecting Consumer Participation in Online Shopping in Malaysia: The Case study of University Students", *European Journal of Business and Economics*, VOL .5 No.4, pp 49-53
20. Ciuci, C. (2010) Possibilities of Mobile Banking in Nigeria [online], Available at: <http://www.ciuci.us/newsletter/PSMmobilebanking.pdf> [Accessed: 20 December 2011].
21. Cooper, D. R. & Schindler, P. S. (2006). *Business Research Methods*, Tata McGraw Hill Companies; India.
22. Coursaries, C., Hassanein, K., and Head, M. (2004) *Understanding the mobile consumer.*, Idea Group, USA and UK, pp. 132-165.
23. Dahlberg, T., Mallat, N. Ondrus, J., & Zmijewska, A. (2008) "Past, present and future of mobile payments research: a literature review" *Electronic Commerce Research and Applications*, 7(2): 165-181
24. Dankwah, B.A., J.A. Achefon, F. A. Okai and E. Lartey, (2011) "Design and implementation of a mobile banking application". M. Sc. Thesis, Trimester Project Report, Ghana Telecom University College.
25. Donner, J. (2008) "Research approaches to mobile use in the developing world: a review of the literature". *The information society*, vol. 24, no. 3, pp. 140-159.
26. Drexelius, K. & Herzig, M. (2001) "Mobile Banking and Mobile Brokerage – Successful Applications of Mobile Business?", *International management & Consulting*, 16(2), 20-23.
27. Fanawopa, S. (2006) "Mobile banking on the rise", *Daily Sun*
28. Gamos. B., I., Cajee, Z., Davies, D., & Stroebel, S. (2003) "Cell phone banking: Predictors of adoption in South Africa --an exploratory study". *International Journal of Information Management*, 23(5), 381-394.
29. Gautam, I. and M. Pickens, (2006) "Mobile Phone Banking and Low - Income Customers: Evidence from South Africa". Consultative Group to Assist the Poor, Washington DC.
30. Hammonds, H. (2006) "Money banking", *Smart Apple media*, USA.
31. Kabir, K., (2007) "How can Mobile Phones be used to Provide Diverse Financial Services to a Range of Client segments?" Retrieved from: <http://technology.cgap.org/author/kabir-kumar/page/2/>, (Accessed on: February 23, 2012).

32. Kothari, C.R. (2004). *Research Methodology Methods and Techniques*, New Age International (P) Limited: New Delhi.
33. Krugel, G.T., (2007) "An Overview of the Different Mobile Banking Technology Options and their Impact on the Mobile Banking Market". <http://216.239.213.7/mmt/downloads/finmark-mbt-aug-07.pdf> (Accessed on: February 11, 2012).
34. Laukkanen, T. & Pasanen, M. (2000) "Mobile banking innovators and early adopters". *Journal of Financial Services*.18, 85-91.
35. Mallat, N., Rossi, M. and Tuunainen, V. K. (2004) "Mobile Banking Services". *Communications of the ACM*, vol. 47, no. 5, pp. 42-46.
36. Marczyk, G. R, DeMatteo, D. and Festinger D., (2005) *Essentials of Research Design and Methodology*, New York City, NY : Wiley.
37. Mas, I. and Kabir, K. (2008) "Banking on Mobiles: Why, How, for Whom?" CGAP Focus Note 48, Washington, D.C.
38. Mas, I., (2009). The economics of branchless banking. *Innovations*, 4(2): 57 - 76, MIT Press.
39. Mattila, M. (2003) "Factors affecting the adopting of mobile banking services". *Journal of Internet Banking and Commerce*, vol. 8, no. 1.
40. Medhi, I., Ratan, A and Toyama, K. (2009) *Mobile-Banking adoption and usage by low-literate, low-income users in the developing world*. Berlin, Heidelberg, pp. 485-494.
41. Nair, A. and A. Fissaha, (2010) "Rural Banking: The Case of Rural and Community Banks in Ghana". World Bank, Ghana.
42. Poor, N. A. (2010) "The role of mobile banking services to its citizens," *Telecommunication World Magazine*, No 78.
43. Porteous, B. T. & Pradip, T. (2005) *Economic Capital and Financial Risk Management for Financial Services Firms and Conglomerates*. Palgrave Macmillan.
44. Porteous, D. (2006) "The Enabling Environment for Mobile Banking in Africa, Bankablefrontier" [online], Available at: [www.bankablefrontier.com/publications.php](http://www.bankablefrontier.com/publications.php) [Accessed: 9 December 2011].
45. Riquelme, H. E. and Rios, R.E. (2010) "The moderating effect of gender in the adoption of mobile banking". *The International Journal of Bank Marketing*, vol. 28, no. 5, pp. 328-341.
46. Sadi, A., & Noordin, M. F. (2011) "Factors influencing the adoption of M-commerce: An exploratory Analysis". *International Conference on Industrial Engineering and Operations Management*, (pp. 492-498). Malaysia
47. Samudra, M., & Phadtare, M. (2012) "Factors Influencing the Adoption of Mobile Banking with Special Reference to Pune City". *ASCI Journal of Management*, 51-65.
48. Singh, S., Srivastava, V., & Srivastav, R. (2010) "Customer Acceptance of Mobile Banking: A Conceptual Framework". *SIES Journal of Management*, 55-64.
49. Skinner, C. & Alavi, L.. S. H. (2010) "Mobile banking and branch banking", *Journal of Economics database*, No. 112.
50. Sripalawat, J., Thongmak, M., & Ngramyarn, A. (2011) "M-banking in metropolitan Bangkok and a comparison with other countries". *The Journal of Computer Information Systems*, 51(3), 67-76.

51. Tiwari, R., Buse, S. and Herstatt, C. (2006) "Customer on the move: Strategic Implications of Mobile banking for Banks and Financial Enterprises". Paper presented at the 8<sup>th</sup> IEEE International Conference on E-Commerce Technology, San Francisco, 26-29 June.
52. Turban, E., King, D., & Lang, J. (2010) Introduction to electronic commerce. New York, NY: Prentice Hall, NY.
53. Varshney, U. and Vetter, R. (2002) "Mobile Commerce: framework, applications and networking support", *Mobile Network and Applications*, vol. 7, no. 3, pp.185-198.
54. Yang, A. S. (2009) "Exploring adoption difficulties in mobile banking services," *Canadian Journal of Administrative Sciences*, Vol. 26, No. 2: 136-149.