

# Electronic Payment Systems: Its Prospects and Challenges Case Study on Commercial Bank of Ethiopia and Zemen Bank S.C.

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## ***Abstract***

*The loan transaction between lender merchants and borrower farmers and traders gave a birth to the first bank on our planet earth which dated back to around 2000 BC in Assyria and Babylonia. The expansion of trade, security questions, huge and complex transactions, a need for fast Transferring of money to different places (everywhere banking). As a result the current technological advancement produce that made fast service provisions possible through electronic payment systems. Electronic payment system is simply a system that provides payments electronically. The electronic payment system changed and has made banking services comfortable and easy around the globe. It increases payment efficiency, reducing transaction costs; avoid unnecessary involvements and time wastages. Electronic payment systems facilitate payments electronically. However, lack of network infrastructure, security problems, awareness level of users, inadequate law and regulations are the major challenges that banks of these days face to make payments electronically in Ethiopia. This study tries to identify these challenges in detail and propose the possible way outs from these challenges. It also addresses the successes and possibilities this technology will bring to the banking industry in the near future.*

## **Introduction**

### **General Background**

The loan transaction between lender merchants and borrower farmers and traders gave a birth to the first bank on our planet earth which dated back to around 2000 BC in Assyria and Babylonia. From this far past to date, the

banking services have been joining through dramatic changes following strong demands for better banking services which was the result of socio-economic and other important changes.

The expansion of trade, security questions, huge and complex transactions, ever increasing need for credit and debt services, a need for fast transferring of money to different places (everywhere banking), demands for easy way of payment systems and other pressing needs pushed up the bank services to today's level. Contemporary customers are sensitive to take much time to make payments and to wait for services. They don't want to put themselves even for seconds in handling of receiving, paying and carrying of money; they don't want to count papers before a cashier or bank teller and take it to some where physically. Just they need a system that eliminate or totally avoid the long payment processes. As a result, the current technological advancement produce that made fast service provisions possible through electronic payment systems.(1)

*Electronic payment system is simply a system that provides payments electronically. The electronic payment system changed and has made banking services comfortable and easy around the World. It increases payment efficiency reducing transaction costs; avoid unnecessary involvements and time wastages. In addition, it is very convenient to collect cash and to make payments easily from everywhere. That is why, today it represents the world's huge and complex transaction that worth trillions of dollars. (2)*

*In Ethiopia, Banking was introduced in 1905 by Menilik the 2<sup>nd</sup> who experienced it from Britain Banks. Still, Banks in Ethiopia are using the conventional payment systems such as coins, currencies, cheque and related document and to some extent electronic payment system. (3)*

At this time, four banks, namely Commercial Bank of Ethiopia (CBE), Dashen Bank S.C, Zemen Bank S.Co and Wegagen Bank S.Co are applying electronic payment system, especially ATM (Automated Teller Machine) to provide payments from everywhere to their customers. Currently, some private banks are on the way to provide service such as NIB International Bank S.C, Awash International Bank and United Bank S.C.

Commercial Bank of Ethiopia (CBE), the leading bank in Ethiopia, was established in 1942. It is a pioneer to introduce modern banking to the country. It has 596 branches stretched across the country, being the leading African bank with assets of Birr 155 billion as on June 30<sup>th</sup> 2012. It plays a catalyst role in the economic progress and development of the country. And it is the first bank in Ethiopia to introduce ATM (Automated Teller Machine) service for local users. CBE has, currently, close to 4 million account holders. It has a strong correspondent relationship with more than 50 renowned foreign banks and a Society Worldwide Interbank Financial Telecommunication (SWIFT) bilateral arrangement with 500 others. Commercial Bank of Ethiopia (CBE) combines a wide capital base with more than 12,800 talented and committed employees. Pioneer to introduce Western Union Money Transfer Services in Ethiopia, Commercial Bank of Ethiopia (CBE) has reliable and long-standing relationships with many internationally acclaimed Banks throughout the world. Core Banking Solution rolled out across 190 branches. (3)

*Zemen Bank S.Co was founded in Oct. 2008. The Bank has a distinctive business model that is based on a single branch whose activities are to be supplemented by multiple service points such as ATMs, POS(Point of Sale) terminals, Internet banking, Pre-Paid Cash Cards & Gift Cards and Kiosks.(4)*

*Commercial Bank of Ethiopia is providing ATM services installing 52 machines around the city of Addis. Zemen Bank S.Co has 25 ATMs and Dashen Bank S.Co more than 85 in total. Zemen bank and Dashen bank have been providing the service with more than 100 ATMs for everywhere payment services. Zemen and Dashen Banks developed a system that enable customers to access any ATM machine of Zemen and Dashen Banks.*

### **Statement of the Problem**

Ethiopian Banking industry provides payment services electronically in a limited site with few ATM machines which do not exceed 200 throughout the country; this made the number insignificant compared with some African countries operating the payment services in thousands of ATM machines. The limitation is not only in number and geographical narrowness; it is also in service variability. The customer who holds ATM card entertains only two typical services: withdrawing and knowing the balance. The rest services like making a deposit, liabilities payment, etc requires the customer to appear physically at the Bank.

The e-payment, especially ATM is operated by software based networks which is highly related with infrastructure. However, the issue of infrastructure, which is characterized by lack of net works, electric power supply, system failures, connection errors, claimed to have left the banking sector behind in making payments electronically. In addition, security issues, trust and related matters make the industry not to be a beneficiary of the trillions of transactions throughout the world e-commerce. (2)

Therefore, in this paper, the questions below will be addressed:

- How far are e-payment systems affected by infrastructure and related problems such as networks, electric powers supply, machine operation difficulty, availability of the machine in the market, etc.?
- What challenges the e-payment systems, encountered from customers' side, for example awareness and trust on the ATM machines?
- Do the banks have skilled man power to face problems regarding ATM machines?
- To what extent the power cut offs affects the ATM services and what measures have been taken so far?
- Is there any collaboration among banks to use ATM machines together?
- What are the contributions of ATM machines to the general economy?
- To what extent the e-payment system is safe from fraud and theft?

### **Research Objectives**

The general objectives of the study is to investigate e-payment systems, identify the challenges and prospects and add some value to the understanding of the electronic payment systems in the Ethiopian banking industry. More specifically, this study tries to address the following specific objectives:

- To assess the infrastructure interruptions, machine breakdowns, system failure, connection errors and related problems on the quality and growth of the services;
- To assess customers interest and trust on ATM;
- To assess the progress of electronic payment systems adaptation from its start up to now and its future;
- To describe the implication of power interruptions, machine breakdowns, and related problems on the quality and growth of the services;
- To show the level of service provision gap between in Ethiopia and the rest of the world banking industry;
- To show the contribution of ATM on the development of the general economy of the country , and
- To describe the main security problems that shadows service provision.

### **Significance of the Study**

The study can provide adequate knowledge and information for financial institutions to invest rigorously on e-payment machines in order to provide satisfactory services with a minimum cost and time. The study is also likely to raise public awareness on the use of e-payment system as it is the way to avoid or minimize the wastage of time and other resources.

The study can also serve as the bases for new or next researchers who have interests on the same research topic. It may contribute to the country's development as technology is the means for success if we appropriately adopt it but it can cause failure if we ignore it.

## **Research Methodology**

### **Sources of Data**

The study made use of both primary and secondary data. Primary data were collected by interviewing e-payment managers. Annual and quarterly reports of different banks, books, journals, magazines, web sites which had relation with e-payment were utilized for the study as a source of secondary data.

### **Data Gathering Instrument**

Some primary data were collected by interviewing e-payment managers of both CBE and that of Zemen banks. The size of the population was small and manageable, and hence, we used interview. In addition to interview, observation of activities at ATM terminals and examination of documents of those banks were used as source of data gathering tools.

### **Data Analysis and Interpretation**

The data were displayed by using visual aids, and descriptive statistics such as percentages. Charts and tables were used to summarize findings. Each set of data were displayed in more than one way, and each diagram had title figure or table number, and was clearly labeled. Findings of the qualitative results were explained thematically.

### **Scope of the Study**

Ethiopian Banking Industry has been growing highly, and most banks are using e-payment machine, especially ATM. These banks are CBE, Dashen Bank S.Co, Wegagen Bank S.Co and Zemen Bank S.Co.

The study was conducted to investigate the major challenges and prospective as well as development of e-payment in Ethiopian banking industry. Therefore, our research took CBE and Zemen Bank S.Co as a population of our study.

### **Limitations of the Study**

Recently, due to heavier competition among banks to provide satisfactory service to their customers and to attract new ones, most staff members of banks are too busy. Because of this and other related factors, like unfamiliarity of the bank community with the existing technology (e-payment system), gathering information for the present researchers was difficult. And most of the banks provide e – payment service and some others are on the verge of providing ATM service but due to time constraint, we selected only two banks depending on their ownership and users popularity: CBE and Zemen Bank. CBE is a leading bank which is state owned, popular among customers and when it comes to Zemen Bank, all its activity is networked and all customers have their own (use) ATM cards.

### **Organization of the Study**

Our study contains four main chapters. Chapter one includes the introduction (back ground), statement of the problem, objective of the study, significance of the study, research methodology, scope of the study, limitations of the study and organization of the study. The second Chapter presents literature review. The third Chapter deals with research findings and analysis. The



fourth Chapter is concerned with summary, conclusions and recommendations.

## **Literature Review**

It is true that most inventions have happened due to sheer necessity, and the invention of ATM machine is one of them. Now the question that arises is: what was the necessity? What called for the invention of around the clock cash dispenser? Who invented it? A broke student or a shopaholic lady, a businessman or a banker, too tired of cashing the cheques? Also known as Cash point or Hole-in-the-Wall Machine (Britain), ABM or Automatic Banking Machine (USA), All-time Money (India), and Mini bank (Norway) and so much more, the history of ATM is full of interesting facts; some we know- some we don't.

An Armenian named Luther George Simjian was forced to move to USA in the year 1920, under the account of Armenian Genocide. He owned to his credit the invention of a portrait camera and then rolled out the formulated idea of ATM, the Automated Teller Machine.

Confident of his invention, he persuaded Citibank to run his product on a six month trial basis. Soon enough, he was disappointed with the performance and the lack of users and concluded that ATM was a wasteful addition to personal banking. And lack of demand for the ATM finally forced him to take a back seat. Clear enough; the time was not right for this concept to have been accepted generously. Simjian clearly lost out on the success and fame and the same was passed onto two other gentlemen, John Shepherd-Barron and Don Wetzel.

John Shepherd-Barron was a Scottish national born in India. Later, he relocated to Britain and pursued his education from the University of Edinburgh, and at Trinity College, Cambridge. After returning empty handed from the bank, Shepherd-Barron was disappointed to have no other solution to wait till the bank would open next. And thus in a similar fashion like Archimedes, Shepherd-Barron claims to have hit his eureka moment while taking a bath. A self-sufficient cash dispensing machine was what he was thinking about. And soon the ATM was invented in the early 1960s. The invention of a self-sufficient cash dispensing machine was his second and successful attempt at inventions. Earlier he had invented an instrument to scare away seals at his Scottish Salmon farms. Unfortunately, this device instead of deterring the seals attracted them, and was a failure.

The ATM machine gained Shepherd-Barron an ever-lasting recognition in the banking world and paved the way for hi-tech banking techniques, online bank accounts and PIN (Personal Identification Number) and chip security technology. The four-digit internationally accepted standard PIN was also invented by him. Earlier, he had a six-digit Army serial number in his mind but later his wife suggested for a shorter PIN as it would be easy to remember. Finally in 1967 that the first ATM that dispensed paper currency round the clock, was unveiled. The ATM machine installed outside a Barclay's bank in North London started dispensing cash on a 24 hour basis.

As the plastic cards were still to have come into existence, this machine accepted and generated money through cheques impregnated with certain chemicals. Majorly a mild radioactive substance, Carbon 14 was used for detection by the machine. Once the PIN was given, the machine gave out the cash. This radioactive substance had no ill effects on the health of users and

Shepherd-Barron claimed that a user would have to eat about 136,000 cheques to suffer any kind of ill-effects. Reg Varney, a famous TV sitcom popular became the first person to use the ATM in the year 1967 and withdrew about 10 dollars. The amount seems too less for us, but this money was enough for a complete night out spent on the tiles in London, inclusive of dinner, drinks, a show and a taxi-ride back to home, in short enough cash for a “Wild Weekend”.

While this prototype device originated by Shepherd-Barron had started functioning, various parallel developments were happening in different parts of the world. An American Engineer Donald Wetzel of Docutel engineered the Docuteller ATM which was declared as the first modern magistrate machine. It recognized magnetically encoded plastic (credit cards) and not the usual paper cheques.

And there have been a lot of efforts, gone into final development of the ATM; the ones we see today; the ones we use so frequently, and the ones which have made our lives revolve around plastic money. The development of ATM ever since its baby steps in the late 1930s and then gearing up for longer runs in the 1960s, and finally a matured and stable stage that we see the ATMs in today. Undoubtedly, most of the ideas and patents contributed for makeover of the ATM from time to time form the backbone of what was initiated as “holes in the wall”.

Today, ATMs hold a strong foothold in the world, offering everyone a better access to their money in any corner of the world. Let’s put figures to assumptions: there are about 1.8 million ATMs in use around the world with ATMs on cruise and navy ships, airports, newsagents and petrol stations.

ATMs too have been categorized as on and off premise ATMs. On premise ATMs are capable to connect the users to the bank with multi-function capabilities. Off premise, ATM machines on the other hand are the "white label ATMs" and are limited to cash dispense, no balance enquiries and no statement print-out.

The developments have not stopped; the contactless technology is on its rise. Shepherd-Barron continued to take inimitable and lively interest in technology well even in his old age and had foreseen a future where plastic cards too would be numbered. For his excellent and unforgettable contributions to financial technologies, he was also offered the OBE (Officer of the order of the British Empire) in the year 2005. And in the year 2010, he took his last breath and left behind his legacy of technological advancements which would refuses to end. Many more inventions are in process and many will be successful too. The time is just right to bring in the glorious inventions rolling in. (16)

Information technology is considered as the key driver for the changes taking place around the world. Due to pervasive and steadily growth of information and communication technology, the world banking industry is entering into new phenomena of unprecedented form of competition supported by modern information and communication infrastructure (9).

The payment system has been evolving over centuries and in the form of money. At one point, precious metals such as gold used as the principal means of payment and were the main form of money. Later, paper assets such as checks and currency began to be used in the payment system and viewed as money. With the advancement of technology electronic payment

system has come in to the picture. The current payment system in Ethiopia is rudimentary and thus characterized by undeveloped payment instruments, along payment lag and lack of electronic means of payment. The existing payment instruments comprise cash, paper-based instruments and to some extent electronic payment. No doubt, an efficient and smooth payment system is a necessary precondition for business development and electronic growth. Accordingly, safety, integrity, efficiency and reliability of both domestic and international payments are prerequisites for the safety and stability of the financial institutions and the financial markets with in which they operate. Besides, modernizing payment system will lead to compliance to internationally accepted best standards. (12)

The major routine processing in day to day banking operations originates at the cash counter or teller counters in the banks ...the growth of technology has changed the payment systems world over during past decades. The introduction of Automatic Teller Machine (ATM) has given facility to the bank customers for banking beyond the banking hours.

ATM is a device located on off the banks premises to receive and dispense cash around the clock. Customers have also used ATM for depositing cash, check balance, obtaining statement of last few transactions in his account, requesting cheque books, payment of last few transactions in his account, requesting cheque books payment of card bills and for transferring funds from one account to another (5).

Most transactions by the general public are made in cash, with occasional use of cheque. There are no statistical data available on the use of different payment instruments in Ethiopia .....Even in the urban areas, the use of cash

remains dominant. Payment of wages of civil servants by the government of salaries of staff of most private sector companies is still made in cash ...recurrent payment bill to utilities (e.g. Telecom and Electricity Company's) are mostly collected in cash (IMF report, 2004, page 8).

Most of the third world countries lagged behind in making good internet architecture. There is a need to have a secured online payment get way in developing countries. (15)

Africa is in danger of being left behind on a new and growing worldwide market that reached at \$1.7 trillion in 2004... that earns total value of E-Business transactions .... Its growth in Africa has been slow for a variety of reasons, including low levels of internet penetration and limited communication infrastructure. Many Africans are still unaware of the opportunities offered by e-commerce. (14)

Technology is the traditional stimulus to change, and it is as powerful in financial markets as anywhere else. The technological revolution inspired by computers has had an obvious part in the field of finance. For example, it would be impossible to have automated teller machines without computerization of the deposited or withdrawal functions. (11)

## **Data Presentation and Analysis**

### **Commercial Bank of Ethiopia**

Commercial Bank of Ethiopia is the leading state owned bank with 4,000,000 customers and of which only 121,476 are ATM card holders. On the other hand, 3% of the total customers get their money wherever they are

using their ATM cards. The bank attributes different internal and external problems for the larger gap between the holders and non-holders. ATMs to be said very limited or few for the reason that the banked society is not more than 20% of the total population shows that the society is in a very slow pace for banking services.

Commercial Bank of Ethiopia has three major divisions or departments working to facilitate or smooth the interaction between the customer with the ATM card and the ATMs itself. This division is technical, business and operational. The technical wing is available at any time to fix ATMs when they fail to operate mechanically, the second one, the business wing, which takes the promotional task that struggle to awake the unbanked people and to increase the number of ATM card users. The last one, operational wing, carries the responsibilities of replenishing cash to the machines and handle the whole transactions. As these three divisions takes the lions share in providing smooth and uninterrupted services for ATM cardholders, they need to be qualified and responsive for the problems which may arise. The technical divisions of Commercial Bank of Ethiopia is addressing more mechanical problems such as machines failures using skilled man power who are good enough for problems of such a kind. If some problems are found to be beyond these employees skills, Commercial Bank of Ethiopia has technical support from the local agents of the supplier company. As the bank stated, mechanical problems are totally managed. However, the rest business and operational wings have big assignments regarding customer awareness and transactions handling respectively. The former one takes the awareness raising assignment to promote and change the unbanked population to banked one and use ATM cards. The Commercial Bank of Ethiopia still believes there is much left to do in the market in terms of promotion to make

the 95% of customers to be ATM card users and create the cashless society in addition to turning the unbanked people in to banked ones through the power of promotion and advertising. The latter one deal with some significant tasks such as filling up the ATMs with money and checking before the amount the machine has totally depleted and handle transaction related problems. This part, most of the time, receives complaints like when a customer passes through all required processes with the machines such as feeding the card and pressing keys for password, the machines starts to count money. However, the output will be nil. In addition the machines automatically decreases the amount requested at the right moment from the balance without putting the cash in the hands of the customer. Actually, it does not necessarily mean the customer will not recover it. He/she is expected to appear at head quarter of Commercial Bank Ethiopia and write application letter to get the balance as it used to be. This critical problem necessarily creates customer dissatisfactions of wasting of time and effort for the problem the ATMs created. Sometimes machines are empty on weekends when all Commercial Bank of Ethiopia are closed; these time problems gets severe as it seriously affect the customers' interest.

The number of ATM card holder, which is about 3% of the total customer of Commercial Bank of Ethiopia is a sign of low level of awareness of the customers and the inadequate promotional effort of the banks.

The major and most challenging external problem is attributed to Ethiopian telecommunication. The corporation is the sole monopoly state owned telecom corporation that provides every connection to the market. It is to imply that every ATMs of the Commercial Bank of Ethiopia could stop providing services once if the corporation fails to provide the network.



Unfortunately, the Commercial Bank of Ethiopia could go nowhere to substitute the services. It makes the bank highly dependent on the corporation. The Bank is dealing with the corporation to get special attention and services which will enable it to provide the ATM services in uninterrupted manner.

Commercial Bank of Ethiopia works with cash, the most liquid asset, which makes venerable to security related problems. However, regarding ATMs, the market has not experienced challenges related with ATM. Even though the ATMs of other countries have cameras to capture photo of the withdrawing person to protect customer's money from theft, the ATMs of Commercial Bank of Ethiopia have the potential to provide this service. However, the safe market environment of the sector regarding such problems has not yet forced the bank to use them rather considered as additional costs. When we think of cost, ATMs are very expensive.

To import and install ATMs, Commercial Bank of Ethiopia invested much amount of money. This shows that wherever we use ATMs, we see the decision of Commercial Bank of Ethiopia paying more than half a million for each machine.

In the paragraph above, the previous one showed that ATM machines of Commercial Bank of Ethiopia have camera functions which are not used at present demand status. In addition, ATMs of Commercial Bank of Ethiopia has a potential of transferring balance from one account to the other. However, ATM holders of Commercial Bank of Ethiopia can't get this service unless one customer has two accounts in the same bank. This is not mechanical software problem; rather it is a ban of the Commercial Bank of

Ethiopia Policy. The policy does not permit such a transaction from one personal account to the other one for fear of errors which is difficult to fix or such errors seem irreversible.

In the present situation, the Commercial Bank of Ethiopia is serving its ATM card holders, which are 121,476, using 52 ATM machines. Currently, the bank is importing about 400 ATMs which will make the total number of ATMs about 452 by the end of 2005 E.C. Following government transformation project, it has also planned to increase the number of ATMs to 1,000 by 2007. Actually, the new ATMs which will join the market have distinct differences compared with the existing 52 machines in terms of size and service potentials. The old machines are big and with the potential of not only withdrawing but also depositing even though there is no demand for deposit services at this moment from the bank side. On the other hand, the new coming ATMs are small in size, almost half of the old one, and it can also render money exchanging service, but without deposit services. The reasons to import such ATMs attributed to costs and lack of trust of customers to deposit their money anywhere the machines are available and other related problems. If deposit demand arises sometime in the future, the bank will import ATMs like the old one which is bigger in size and with withdrawal and deposit service potentials.

Recently, the banks are dealing to use their ATMs together to enable ATM holders to withdraw cash from any ATMs.

ATM users, the Bank and the national economy are the three frontline beneficiaries from ATMs. Individuals can save their time and effort by using the machines to withdraw their money anytime from anywhere. The

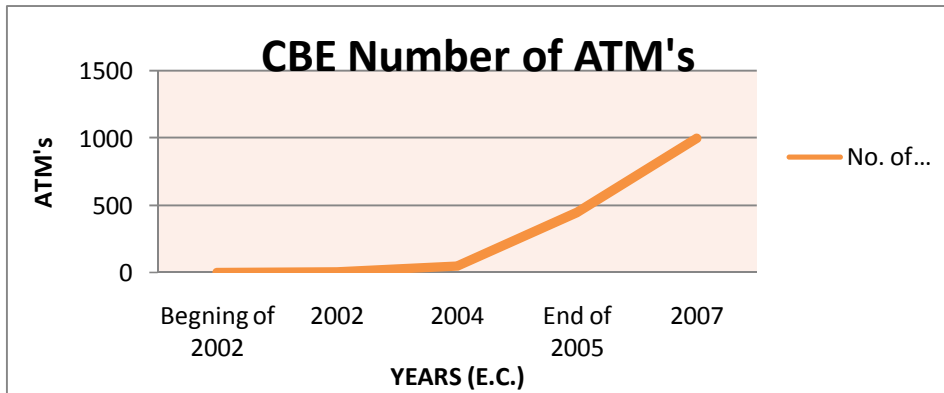
Commercial Bank of Ethiopia provides its services using its large number of branches. However,  $\frac{3}{4}$  of the customers who visit the bank for withdrawal, the amount does not exceed Birr 3,000 which could have been done by ATMs without appearing physically at the bank, filling up and signing paper and dealing with teller. It is to mean that ATMs reduce costs and alleviate branch burdens, in addition facilitate customer services which are a source of customer satisfaction.

Regarding national economy, at least, two benefits can be gained from ATMs. First, the government wants to encourage people to deposit their money in the bank to run the economy safely. ATMs are like the customers pocket to withdraw money any time. This implies that customers do not need to withdraw the whole money and deposit it somewhere like home for better access. Therefore, customers deposit their money in the bank believing they can withdraw it any time. The second one is its capacity to generate foreign currency. People coming from abroad transfer their currency to the bank and take ETH Birr. This has contributed 100 millions of dollars to the country.

**Table 1: Number of ATMs of Commercial Bank of Ethiopia**

Commercial Bank of Ethiopia	
Year (E.C)	Number of ATM
Begning of 2002	4
2002	8
2004	52
End of 2005	452
2007	1,000

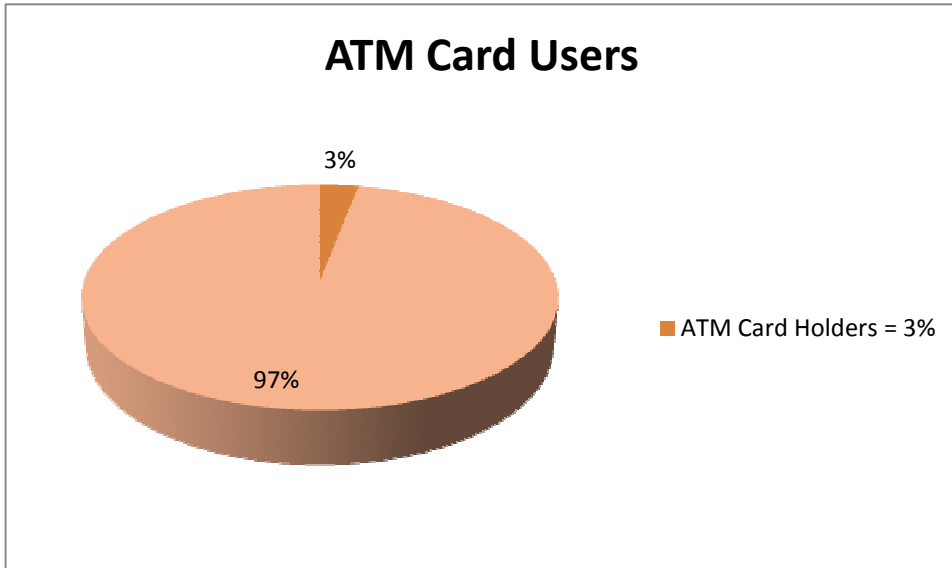
**Figure 1:** CBE number of ATMs



As the diagram above shows, the number of ATMs of Commercial Bank of Ethiopia is on increasing trend from four (4) machines in 2002 to four hundred fifty two (452) in the near future of end of 2005 E.C and will dramatically reach to one thousand (1,000) by the year 2007 E.C. (Future perspectives).

**Table 2:** Commercial Bank of Ethiopia Number of ATM Card Holders

	Number	Percentage
ATM Card Holders	121,476	$\left(\frac{121,476}{4,000,000}\right) = 3$
ATM Card Non-Holders	3,878,524	$\left(\frac{3,878,524}{4,000,000}\right) = 97$
<b>Total</b>	<b>4,000,000</b>	<b>100</b>



**Figure 2:** Commercial Bank of Ethiopia percentage of ATM Card Holders

The Pie chart shows that from 4,000,000 customers of Commercial Bank of Ethiopia, only 3% or 121,476 of them are ATM card holders.

### **Zemen Bank S.C.**

Zemen Bank S.C. started its operation in 2009 with a registered capital of \$ 15,000,000 using three ATM machines. Currently, the bank has 25 machines across various locations in Addis Ababa. It has about 7,611 customers; all of them are ATM card holders. The bank is trying to introduce a kind of service that needs only codes to withdraw money from the machine. At this moment, the transact accounts that do not involve papers like other banks do. In addition, customers of the bank can withdraw up to Birr 5,000 once and the maximum limit to withdraw in a day is Birr 9,000.

The bank is highly dependent on technology in providing different services to its customers. However, government policies and procedures, shortage of software companies in the market to provide the necessary programs are affecting the service provision efforts badly and this has become one of the challenges the bank faces.

The ATMs are like any machines which need installations, follow-ups and maintenances. Unfortunately, lack of skilled man power forces the bank to seek the service from the supplier company from abroad which challenges the bank since it incurs much cost.

It is very difficult to think of technology dependent service without network for a second. Even though this is the fact, the bank has found it difficult to get uninterrupted networking services in the market. What makes it worse is, the current network provision is not compatible and satisfactory and is also totally out of the control of the bank which results in sever customer dissatisfactions.

The power cut offs that could have affected ATM payments are being alleviated by the support of UPS and generators. Problems related with security are not potential challenges for the current market situation which is safe.

Customers sometimes forgot their password and were not patient until the machine processes their transaction.

Having all these challenges at hand regarding service provisions with ATMs, Zemen bank S.C. is contributing and receiving different benefits from the

machines to itself and to the general economy respectively. As one of the benefits, the bank has found ATMs very friendly with its “one office” strategy that works with one central building without opening branches. The gap which could have been created by this strategy is filled by ATMs and reaches every customer 24 hours and seven days a week (24/7). This helps the bank to provide services without branches which implies that the bank avoids branch related costs. The other benefit is facilitating the service provision which enable customers to take their money from anywhere.

Regarding its contribution to the general economy, it brings a significant amount of foreign exchange to the country. As the member of VISA international, Zemen bank S.C. ATMs can accept all kinds of VISA cards provided by any of the VISA member cards around the globe. Foreigners who come to Ethiopia can use any ATMs of the bank to withdraw the local currency which the bank receives the foreign currency instead which is very important input for the national economy.

From September 22, 2010 Dashen bank S.C and Zemen Bank started working together in linking up their ATM networks to increase access. Any customer of these banks can withdraw from any ATMs of the two banks by charging some amount of the other customer. Dashen Bank S.C. has more than 75 ATMs throughout the country and Zemen bank S.C. has 25 ATMs across the various locations of Addis Ababa. These together make the two banks to have more than 100 ATMs across the country that enables the customer to access from anywhere.

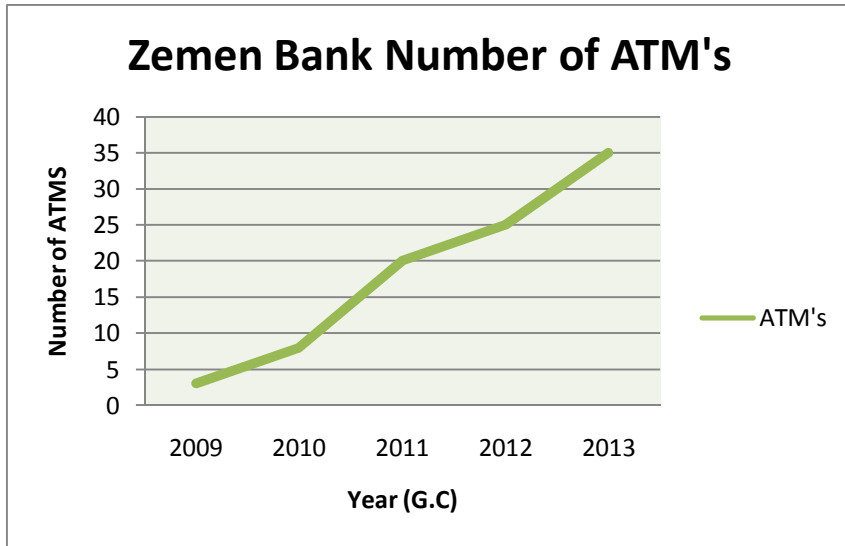
Zemen bank S.C. is highly network based at least compared with other banks of the country. Still the bank is trying to apply the latest technologies which

the world best banks are making use of and planning to increase the number of ATMs that will help the bank to join the international banking industry. Those are International card, payee union, master card, gift card and pre paid card which are the most known and utilized payment systems abroad. By applying the above payment systems, the Bank can reach its vision which is to be the leading bank of the world by 2025.

**Table 3:** Zemen Bank Number of ATMs

Zemen Bank	
Year (G.C)	Number of ATM
2009	3
2010	8
2011	20
2012	25
2013	35



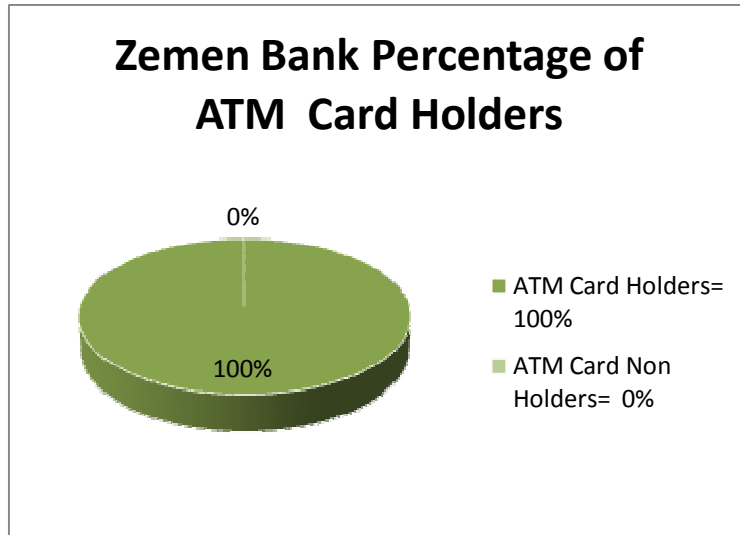


**Figure 3:** Zemen Bank Number of ATMs

Table 3 shows that Zemen Bank is on increasing trend from three (3) in 2009 machines to 25(twenty five) in 2012 and in the near future end of 2013 will reach to thirty five (35).

**Table 4:** Zemen Bank Number of ATM Card Holders

	Number	Percentage
ATM Card Holders	7611	100
ATM Card Non Holders	0	0
<b>Total</b>	<b>7611</b>	<b>100</b>



**Figure 4:** Zemen Bank Percentage of ATM Card Holders

The Pie chart above shows that the whole Zemen Bank S.C customers are ATM card holders.

## Summary, Conclusions and Recommendations

### Summary

Electronic payment systems especially ATMs are relatively a recent experience in Ethiopian Banking Industry, having different problems like power cut offs, network failures, low customer awareness, large number of unbanked nation, lack of skilled man power, etc.

Commercial Bank of Ethiopia and Zemen Bank S.C are amongst the banks that provide ATM services to their customers in the banking environment of low customer awareness, limited number of ATMs, frequent network failures, power cut offs, low skilled manpower to install and maintain ATMs, low software supplies, etc.

These banks are doing their business facing challenges while using ATMs so as to facilitate customer services, minimize cost, alleviate branch burdens, earn foreign exchange, etc. They are also looking into the future to increase access to their customers using their ATM machines together, use latest technologies by importing more ATMs and by making deals with Ethiopian Telecommunication Corporation to receive special attention to stay all the time connected, raise awareness level and make the unbanked nation ATM card users and create cashless banking society.

## **Conclusions**

Under this study, efforts have been applied to study electronic payment systems specially ATMs in both Commercial Bank of Ethiopia and Zemen Bank S.C. As these banks are known in the banking sector with their known distinct futures in addressing their customers, the research observed strong sides that have to be carried and on weakness which should be corrected.

### ***Strong Sides Observed From the Commercial Bank of Ethiopia:***

- It can manage mechanical failures through skilled man power from within and local agents of the supplier company.
- It manages frequent power cut offs using UPS batteries and generators.
- It is dealing with Ethiopian Telecommunication Corporation to get special services to avoid frequent network interruptions. And the

Bank is trying to purchase international web site which is independent from Ethiopian Telecommunication.

- It contributes foreign currencies earnings to the national economy.

***The weaknesses that Commercial Bank of Ethiopia includes the following:***

- Only 3% of its 4,000,000 customers are ATM card holders that result in high burden on branches.
- The total numbers of ATMs are very few.
- Even though ATMs have different uses, the bank is providing only few of them.
- Some services like transferring money from one customer to the other is not allowed by the policy while the machines can provide the service.
- The machines sometimes found out of cash when the customer is in need of money.
- The new ATMs to be imported are small in size and limited in their function which does not consider the future demand growth in terms of number and service preferences.
- The machines sometimes fail giving service.
- The bank is not doing in collaboration with other banks.
- It is impossible to withdraw high amount of money.

***Zemen bank has the following strong side:***

- It is very modern since all customers are ATM card holders. In other words, the bank is successful in creating cashless society.

- It provides services to all customers all over the country with a single building which helps to save much effort and money.
- It introduces a new and modern banking system to the banking industry.
- It helps customers to withdraw relatively large amount of money from the ATM once or within a day.
- It is helping the country in earnings foreign currencies.
- It works together with Dashen Bank S.C. to use ATMs together to increase access to customers.
- It manages frequent power cut offs using UPS batteries and generators.

***Some weaknesses observed from Zemen Bank S.C are the following:***

- It is highly dependent on network based banking system in the environment where networking services are difficult.
- Its customers are very few compared to the unbanked nation.
- It suffers with lack of skilled man power to install and maintain ATMs which caused the bank to incur a great deal of cost.
- The office is highly centralized to the extent of leaving every task of central office to the ATMs and difficult to give substituted services if the machines (card) fail which is far away from the central office.

**Recommendations**

As these two banks are with high potentials of customers and technology, they need to change the old thinking of the nation, which is the majority and still remained unbanked, through strong awareness raising campaign and increasing access for the services. And this research recommends the following points:

***To Commercial Bank of Ethiopia:***

- It needs to do much regarding customer awareness raising assignments for only 3% of the total 4,000,000 customers are ATM card holders.
- It should install ATMs throughout the country.
- There is a need to replenish operational staff members ATMs and be responsive to customers on time when transactional problems arise.
- ATM cards should be distributed by any means to reduce the burden of branches small amount withdrawals which could have been simply done by ATM cards.
- The bank should increase its effort by working closely with Ethiopian Telecommunication Corporation to solve network related problems which is the most external and challenging factor for ATM banking services.
- The ATMs which are to be imported should consider the growing demands for more numbers and different service preferences and its expensiveness.
- There is a need to increase the withdrawal limit of Birr 3,000.00 a day.
- There is a need to increase service accessibility by providing an alternative outlet that gives services for 24 hours a day for seven days a week (24/7).

***To Zemen Bank S.C:***

- As the bank is highly dependent of networks, it has to deal with Telecommunication Corporation to receive special services that enable it to get uninterrupted connections more than it currently has.

- The number of ATMs should not be limited to these few numbers; the bank has to import more and distribute throughout the country.
- It has to work hard to increase the number of customers.
- It should deal with Government and some IT material importers to satisfy its objectives and specific needs for network software.
- It should hire or train local employees for maintenance instead of importing which is very expensive.
- As compared to their customer deposit amount, the withdrawal amount is not enough, so they must increase the limit of withdrawal amount.

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