Plastic Money security concerns amongst customers in Zimbabwe's retail sector.

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Abstract
Plastic money offers Zimbabweans an alternative to cash as they face a crippling cash shortage in the economy. Globally most economies run on predominantly cashless basis. This study explored the security concerns amongst consumers as they use plastic money and the influence of demographic factors on security concerns when transacting with plastic money. The exploratory study was conducted in Harare, responses were drawn from a randomly selected sample of 300 customers of major retail chains in the CBD of Harare. Findings suggest that the ATM and Debit card is most popular with consumers in Zimbabwe. Consumers are most worried about security of information risk rather than physical security risk. Most consumers use plastic money to buy grocery items .Chi-square tests proved that there was an association between gender and usage of plastic money. Since $p-value = o.oo1 < 0.05$.Males use plastic money more often than females. Females are more afraid that their PIN number could be disclosed to other users at the point of sale than males(*p- value= 0.022).*Those aged between 35 -45 years old feared for cloning of their cards by computer savvy fraudsters than all the other age groups(*P value 0.000*). Convenience and security were seen as the major reasons for using plastic money. High bank charges ,and system or card failure during transactions were key problems when using plastic money.

Key words
Plastic Money, Information Security, Physical Security, Risk, ATM card, Debit Cards ,Credit Cards

1 INTRODUCTION

Money itself represents one of the fundamental inventions of mankind having been necessitated by the desire by traders to ease the process of doing business. The birth of money came as a multi-fold blessing to humankind (Manivannan 2013). The introduction of money was phenomenal as this eased all the hardships that were posed by the barter system in particular the problematic "double coincidence of wants". However in recent years the concept of Plastic money has resulted in a paradigm shift from money in terms of notes and coins to money in cashless terms. The banking sector has embraced ICT developments in a phenomenal way such that today ICT's are key to all operations in any bank across the world this(Singh 2004) cited in Kaseke (2012). Benefits of ICT to banks include enhanced efficiency of operations and most importantly to bring convenience to their customers.

Plastic money was introduced in the 1950's and is now an essential form of ready money which reduces risk of handling huge sums of cash. It includes credit cards, ATM cards, and debit cards and smart cards (Nevil Suran 2010). Patil (2014)defines plastic money as the several debit and credit cards that consumers use to purchase in place of cash. In Zimbabwe plastic money usage began in the early 1990's with the introduction of ATM's by Standard Chartered Bank of Zimbabwe Ltd and Central Africa Building Society (Kaseke 2012, Dube , Chitura and Runyowa2009).Ullah et al (2014) found that in Pakistan, insecurity of transactions among other reasons had negative impact on adoption of plastic money usage.In Zimbabwe research on security concerns on plastic money usage is still in its infancy hence the need to conduct such research.

Problem Statement
This study has been motivated by the fact that currently in Zimbabwe it is not known whether security concerns are an impediment to plastic money usage.

The Objectives of the study were to:

- determine the security concerns of the consumers during plastic money usage.
- explore potential security risks associated with plastic money usage.
- identify the different modes of plastic money being used by consumers in Zimbabwe.
- identify the typical transactions that consumers use plastic money as payment medium.
- determine the relationship between demographic factors and security concerns among plastic money users.

2. Literature review

Research on plastic money is ongoing. Past researchers have focused mainly on the demographic factors and the cost of transactions as major determinants of plastic money usage .Loix et al 2005, found that employment status is a strong predictor of debit card holding. Various researchers have found income to be a strong predictor of debit card holding Giulio and Milani 2013, Stix 2004. Debit card holding changes significantly with age (Loix et al 2005;Mooslechner et al 2006; Borzekowski 2008).Several other authors have also sought to explore reasons and benefits of using plastic money amongst consumers contending that convenience accessibility , ease of use, portability and enhanced security emerged as key findings in this regard (Kaseke 2012, Bisht et al 2015) .

2.1 Defining Plastic Money

Patil(2014)defines plastic money as the several debit and credit cards that consumers use to purchase in place of cash. The importance of plastic money cannot be over emphasized particularly with the surge in organized crimes and in particular armed robberies (Adepoju and Alhassan, 2010) . Manivannan (2013) in his paper described plastic money as generally a credit or debit card with a magnetic strip many people carry in their wallets or purses. Plastic Money as a concept has varied instruments which include credit card, debit card, Smart card and charge card, and ATM cards for withdrawing money at an Automated Teller Machine(Adepoju and Alhassan 2010).

2.2 Debit Card

Mishra(2007) cited in Patil (2014) defined a debit card as magnetically encoded plastic card that customers can use to transact in place of cash(Ullah et al 2014) alluded that debit card users can use money available in their bank account to purchase goods or services. In Zimbabwe most ATM cards basically work as Debit cards. Mishra 2007 cited in Patil(2014) inferred that a debit card is issued free of cost with the savings or current account. Patil (2014) identified two forms of debit cards, the online debit card (known as PIN) and the offline debit (known as signature debit). Extant finding suggest that debit cards are increasing popularity ahead of credit cards as asserted by Saha(2006) cited in Kumar (2015).

2.3 ATM Card

The main purpose of an ATM card is used enable card holders to withdraw cash by inserting the card at an automatic teller machine. It can also be used to make deposits and transfer funds between accounts. ATM cards services are highly profitable to banks, thus banks aggressively market their use as suggested by Christolav(2013).In Zimbabwe most formerly employed individuals possess one or more ATM cards as their salaries are often deposited in banks by the employers. Existing findings suggest that globally ATM are still considered most popular form of plastic money(Siddiqui 2015)

2.4 Credit Card

A credit card is basically a plastic card issued to a cardholder, with a credit limit, that can be used to purchase goods and services on credit or to obtain cash advances (Patil 2014). In Zimbabwe few banks are currently offering credit cards with the overdraft facility, since the dollarization of the economy. Credit cards have become a common financial product held by households in all economic strata in many countries. These are offered as either MasterCard or Visa cards in Zimbabwe. Some authors note that credit card become unpopular due to the problem that they encourage people to live in debt(Siddiqui 2015, Pati 2014)

2.5 Smart Cards and Charge Card

Smart cards exist in virtually most sectors form retail chains, hotels, restaurants, medical aid e.t.c . It is basically a plastic card containing a computer chip and enabling holder to purchase goods and services requiring data stored on the chip. This type of a card is used mainly in the retail sector in Zimbabwe. All features of a charge card are like that of a credit card except that once you use it you will have to pay the entire amount due on a stipulated date. This kind of card is not common in Zimbabwe.

2.6 Plastic Money security risks

The Royal Society (1992) defines risk as "a combination of the probability or a frequency of occurrence of a defined hazard and the magnitude of the consequences for the occurrence."In the context of plastic money usage the hazards that can constitute risks an include physical fraud such as that of a card being stolen by thieves at an ATM machine or an information security risk .

2.6.1Information Security Risks

Shengabavalli et al (2012) posits that security risk of using credit card is global phenomena. Security risks associated with plastic money are varied , these includes fraud which can happen electronically where details of a plastic money card holder can be stolen via internet and transactions are carried out fraudulently (Adepoju and Mohammed 2010.Such risks include activities such as cloning, hacking, phishing and skimming and others (Shenbagavalli et al, 2012).

2.6.2 Physical Security Risks

Physical risk is normally associated with robberies at the ATM soon after money is dispensed. In the retail sector in Zimbabwe Plastic Money in the form of debit or credit cards are the commonly used forms of plastic money normally used for, groceries shopping and other home requirements (Adepojuand Mohammed 2010). There is physical risk of information as most of the time there is no mechanism of securing personal information including the PIN. The customer is made to punch in their PIN number in full view of other customers, there by exposing the customer to both the risk of electronic fraud and the physical security of being followed by prospective robbers. Safety and convenience are among the presumed major benefits of plastic money. Plastic money fraud not only results in financial losses to the bank but will also impact on the consumer trust of the whole concept of plastic money. Patil (2014) cited fraud as one of the

major disadvantages of plastic money whereby cards can be stolen or cloned. Diebold (2002)identified card theft were by fraudsters temper with the ATM such that as an unsuspecting card holder inserts their card , the card gets trapped and will not come out , then the fraudsters would pretend to help the card holder by asking them to punch in their PIN again and in so doing they view the secret number which they will eventually use once the card holder has left the ATM believing that their card has been genuinely trapped.

2.7 Information Security Measures

Information security is about safeguarding these critical information assets, ensuring the integrity of the data on which you base decisions and transactions, its availability to your business operations and its confidentiality. Password authentication based on smart cards is one of the simplest and most efficient authentication methods and is commonly deployed to authenticate, the legitimacy of remote users Marimuthu and Saravanan (2014). Based on cryptographic techniques, several password authentication schemes have previously been implemented.

3. Research Methodology

The researcher conducted an exploratory survey on a cross sectional basis. It was important to adopt exploratory research design so the research was carried out in selected chain stores in the retail sector, in Harare Central business district (CBD). A case study approached was adopted in
order to provide for an intense and in-depth exploration of the consumers concerns as they transact with card money. A case study provides greater amount of detail, hence many future research questions can follow and guide future research based on previous explorations.

The population of interest was consumers transacting at major chain stores in Harare CBD. The sample was drawn from consumers transacting at both clothing and FMCG sectors. Sampling is the process of selecting a representative subset of observations from a population to determine the characteristics of a random variable under study (Wegner T, 1999).Simple Random Sampling probability technique was used to select respondents. The sample size was 350. Response rate was 85% thus 300 questionnaires were considered. A simple questionnaire was designed so that respondents could easily understand the subject matter. Respondents were intercepted at the point of exit from the shop to avoid disturbing the activities inside the shop.

4. Discussion

4.1Demographic analysis

Male constituted 56% 0f the respondents and women were 44%. 79 % of the respondents were between the ages of 25 t0 55 years , whist 11% were above 55 and 10% were below 25years of age. 67,7% were married and 24, 5 were single the rest we either divorced or widowed.81% were salaried employees and 91,7% were earned more than$ 300 per month. 49.3 % indicated that they use plastic money very often, 28. 9% used it sometimes while 21.8% indicated that they rarely used plastic money as a mode of transacting. Buying groceries was cited as the major purpose of using plastic money. Chi-square test was done to establish any associations between demographic factors and usage of plastic money.In this study Males use plastic money more often than women.

Table 4.1 Frequency of Plastic money usage by gender

	Very often	Sometimes	Rarely	Total
Male	81 50.5%	35 21.6%	46 28.4%	162 100%
Female	64 48.5%	50 (37.9%)	18 13.6%	132 100%
Total	145 48.3%	85 (28.9)	64 21.8%	294 100%

On testing for association between gender memorization of PIN number, we fail to reject H_0 and conclude that there is no association between gender and memorization of PIN number (Since $p - value = 0.755 > 0.05$

4.2Usage and Awareness

The most popular mode of plastic money is the ATM (66.8%awareness level) card followed by the debit card (22,7%) .Credit card is not popular with a 6.1% awareness level. The charge card is not known at all, as all respondents' prophesied ignorance of its existence. On being asked which card they considered important, the ATM card was singled out as the most important with a mean of 3, 06 and standard deviation of 1,106.CBZ is the most popular bank(23%) followed by CABS(22%), while MBCA and Steward Bank are lowest at 2% respectively. Popularity here is being measured by ownership of either an ATM or Debit card.

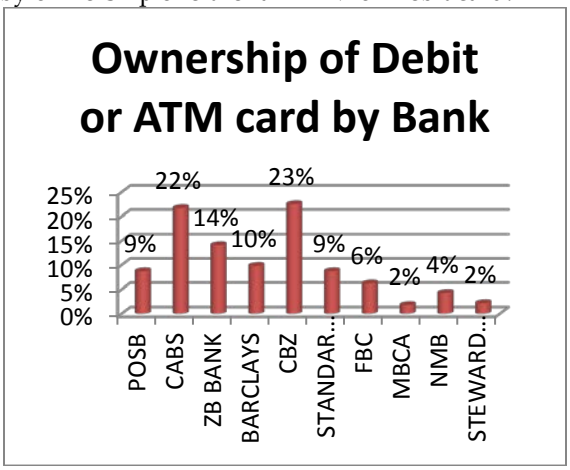

Figure 4.1Ownership of debit card by Bank

Overspending (50.9%) and security issues were cited as major problems with usage of plastic money while discrepancies in bills and slow processing of cards /system failure were also noted as generally problematic. Major problems cited with usage of plastic money included slow processing of cards/system failure with 84% of respondents strongly agreeing.

Responses on Security Issues

Table 4.2 Physical security concerns

Physical security risks I worry about	YES	NO
ATM outside the bank	46.9%	53.1%
Point Of Sale supermarket	22.0%	78.0%
Point of Sale clothing shop	18.0%	82.0%
Point of Sale restaurant	31.1%	68.9%
Point of Sale Settling Utility bills	28.6%	71.4%

Physical security risk is of less concern amongst plastic money users as most of them indicated that they did not feel physically insecure (53.1%) when transacting with their cards at the various service delivery points.70.1% of respondents had heard of people being robbed at the automated teller machines outside banks before.

Table 4.3 Information security concerns

Information security risk I worry about	YES	NO
Cloning by computer savvy fraudsters	74.3%	25.7%
PIN number being disclosed to other buyers at POS	76.1%	23.9%
Card details stolen by people who know you	76.1%	23.9%
Physical security card being snatched by pick pockets	67.7%	32.3%

Information security risk is a major concern amongst plastic money users as most of them 76.1% indicating that they were most worried about their card details being stolen by people who know them, or their PIN number being disclosed to other buyers at the point of sale (POS). Respondent indicated that they memorised their PIN number (91.9%), and those that stored their PIN number details trusted were the storage place (70.8%). 63.7 % believed that other people were also using plastic money regularly .Convenience (mean score was cited as the major reason for using plastic money followed by security . Females are more afraid that their PIN number could be disclosed to other users at the point of sale than males (*p-value= 0.022)*.This scenario could be possibly the reason why fewer females than males were noted to use plastic money than males. Those aged between 35 -45 years old feared for cloning of their cards by computer savvy fraudsters than all the other age groups (*P value 0.000*).This could be an indication that this group could have more savings at the bank than other age groups possibly due to the fact that they are in their prime working years. This finding is supported by the views of earlier researchers (Loix et al 2005; Mooslecher etal,2006;Borzekowski 2008,) who all noted that possession of a debit card changes significantly with age. The cost of transacting (3.79) with plastic money was regarded as very high (mean score1.53) and a possible drawback in adoption of plastic money.

5. Conclusions

The ATM and Debit card are most popular , they are often used interchangeably. The credit card is not favoured by many. CBZ and CABS are the most popular banks from the results of this study. Overspending is regarded as a serious problem with usage of plastic money.The study established plastic money is often used to buy groceries rather than purchasing high involvement capital goods .Gender is seen as a factor in adopting plastic money with males being more amenable to using plastic money than females.H_1 was supported Since $p - value = o.oo1 < 0.05$ hence H_0 is rejected there is an association between gender and usage of plastic money. However on memorization of PIN number no association was observed hence we adopt H_0 Since $p - value = 0.755 > 0.05$.Physical security risk is of less concern as 53.1% of respondents felt that they did not feel physically insecure when transacting at various POS with their cards.

Information security risk is a major concern amongst plastic money users as most of them 76.1% indicating that they were most worried about their card details being stolen by people who know them, or their PIN number being disclosed to other buyers at the point of sale (POS).91.9% memorised their PIN number. Convenience as the major reason for using plastic money followed by security .The cost of transacting (3.79) with plastic money was regarded as very high (mean score1.53) and a possible drawback in adoption of plastic money. The findings in this study suggest that information security risk concerns are more than physical security amongst Zimbabweans. They fear that their cards can be cloned by computer savvy fraudsters, PIN number and Card details being stolen by people who know them. Males are more amenable to adopting plastic money than females. Females are more afraid that their PIN number could be disclosed to other users at the point of sale than males(*p- value= 0.022)*.Banks and merchants should increase security mechanisms at the point of sale so that females may feel more secure. The cost of transacting with plastic money was regarded to be very high and this explains why females are lagging behind in plastic money usage as they often have less income than males in this society.

6.Recommendations

In order to advance for cashless transactions in Zimbabwe, the banking sector needs to revisit its cost structure in as far as plastic money usage charges are concerned. Awareness programs must be conducted in order to explain the information security mechanisms that already prevail to protect clients and secure their card information. Women should be encouraged to use plastic money through.

7.Future Research

This research focused on just demographic issues in relation to usage of plastic money in general and risks associated with plastic with plastic money in general. Future researches may investigate individual types of cards performance for example researchers can explore problems associated with usage of

credit cards or debit cards, or carry out comparative studies in Zimbabwe.

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