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Prospects and challenges in the investigation of credit card fraud in Vall Region of the Gauteng Province, South Africa

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Abstract. Today use of Credit Card even in developing countries has become a common scenario. People use it to shop, pay bills and for online transactions. But with increase in number of Credit Card users, the cases of fraud in Credit Card have also been on rise. Credit Card related frauds cause globally a loss of billions of Rands. Credit Card fraud can be done in numerous ways. The article begins with an examination of the extent of the challenge and response by the relevant stakeholders, especially the Criminal Justice System (CJS). This study was carried out utilising a qualitative research approach with a convenience, purposive and snowball sampling techniques. Thirtynine (39) interviews were conducted to solicit the views of the participants and police investigators from Vanderbijlpark, Sebokeng, Sharpeville and Vereeniging police stations, members of the community, and victims of credit card fraud were interviewed. These interviews were analysed according to the phenomenological approach, aided with the inductive Thematic Content Analysis (TCA) to identify the participants' responses and themes. The findings indicated that the extent of credit card fraud in Vaal region is reaching alarming rates. Based on the findings, the authors provided recommendations such as: police investigators being taken for regular workshops and training on how to investigate sophisticated methods used by perpetrators such as technology, awareness in the society about credit card fraud should be prioritised and enhanced. This study recommends that the CCTV cameras should be installed in the ATM, where cases of credit card are taking place. In addition, the police be visible in the areas which are most prevalent to credit card fraud.

Keywords. Credit card fraud; fraud; investigation; criminal justice system

Introduction

According to (Ishu & Mrigya, 2016, p. 1), credit card is a thin handy plastic card that contains identification information such as a signature or picture, and authorizes the person named on it to charge purchases or services to his account—charges for which he will be billed periodically. A credit card is a convenient method of payment, but it does carry risks. The enormous growth in the use of credit cards has resulted in high levels of credit card fraud. The use of credit cards has become a way of life in many parts of the world. There is a rapid growth in the number of credit card transactions which has led to a substantial rise in fraudulent activities (Ishu & Mrigya, 2016, p. 2). South African Banking Risk Information Centre (2017,

p. 1) concurs that today, credit cards are used like cash. All credit cards have one thing in common, namely that the bearer can obtain something of value simply by presenting the card.

The significance of money and credit need no exaggeration. Application of Technology has transformed very lifestyle of the people and the entire world is dependent on it. In service sectors like banking, education, health, retailing, etc. technology has become the main player. Integration of banking services with the technology has given rise for new 'technology-driven' services, apart from enhancing overall efficiency of the banking industry in serving customers (Motseki, 2021). Credit card facility of banks combines technology with the flow of credit and serves the needs of customers (Hugar and Basavaraj, 2014:78). As civilization progressed, the support systems in the society got transformed with improved techniques and technology. Banking is one of such support systems. Today, the technology has transformed banking system from traditional, manual system to modern technology-driven industry. In this transformation, the role played by credit card is very significant (The Times of India, 2010:20).

Problem statement

Despite increased media coverage regarding the prevalence of credit card fraud and the means and methods used by organised criminal groups, the evidence base remains underdeveloped. The glaring knowledge gaps confronting the policy makers as well as law enforcement agencies, amongst others, are the lack of empirical studies and research into the extent of the challenge. Gross fraud losses on SA-issued credit cards increased by 1.0%, from R434.0m in 2016 to R436.7m in 2017. In 2016, 50.6% of all credit card gross fraud losses occurred at merchants outside the borders of South Africa. This percentage increased to 53.4% in 2017. The remaining 46.6% of transactions occurred at merchants in South Africa. CNP fraud was the leading contributor to the gross fraud losses on SA-issued credit cards in 2017, with 72.9% of the overall credit card gross fraud loss (R436.7m) attributed to card not present (CNP) fraud. CNP credit card gross fraud losses increased by 7.4% from R296.4m in 2016 to R318.4m in 2017.

A total of R200.0m (85.8%) of the overall gross fraud losses (R233.2m) occurring outside South Africa can be attributed to CNP credit card fraud. Lost and/or stolen cards are mainly used in South Africa with only 23.9% of the losses related to transactions outside South Africa. Gauteng accounts for 57.2% of the credit card gross fraud losses and is the highest among all the provinces. Nowadays, enterprises and public institutions have to face a growing presence of fraud initiatives and need automatic systems to implement fraud detection (Delamaire, Abdou, & Pointon, 2009). Since the number of fraudulent transactions is much smaller than the legitimate ones, the data distribution is unbalanced, i.e. skewed towards non-fraudulent observations. Another problematic issue in credit card detection is the scarcity of available data due to confidentiality issues that give little chance to the community to share real datasets and assess existing techniques.

Research objectives

According to De Vos, Strydom, Fouché, & Delpont, (2011:108), the objectives of the research elucidate the specific issues that the researcher intends to examine and should accordingly be clearly stated and specific in nature. The specific research objectives of this study in order to address the research aim are:

- To determine the modus operandi of perpetrators of credit card fraud.
- To identify the factors that hinders the SAPS to effectively investigate credit card fraud.

- To determine the extent and nature of credit card fraud.
- To identify the preventative strategies used by the SAPS and SABRIC to investigate credit card fraud.
- To determine the profile of perpetrators of credit card fraud.
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Literature review on credit card fraud

Credit card fraud in South Africa

According to Budhram (2012:1) explained that the use of credit cards has become a way of life in many parts of the world. Today, credit cards are used like cash. All credit cards have one thing in common, namely that the bearer can obtain something of value simply by presenting the card. A credit card is a convenient method of payment, but it does carry risks. The researcher is of the view that the enormous growth in the use of credit cards has resulted in high levels of credit card fraud. Technological advances have allowed the perpetrators to produce counterfeit cards that resemble the genuine card so closely that it is difficult for shopkeepers, tellers, and police and bank investigators to identify a fraudulent card. Identity theft and the exponential growth of the internet have further compounded the crime of credit card fraud by allowing for on-line purchasing, resulting in huge financial losses to the card industry and consumers alike (Budhram, 2012:2).

Omarjee (2019:2) postulated that credit card fraud rose at an alarming rate in the first three months of the year 2020, data from the Ombudsman of Banking Services revealed. This fraud takes place when scammers obtain details from a credit card holder and then make unauthorised purchases using credit card funds, the ombudsman explained. To manage the risk, losses, and the reputation of the company, credit card companies operate a highly sophisticated fraud detection system (FDS) to monitor transactions and detect the fraud immediately. Detecting fraudulent transactions using manually designed rules is inefficient, subjective, and time-consuming; thus, card issuers have focused on data-driven methodologies to handle credit card fraud problem. If the model can separate the fraud from the legitimate transactions effectively, then the amount of loss will be significantly decreased (Kim and Lee, 2019:8).

Types of credit card fraud

Fraud with stolen and lost credit cards

Fraud with stolen and lost credit cards is the most common type of credit card fraud and involves the 'theft of genuine card details that are used to make a purchase through a remote channel such as the phone, fax, mail order or the Internet', and/or by presenting the card at a till point. According to Jain, Tiwari, Dubey and Jian (2019:5) in cases when the original card holder misplaces their card, it can get to the hands of fraudsters and they can then use it to make payments. It is hard to do this through machine as a pin number is required however; online transactions are easy enough for the fraudster.

Mail Non-Receipt Card Fraud

When a customer applies for a card, it takes some time for all the procedural formalities. If fraudster intercepts in the middle of the delivery, they may register the card in their name and may use it to make purchases. This fraud is also known as never received issue fraud.

Counterfeit card fraud

Counterfeit credit card fraud decreased by 23.2% when compared to 2018. The losses associated with counterfeit credit card fraud decreased from R108.9 in 2016 to R83.6m in 2019.

Although the gross fraud losses decreased, 19.1% of the total gross fraud loss can still be attributed to counterfeit card fraud. Fraudulent spend using lost and/or stolen credit cards increased by 44.5% during 2017 and amounted to R25.7m in total. Lost and/or stolen cards are mainly used in South Africa with only 23.9% of the losses related to transaction (SABRIC, 2017:11). Counterfeit card fraud involves a card that has been illegally manufactured from information stolen from a magnetic strip of a genuinely issued card. In other cases, lost and stolen cards and old cards are encoded with information stolen from a genuine card for the purposes of committing counterfeit card fraud. The information needed for counterfeit card fraud is usually stolen through ‘skimming’ a genuine card.

Van der Bijl (2019) states that ‘skimming entails that the magnetic strip on the back of the card is copied using a hand-held card reader’. Skimming can also be perpetrated by concealing a ‘skimming device in the card slot of an ATM which results in the recording of data of all cards accessing the specific ATM as well as recording the secret pin code of the card’ (www.interac.ca/consumers/security_fraud.php). According to the SAPS training manual on credit card fraud, ‘skimming normally occurs at retail outlets, particularly at No. 40 June 2012 6/19/12 9:51 AM Page 36 SA Crime Quarterly no 40 • June 2012 33 bars, restaurants and petrol stations where a corrupt employee skims a customer’s card before handing it back.

Card not present fraud (CNP)

CNP fraud was the leading contributor to the gross fraud losses on SA-issued credit cards in 2017, with 72.9% of the overall credit card gross fraud loss (R436.7m) attributed to CNP fraud. CNP credit card gross fraud losses increased by 7.4% from R296.4m in 2016 to R318.4m in 2017 (SABRIC, 2017:11). A total of R200.0m (85.8%) of the overall gross fraud losses (R233.2m) occurring outside South Africa can be attributed to CNP credit card fraud. Card not present fraud ‘denotes a fraudulent transaction that occurs when the card, the card holder or the merchant representative is not present at the time of the transaction which is made online or via the telephone’ (SABRIC, 2008:30. This means that:

- The merchants are unable to check the physical security features of the card to determine if it’s genuine
- Without a signature or a password, it is not easy to confirm that the customer is the genuine card holder
- Card issuers cannot guarantee that the information provided in a card not present environment relates to the genuine card holder.

Theoretical framework

De Vos (2011:37) defines theory as a set of interrelated hypothesis, concepts, constructs, definitions and propositions that present a systematic view of phenomena based on facts and observations, with the purpose of explaining and predicting the phenomena.

Rational choice theory

It was only during the late 1970s that criminologists realised that none of the theoretical perspectives aimed at explaining criminal behaviour assumed a rational, thinking individual. David Matza’s drift theory (1964) got the closest to including such criteria. He referred to his theory as “soft determinism” However, his theory did not convey the fact that the individual has a free will and that he or she can make a calculated, rational decision or choice.

Theorists, who support the rational choice perspective, speak in terms of “opportunity”, “benefits” and “costs” when discussing the offender’s decision to commit a crime. The

viewpoints of Smit (1723–1790), and Bentham (1748–1832) that man exercises economic choices and is motivated to experience pleasure and to avoid pain, featured very strongly in the rational choice perspective. Clark and Felson (1993) indicated that a synthesis of the work of various researchers on criminal decision-making (which fell within four separate disciplines – the sociology of deviance, environmental criminology, economics and cognitive psychology) eventually gave rise to the rational choice perspective of Cornish and Clarke in 1986 (Bezuidenhout, 2011:127).

Instead of emphasising the differences between criminals and non-criminals, the rational choice perspective stresses some of the similarities between them. Cornish and Clark (1986:vi), state that if crimes are the result of rational choices, based on the anticipated cost and benefits, criminal behaviour becomes more crimespecific. They argue that more attention should be paid to the criminal event itself as well as the background or historical and situational factors that influence its commission. This supposes that the decision-making process can be affected by various factors of which situational factors (poverty, unemployment, poor economies and social circumstances) are the most important part of the process in deciding to commit crime.

Therefore, with reference to the above, the rational choice theory states that most opportunistic criminals are rational in their decision making and recognise, evaluate, and respond to a variety of environmental factors (Cozens, 2011:486). These are environmental factors within the built environment which relate to the perceived risk and efforts associated with an offence, and are central to the offender's decision -making process. The same goes for perpetrators of credit card fraud, they are rational in their decision, and they evaluate and respond to a variety of environment factors. The perpetrators of credit card fraud assess where they are going to commit crime and carefully identifies their victims.

Research methodology

This study was exploratory in nature; a purposive sampling method was used following a qualitative descriptive methodology. Thirty-nine interviews were conducted to solicit the views of the participants and police investigators from Vanderbijlpark, Sebokeng, Sharpeville and Vereeniging police stations, members of the community, and victims of credit card fraud were interviewed. The interviews were analysed according to the phenomenological approach, coupled with inductive TCA to identify the participants' responses and related themes. The reason for this choice was to identify key or knowledgeable participants about credit card fraud in the Vaal Region.

Overall; 39 participants formed part of this study. About 28 participants were purposively selected comprising of the SAPS Constables, Sergeants, Warrant officers, and Captains. Of these, eight were females and 20 males. Their experiences ranged between 10 years to 27 years. The remaining number of participants were two victims of credit card fraud, which were selected using snowball sampling and the convenience sampling was adopted to select seven members of the public from Sebokeng, Vanderbijlpark and Sharpeville. The perceptions, beliefs, and experiences of participants were collected using interview guides with open-ended questions by the first and second authors of this paper. The in-depth interviews were semi-structured, and a more relaxed, informal interviewing method was adopted for rapport and trust building. The interviews lasted for 60 to 90 minutes.

The Focus Group Discussions (FGDs) were conducted with 19 participants to gain new insights but also to triangulate information collected during the interviews in order to increase validity. Both interviews and the FGD were conducted privately at the safe place as agreed between the participants and the authors. A voice recorder was used to record information

during the interviews and FGD. The in-depth interviews and FGD were conducted in the local languages spoken in Gauteng Province (IsiZulu, English and Sesotho) and later translated into English. The Key Informant Interviews (KIIs) were also utilised during data collection and 12 participants formed part of the KII. Translator for other official languages was available but none of the participants felt the need, as they were comfortable in expressing themselves in English. The English translation process focused more on getting relevant meaning than exact translations of the verbal information received.

All interviews were transcribed and then studied several times in conjunction with the corresponding non-verbal clues given by the participants using the stated inductive TCA. Field notes provided further guidance during the data-analysis process, supporting the process of dividing the data into identifiable themes. During the process, the results were verified continuously by means of audio and visual recordings of the interviews, which proved very helpful as a means of ensuring data quality. This also provided the opportunity to follow a process by which the different themes could be compared and relations between the different themes could be studied, so as to become aware of patterns that could be categorised. A summary of the main data categories and the subcategories is presented in the form of themes. Two processes were followed to ensure effective data control. Firstly, all questions asked were written down and then studied several times.

Secondly, data results were compared with existing literature, to identify similarities or discrepancies that might call for further research in future. In addition, field notes that were also written down provided further guidance during the data-analysis process, supporting the process of dividing the data into identifiable themes.

Study findings and discussions

Prospects and challenges in the investigation of credit card fraud in Vaal region

It should be noted that findings such as those given below were similar among all the selected participants, regardless of the study location. Examples of some of the remarks regarding their experiences in terms of dealing with cases of credit card fraud were similar. The participants when asked about the prospects and challenges of perpetrators of credit card fraud in Vaal region, explained that perpetrators use advanced technological tools to commit this crime and to confuse the victims as well as the role-players involved in dealing with this crime. They emphasised that the perpetrators use fake cards, technological tools at the ATM's, work with bank officials to get information of the potential targets. These are some of the responses from the participants (related verbatim):

“Copying a credit card and somehow getting hold of the secret pin of the user. Vendors charging more money from the user's credit card compared to what they have agreed to and without the latter being aware of the charged money” (participant 10).

“The perpetrators after stealing or cloning the credit card, for them to use money in those credit cards they work with the owners of the designer clothes or clubs to buy alcohol” (participant 14). “The perpetrators use the stolen or cloned credit cards in the designer clothes shops or clubs, they work with shop owners or club. They buy alcohol and spend on it.

“The perpetrators put the chips in the ATM's which makes the credit card not to come out, then after the victim leave the ATM then perpetrators go to the ATM and get the credit card” (participant 20). I'm the victim of credit card fraud, I was at the ATM and there was a car parked next to the ATM, it was very early in the morning. After I went to the ATM to get money, the credit card did not come out, I thought it was swollen by the ATM then I thought I will go to work then during lunch time I would go the bank and report it. To my surprise after

I leave the ATM, one man went to the ATM then few minutes they drove away and immediately I started getting notifications in my phone that money was transferred from my credit card, it showed that it was transferred from different locations. When I went to the police to report, they told me that I need to open the case and its difficult for them to investigate such cases, they advised me to go and report the incident at the bank, they said along as the bank can get pay me my back then everything will be fine.

I know a guy who works at one of the garages here in Sebokeng who works with the perpetrators of credit card fraud, he watches the pin of the users as they pay for the fuel of their cars and also the perpetrators use him to clone credit cards". This is a serious network, it involves people who works in the bank, they help the perpetrators by identifying those clients with lot of money and the perpetrators monitor their lifestyle, what they do where do they buy and the bank officials also provide the perpetrators with the residential address of the potential victims. (Participant 4).

Emerging themes and discussion

Theme 1: Modus operandi of perpetrators of credit card fraud

When asked about the modus operandi of credit card fraud, the majority of participants highlighted that perpetrators use different methods. The methods that were used by perpetrators among others was to put the chip at the ATM record the information of the victim and with that information perpetrators are able to withdraw money from the bank account of the victim.

Theme 2: lack of knowledge and skills to investigate

The participants highlighted that the SAPS do not have capacity and lack skills to investigate cases of this nature. Many victims of this crime highlighted that they have reported the cases to the SAPS, but the cases remained unsolved due to lack of skills. The majority of participants from the SAPS did not shy away that this crime require technology to investigate it and that they do not have technology on their disposal to investigate such cases.

Theme 3: lack of awareness in the region around credit card fraud

Majority of the participants from the community highlighted that they did not know that credit card fraud exists in Vaal until they become victims of it. they explained that majority of the members of the community do not know about this scourge and explained that believe that many people will still be victims of credit card fraud. The SAPS members explained that they do not conduct awareness campaigns as their budget is very limited.

Theme 4: lack of resources to deal with credit card fraud

The participants highlighted that the SAPS do not have resources to investigate credit card fraud even the population from the SAPS explained that they do not have resources. The SAPS open a case just for the purpose of insurance and they know exactly that they can't solve the cases of credit card fraud.

Recommendations

Frauds caused by Credit Cards have costs consumers and banks billions of dollars globally. Even after numerous mechanisms to stop fraud, fraudsters are continuously trying to find new ways and tricks to commit fraud. The study recommends that in order to stop these frauds there is a need of a powerful fraud detection system which not only detects the fraud but also detects it before it takes place and in an accurate manner. The study also recommends that

there is a need to also develop systems learns from the past committed frauds and makes them capable of adapting to future new methods of frauds. This study recommends that the CCTV cameras should be made available in the ATM, where cases of credit card are taking place. In addition, the police be visible in the areas which are most prevalent to credit card fraud. This study recommends that the SAPS members should be taken for regularly training in order for them to be able to properly investigate the cases of credit card fraud. They should be taken to advance training that will enable them to investigate sophisticated cases involving high technology on credit card fraud. The study also recommends that SAPS should conduct regular awareness campaigns to ensure that the communities around Vaal Region are aware of the scourge of credit card fraud. This study also recommends that the SAPS should be carpacited with resources and skills to enable them to be able to investigate credit card fraud.

Conclusion

This study has revealed that credit card fraud is very high in the selected areas of Vaal Region, the modus operandi of perpetrators of credit card is very different as the perpetrators try different tactics to deceive their victims and also to ensure that it is extremely difficult for the SAPS investigate. If the SAPS can join hands with the communities and other stakeholders, this scourge of credit card fraud can be reduced. Although there are several fraud detection techniques available today but none is able to detect all frauds completely when they are actually happening, they usually detect it after the fraud has been committed. This happens because a very minuscule number of transactions from the total transactions are actually fraudulent in nature. So there is a need of technology that can detect the fraudulent transaction when it is taking place so that it can be stopped then and there and that too in a minimum cost. So the major task of today is to build an accurate, precise and fast detecting fraud detection system for credit card frauds that can detect not only frauds happening over the internet like phishing and site cloning but also tampering with the credit card itself i.e. it signals an alarm when the tampered credit card is being used.

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