



Preventing Credit Card Fraud

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HISTORY OF CREDIT CARDS

In 1974 approximately 1,300,000 people in Australia received an unsolicited credit card in the mail.¹ In effect this card gave the user a 55-day interest-free loan of \$1,000. The card could be used to obtain goods and services from participating merchants and/or cash advances from the issuing bank.

Unfortunately it could also be used to defraud these agencies. In the period immediately following their introduction public acceptance of credit cards was less than enthusiastic, but by 1992 there were almost 10 million major credit cards in use in Australia.² There were also in excess of 25,000 fraudulent credit card transactions per annum. In this, then, as in so many other areas of property crime, the advent of a new form of commercial activity brought with it new scope for criminal activity.

CREDIT CARD FRAUD

LEGISLATION

Credit card fraud is a criminal offence which is proscribed by section 178c of the *New South Wales Crimes Act 1900 No. 40*. This section states:

Whosoever incurring any debt or liability obtains credit by any false pretence or by any wilfully false promise or partly by a false pretence and partly by a wilfully false promise or by any other fraud shall be liable to imprisonment for one year.

The offence is a complex one and has three elements which have been defined as follows:

*... first, there must be the incurring of a debt or liability; secondly, there must be an obtaining of credit; and thirdly, there must be fraud: the conjunction of these three elements makes the offence.*³

The victim of credit card fraud is the bank which has issued the credit card, not the merchant from whom goods have been obtained.

THE SIZE OF THE PROBLEM

Credit card fraud accounted for less than 10 per cent of the total direct cost⁴ of recorded fraud offences in NSW between 1989 and 1991. By comparison, fraud involving cheques accounted for almost 25 per cent of the total cost of fraud for that year. Based only on the amounts involved in the recorded cases of credit card fraud, the cost to the banks is at least \$3 million per annum.⁵ To this amount must be added the cost of law enforcement and criminal justice resources consumed in the process of detecting, arresting, prosecuting and punishing those who engage in credit card fraud.

NSW police statistics indicate that, in terms of the number of credit card fraud incidents, the problem of credit card fraud is quite widespread. Of all fraud incidents recorded by police, credit card fraud represented 63.0 per cent in 1989, 60.1 per cent in 1990 and 59.0 per cent in 1991.⁶ The total number of credit card fraud incidents recorded by police per annum over this period has remained above 25,000.⁷ This contrasts with

cheque fraud, where typically fewer than 6,000 incidents are recorded by police per annum.⁸

The magnitude of the credit card fraud problem is also more marked than it might appear because no-one is certain what proportion of credit card fraud is reported to the police. Indeed, there are numerous reasons to suspect that credit card fraud is grossly under-reported. For example, Van Rhoda⁹ claims that of the credit card frauds investigated by Cardlink Services, the organisation responsible for authorising credit card transactions, only 'a small percentage' are forwarded to the police.

Suggestions of low levels of reporting have also been made in the United Kingdom. Levi, Bissell and Richardson report that the banks, in order not to 'alienate the police by flooding them with uninvestigateable [sic] cases ... report only cases that they judge to be most likely to yield a conviction, and these amount to between ten and twenty per cent of the frauds that they experience'.¹⁰

The size of the credit card fraud problem can also be seen from a consideration of clear-up rates. Of all the categories of fraud reported to the police, the clear-up rate for credit card fraud is the lowest. Between 1989 and 1991 the clear-up rate for credit card fraud never rose above 15.5 per cent. By comparison, in 1991, fraudulent cheque offences had a clear-up rate of 65.0 per cent, and frauds involving Australian banknotes had a clear-up rate of 82.2 per cent. The average clear-up rate for all categories of fraud in 1991 was 70.5 per cent.¹¹

Despite the obvious seriousness of the credit card fraud problem, in 1990, a conference of English police rated credit

card fraud as that area of crime which was most preventable by victims.¹² Elsewhere, English police have stated that the problem of credit card fraud was one which must be addressed by the banks and not the police.¹³ In Australia credit card fraud prevention appears to be assumed to be largely the responsibility of the banks.

BUREAU STUDY OF CREDIT CARD FRAUD

Given the scale of credit card fraud in this State, and the very low clear-up rate by comparison with other types of fraud, it is surprising that there has been so little research in this area. The only known study of the nature of credit card fraud was carried out in the United Kingdom. In a survey of 200 people whose Barclaycards were lost or stolen, Levi¹⁴ asked whether anybody had used or tried to use the card fraudulently. One hundred and thirty-four of the sampled card owners reported that the card had been used fraudulently. In those cases where the card was used fraudulently, there were, on average, 12 fraudulent transactions per card and the average loss per fraudulently used card was 513 pounds sterling. Of those cards which were used fraudulently, 66 per cent were used for purchases and 34 per cent were used to obtain cash. The patterns of fraudulent use revealed in this study showed the importance to crime prevention of card usage monitoring. For example, the lost or stolen card was frequently used within one day of the theft or loss, and then not used again until the card was believed no longer to be on the list of lost or stolen cards.

In order to provide a general picture of the nature of credit card fraud incidents in Australia, the Bureau decided to carry out a preliminary analysis of police records relating to credit card fraud in NSW. The study sought to establish a profile of the offence including, among other things, where the offence occurred; the gender of the person making the fraudulent transaction; what items were purchased; and, what those items cost. It sought also to examine the preventive strategies currently in use, and to identify any

additional steps which could be taken to deter this type of offence.

THE DATA

The data were selected from the police microfilm records of credit card fraud offences for the years 1989, 1990 and 1991. The information stored in the police records consists of copies of the credit card dockets for each card which was reported as being used fraudulently. One case is defined to be one card fraudulently used on one or more occasions.

Cases could not be selected at random due to the poor quality of the microfilm records. Instead, records were selected on the basis of legibility, with 25 cases coming from 1989, 77 cases from 1990, 40 cases from 1991 and 15 cases for which the year could not be established. In all, 157 cases or individual cards were extracted from police records. This involved 1,932 individual dockets or fraudulent credit card transactions.

Only three types of credit card were considered - Mastercard, Visa and Bankcard. The data do not include any cases involving American Express, Diners Club, department store credit cards, or those issued in other countries but used in NSW, because the fraudulent use of these cards is not commonly reported to police.

RESULTS

The 157 cases which were examined involved 1,932 separate transactions with a total dollar value of \$171,566. The average dollar value per fraudulent transaction was \$89.

Judging from the names on the cards, many more credit cards in the sample were issued to males than to females: 61.8 per cent males compared with 38.2 per cent females.

WHERE DO PEOPLE GO TO COMMIT CREDIT CARD FRAUD?

As the figures in Table 1 show, almost 8 out of every 10 fraudulent transactions (78.5%) took place in either a major department store (35.9%), a large chain store (19.9%), or a smaller shop (22.8%). Liquor stores or hotels were the location of 9.2 per cent of the transactions and a further 5.8 per cent occurred in restaurants or take-away food shops.

WHAT DID PEOPLE BUY?

Table 2 shows what men and women bought when they fraudulently used a credit card. Unfortunately, the nature of

Table 1: Fraudulent transactions by type of location

<i>Type of location</i>	<i>Fraudulent transactions</i>	
	<i>Number</i>	<i>%</i>
Department store	683	35.9
Shop	440	22.8
Chain store	384	19.9
Liquor shop/hotel	177	9.2
Restaurant/take away food shop	112	5.8
Service station	39	2.0
Bank	32	1.7
Supermarket	17	0.9
Other business premises	17	0.9
Unknown	21	1.1
Total	1,932	100.0

Table 2: Type of purchase by gender

Type of purchase	Male		Female		Total	
	Number	%	Number	%	Number	%
Clothing	196	19.8	168	17.5	364	18.7
Liquor	73	7.4	107	11.2	180	9.2
Food	90	9.1	48	5.0	138	7.1
Hardware	24	2.4	43	4.5	67	3.4
Other	38	3.8	22	2.3	60	3.1
Minor household goods	31	3.1	28	2.9	59	3.0
CD/video/books	28	2.8	31	3.2	59	3.0
Cosmetics	30	3.0	21	2.2	51	2.6
Petrol	30	3.0	8	0.8	38	2.0
Money	18	1.8	14	1.5	32	1.6
Major household goods	20	2.0	7	0.7	27	1.4
Jewellery	16	1.6	10	1.0	26	1.3
Toys	13	1.3	10	1.0	23	1.2
Prostitution	12	1.2	-	-	12	0.6
Cigarettes	6	0.6	4	0.4	10	0.5
Unspecified	365	36.9	437	45.6	802	41.2
Total	990	100.0	958	100.0	1,948	100.0

Totals here are greater than the total number of transactions because of multiple purchases per docket in some cases.

the goods obtained could not be identified in about 40 per cent of the transactions. This is because in a number of large retail outlets the only information given on the sales docket is the word *merchandise* or *goods*.

Of those transactions where the nature of the goods could be identified, there was no particular difference between the purchases made by men and women, except that perhaps women tended to buy more liquor and less food than men.

Overall, purchases consisted of clothing in 18.7 per cent of the transactions and liquor in 9.2 per cent. Food, either from restaurants, take-aways, supermarkets or other food outlets accounted for 7.1 per cent of the purchases.

Although numerically small, the 1.6 per cent of transactions in which money was obtained directly as a cash advance on the credit card, usually involved quite large amounts of money. For example, there were individual cash transactions of \$5,000 and \$3,000 and 2 of \$2,000.

HOW MANY SEPARATE TRANSACTIONS MAKE UP A CASE?

Figure 1 shows that almost two-thirds of the 157 cases sampled (65.0%) involved

fewer than 10 transactions. Over 80 per cent of cases involved fewer than 20 transactions. On average, there were 12 transactions per case.

About 13 per cent of cases involved 30 or

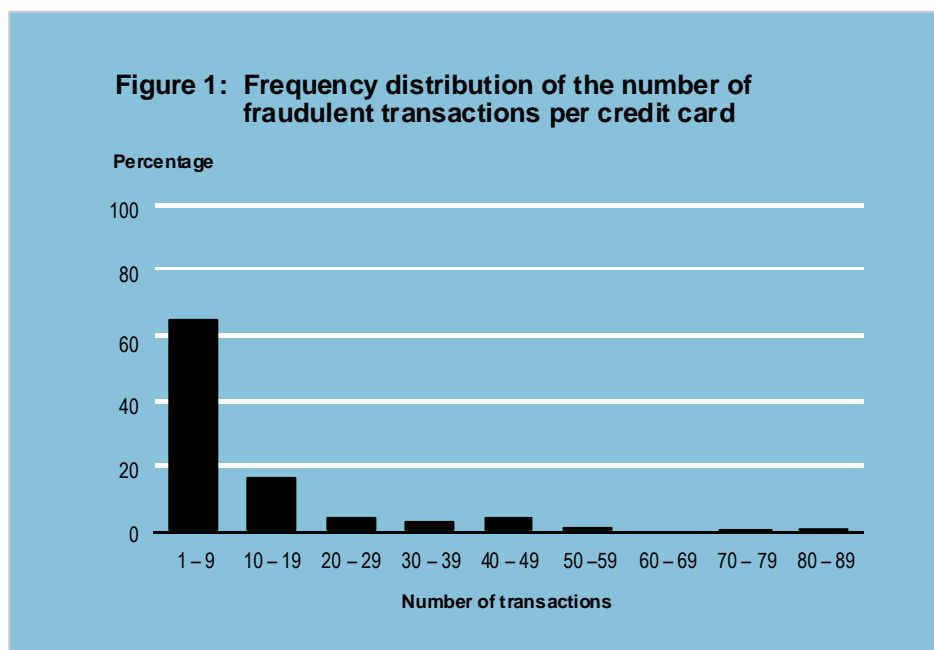
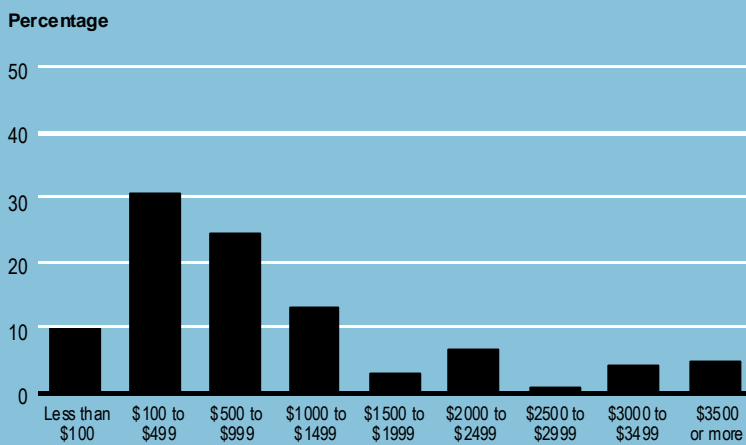


Figure 2: Frequency distribution of the aggregate cost of fraudulent transactions per credit card



more transactions, and within this group there were 6 cases in which there were 50 or more transactions (3.8%). In 2 of these cases there were more than 80 transactions.

TOTAL VALUE OF FRAUDULENT TRANSACTIONS PER CARD

From Figure 2 it can be seen that, in almost two-thirds of cases, the total cost of all transactions was less than \$1,000. Indeed, 40.8 per cent of the sample involved total purchases which cost less than \$500. It is notable that in 17.8 per cent of cases the total value of the transactions was more than \$2,000, and in 8 cases, or 5.1 per cent of the sample, the value of the transactions exceeded \$3,500.

AVERAGE VALUE OF FRAUDULENT TRANSACTIONS PER CARD

Figure 3 shows the average value of fraudulent transactions per card. As can be seen from the figure, the majority of cases were made up of fairly small transactions. For approximately two-thirds of credit cards (67.5%), the average value of transactions was less than \$100. The average value of transactions for the balance of the sample was, on the whole, fairly evenly distributed between \$100 and

\$1,000. The highest average transaction value for a single credit card was \$5,000. The average transaction value was not necessarily high for those credit cards with high aggregate transaction costs. For the 15 cases with total purchases in excess of \$3,000, there were 699 separate transactions, a mean of 45 purchases per card. The average value of these transactions was \$89. The credit card with the highest total transaction value (\$6,515) resulted from 89 transactions with an average value of \$73 per transaction.

There were however 7 cases in which high average amounts were derived from only 1, or in one case, 2 transactions. All of these cases involved average transaction values of \$1,000 or more.

MAXIMUM VALUE OF ANY ONE TRANSACTION PER CARD

In almost two-thirds of the cases (63.1%) the most expensive individual purchase of either goods or services cost less than \$150 (see Figure 4).

At the more costly end of the scale, there were 41 credit cards (26.1%) where the most costly purchase ranged from \$350 to more than \$1,000, with the most expensive purchase being \$5,000.

OVER WHAT PERIOD DID THE FRAUDULENT ACTIVITY TAKE PLACE?

The length of time between the first and last fraudulent transaction in each case is shown in Figure 5. As can be seen, it was uncommon for the fraudulent activity to continue for more than a week. In slightly more than one-third of the cases (36.9%) the fraudulent activity was restricted to one day, and a further 38.2 per cent took place in periods ranging from 2 to 7 days.

Thirty cards (19.1%) were used fraudulently for between 1 and 3 weeks and in the remaining 9 cases (5.7%) the

Figure 3: Frequency distribution of the average cost of fraudulent transactions per credit card

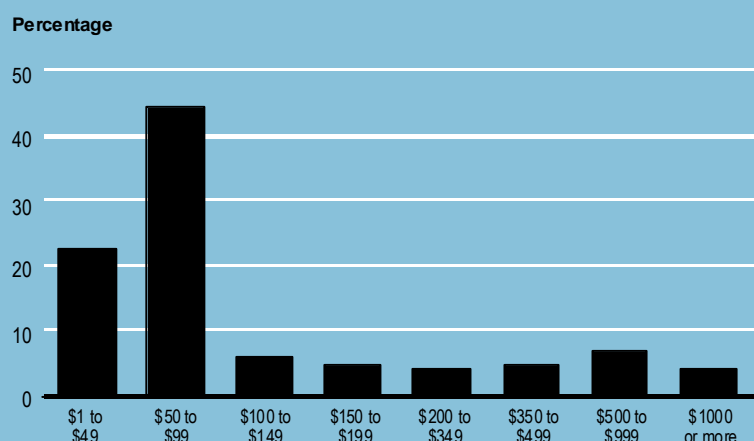
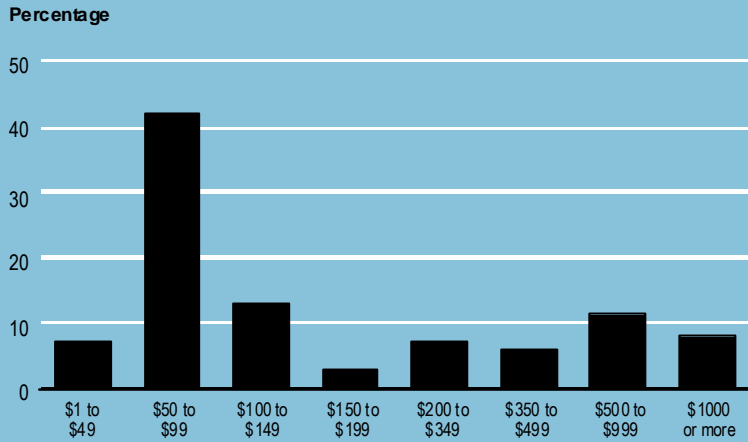


Figure 4: Frequency distribution of the maximum value of a fraudulent transaction per credit card



cards were in use for 3 weeks or more. The longest period a card was in illegal use was 114 days.

SEEKING AUTHORISATION

When a purchase costs more than a certain amount (the amount varying depending on the nature of the purchase and where it is made) the transaction is required to be authorised by the bank before completion. These threshold amounts are negotiated between the

banks and the merchants and are known as floor limits. When merchants telephone for authorisation they will be told whether there is sufficient credit available in the account to meet the cost of the present transaction. They will also be told if the card is known to be lost or stolen, or if for other reasons the card should not be honoured. The floor limit is thus designed to protect the bank against several types of card misuse.

The authorisation process also serves to protect the merchant. If a prospective purchase is above the floor limit and it is

not authorised, the merchant must bear the cost of the transaction should it prove to be fraudulent. On the other hand, the merchant is indemnified against loss in authorised transactions which turn out to be fraudulent.

Table 3 shows the percentage of different values for which authorisation was sought. As can be seen from the table, only 0.1 per cent of transactions of less than \$100 were authorised. Since \$100 is well below the floor limit set for goods in most departments of large chain and department stores, this result is not unexpected. Table 3 shows, however, that even for the more costly transactions which are well above the floor limit, seeking authorisation was by no means universal or evenly distributed. For example, there were more authorisations for items valued between \$301 and \$500 (91.7%) than for items costing over \$1,000 (80.0%). Indeed, what seems extraordinary is that, according to the transaction docket, 20 per cent of purchases valued at more than \$1,000 were not authorised.

TIME BETWEEN THE CARD'S INCEPTION DATE AND THE FIRST FRAUDULENT TRANSACTION

Table 4 shows the distribution of time between the date on which the card first became valid for use and the date of the first fraudulent transaction.

In 11 cases the first fraudulent transaction occurred within 1 week of the card's becoming valid (7.0%), and in 4 of those cases the owner claimed never to have received the card. In 1 of these 4 cases, it was claimed that no application had even been lodged. In 5 cases (3.2%) the merchant failed to notice that the card was not yet valid and allowed transactions to occur up to 17 days before the inception date shown on the card. In 3 cases the merchant failed to note that the card's validity had expired.

Beyond this, however, as the distribution in Table 4 shows, there was no particular relationship between the card's inception date and the first fraudulent transaction. The average time before the first transaction was 8 months.

Figure 5: Frequency distribution of the number of days the credit card is in use

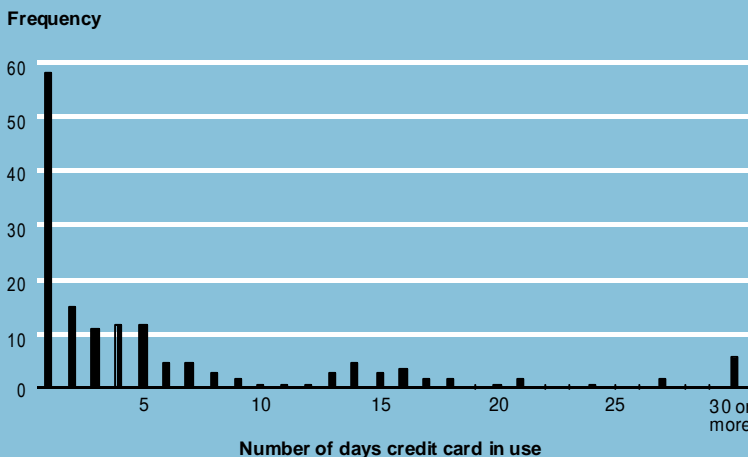


Table 3: Percentage of transactions in which authorisation was sought

<i>Value of transaction (\$)</i>	<i>Number of transactions</i>	<i>Number authorised</i>	<i>Percentage authorised</i>
50 or less	754	1	0.1
51-100	1,034	1	0.1
101-150	46	13	28.3
151-200	22	16	72.7
201-300	19	15	78.9
301-500	24	22	91.7
501-1000	23	18	78.3
Over 1000	10	8	80.0
Total	1,932	94	4.9

WHY DO PEOPLE COMMIT CREDIT CARD FRAUD?

It has been suggested that the goods which are fraudulently obtained are mainly meant for resale.¹⁵ However, there was little evidence of this in the present sample of cases.

A small proportion of the overall purchases, such as some of the more expensive electronic and household goods, liquor and cigarettes, may have been made with the idea of resale. However, the bulk of purchases did not appear to be likely to be resold. To begin with, many items could not be resold because they were necessarily consumed by the purchaser. This category, which accounted for 10.9 per cent of the total number of fraudulent transactions, included restaurant meals, take-away food, groceries, bunches of flowers, the services of prostitutes or motor mechanics, petrol, film processing, discharging lay-bys, and in one case, year's subscription to a gymnasium. In another case the card was used to hire a wedding dress and purchase other wedding accessories. The pedestrian nature and, more particularly, the cheapness of other purchases was also inconsistent with intended resale. Generally, the data suggested strongly that most purchases were made with consumption by purchasers or their family or friends in mind.

SUMMARY

This study has looked at a sample of the credit card frauds known to the police between 1989 and 1991.

More than half of the fraudulent credit card transactions in this study occurred in department or chain stores and the card was commonly used for between 1 and 7 days. In the majority of cases between 1 and 10 purchases were made.

The total value of the transactions was less than \$500 in approximately 41 per cent of the cases. Where the total value of transactions was high it was usually achieved by a large number of transactions rather than 1 or 2 expensive purchases.

The maximum value of any purchase in half of the cases was less than \$100. The merchant did not seek authorisation for 9 out of 10 transactions costing less than \$100.

Where the items bought could be identified, they consisted mainly of clothes, liquor or food. The type of goods purchased and the generally low price of individual items suggest that the goods were primarily for personal use rather than resale.

Judging from the date of first use and the date on which the card became valid, only a small proportion of the cards used in these frauds seem to have been intercepted between the bank and the owner.

There is nothing surprising in the finding that the fraudulent use of a card was concentrated in periods shorter than a week. The longer a card is in use the greater is the possibility of detection if the card has been reported lost or stolen. In large department and chain stores the identification numbers of lost or stolen cards are available in the automatic checking facilities within cash registers in less than a week, while lists of lost and stolen card numbers are available to smaller merchants every fortnight.

However, detection by these means pre-supposes that the legitimate owner is aware that his or her credit card has been lost or stolen. This may not emerge until the account arrives and the owner disputes responsibility for some, or all of the transactions. In one case the putative owner could not report the card lost or stolen because he claimed never to have applied for a card in the first place. This was the card in the sample which was in use for the longest period, 114 days. In 3 other cases the owners had been mailed their cards by the banks but claimed not to have received them.

PREVENTION

AUTHORISATION AS A DETERRENT

At present, the prevention of credit card fraud in NSW seems to rely heavily on the authorisation process. However, it seems that people committing this type of fraud are frequently aware of what the various floor limits are and purposely buy goods which are below this limit. The utility of the authorisation process is also limited by the fact that merchants sometimes omit to seek authorisation even when transactions involve large amounts of money.

One way to avoid the problem of floor limits becoming common knowledge, and therefore avoidable, is to conduct random authorisation checks without regard to the amount involved. Merchants, competing to offer speed of service, would probably resist any increase in the number of

Table 4: Number of weeks from inception to first fraudulent use of credit card

<i>Time in number of weeks</i>	<i>Number</i>	<i>%</i>
Under 4	21	13.4
4 to under 8	17	10.8
8 to under 12	4	2.5
12 to under 16	4	2.5
16 to under 20	6	3.8
20 to under 24	7	4.6
24 to under 28	5	3.2
28 to under 32	3	1.9
32 to under 36	7	4.5
36 to under 40	11	7.0
40 to under 44	11	7.0
44 to under 48	5	3.2
48 to under 52	2	1.3
52 to under 56	6	3.8
56 to under 60	3	1.9
60 to under 64	1	0.6
64 to under 68	2	1.3
68 to under 72	-	-
72 to under 76	3	1.9
76 to under 80	2	1.3
80 to under 84	1	0.6
84 to under 88	3	1.9
88 to under 92	1	0.6
92 to under 96	5	3.2
96 or more	6	3.8
Unknown	21	13.4
Total	157	100.0

authorisations required. If the existing quota of authorisations were distributed more unpredictably across transactions, however, their deterrent value could be maximised without imposing any additional burden on retailers.

There can be no doubt that the need to telephone for authorisation, which is both cumbersome and slow, acts as a disincentive to sales staff. Levi et al.¹⁶ note that in England, the newer electronic point of sale registers check *automatically*, not only all transactions *above* the floor limit, but also 'every nth transaction *below* the normal floor limits'. As well as fraud

prevention, this technology enhances the detection of cards which continue to be used although the account has been cancelled because of delinquent debts.

DELIVERY PROCEDURES

Initially, all credit cards were delivered by mail to the owner's address. At present, the procedure in NSW is that credit cards will not be mailed to particular postcode areas which have experienced high rates of theft from mailboxes. Ultimately, no card will be mailed to *any* postcode area.¹⁷ Judging from the present sample,

however, not many cards were intercepted in transit, although a few definitely were intercepted. Ceasing to mail cards to home addresses would, in all probability, prevent only a small proportion of credit cards from falling into the wrong hands.

VISIBLE DETERRENCE

Currently, the means by which credit card fraud is deterred is largely invisible. There are no signs in shops that indicate that certain transactions will be checked, or that some cash registers can automatically check for lost or stolen card numbers.

By contrast, the means by which bank robbery - there were only 117 bank robberies in NSW in 1990 compared with approximately 27,000 credit card fraud incidents¹⁸ - is being deterred are clearly visible in any banking chamber. For example, signs caution that protective screens will pop up in front of the teller in the event of a robbery; no-one is admitted to the chamber wearing a crash helmet; cameras are clearly visible in all banks; and, in many institutions the fact that both the safes and cash drawers are on time delay systems is clearly advertised to the prospective robber.

Perhaps greater emphasis should be placed by merchants on advertising the fact that transactions are checked, particularly if a regime of random authorisation checks were adopted.

DESIGN OF THE CARD

It would be difficult for sales staff to verify a signature which is not visible on a credit card. Nonetheless, the present practice of showing the legitimate owner's signature on the credit card must greatly assist the commission of credit card fraud. A cheque book does not have an example of the owner's signature in it, and in many bank account books the owner's signature is concealed in a black strip - the *black light signature*. A credit card without a visible signature is potentially a stronger deterrent than one which shows a signature.

A card which combined both a black light signature and a photo of the legitimate owner would also present a more security-conscious instrument than the present

cards. These initiatives could raise the cost of credit cards but may well be worth further exploration.

PROFILING FRAUDULENT USERS

The pattern of purchases provides important clues to the areas where fraudulent use of cards is more likely. Closer monitoring of the pattern of fraudulent purchases may assist in the design of any program of random authorisation checks. Of course, this would require merchants to become more consistent in their recording of the details of each purchase than is evident from our discussion of Table 2.

CLOSER SCRUTINY OF CREDIT CARDS

Lastly, though it is an obvious point, it is clear from this analysis that shop staff often fail to check cards to see if they are valid or conduct authorisation checks when they are clearly warranted. Encouragement by management to shop staff to apply authorisation checks and inspect cards closely before accepting payment by credit card would also help cut down on fraudulent card use.

NOTES

- 1 Bankcard Association of Australia, personal communication.
- 2 Bankcard Association of Australia, op. cit. The cards included are Mastercard, Visa, Bankcard and American Express.
- 3 Jones (1898) 1 Q.B. 119 at 124, cited in Gillies, P. 1985, *Criminal Law*, The Law Book Company Limited, Sydney, p. 368.
- 4 The direct costs referred to here relate only to the goods and services fraudulently obtained.
- 5 NSW Bureau of Crime Statistics and Research (unpublished data).
- 6 NSW Bureau of Crime Statistics and Research (unpublished data).
- 7 NSW Bureau of Crime Statistics and Research (unpublished data).
- 8 NSW Bureau of Crime Statistics and Research (unpublished data).
- 9 Van Rhoda, T. 1991, 'Credit Card Fraud', *Journal of the Australasian Society of Victimology*, Special Edition, April, pp. 127–129.
- 10 Levi, M., Bissell, P. and Richardson, T. 1991, 'The prevention of cheque and credit card fraud', *Home Office Crime Prevention Unit Paper* No. 26, London, p. 4.
- 11 NSW Bureau of Crime Statistics and Research (unpublished data).
- 12 Levi et al., op. cit. p. 45.
- 13 Levi, M. 1991, 'Credit and cheque card fraud: some victim survey data and their implications', *Research Bulletin* No. 31, British Home Office, London, p. 3.
- 14 Levi, M. 1991, 'Credit and cheque card fraud: some victim survey data and their implications', *Research Bulletin* No. 31, British Home Office, London.
- 15 Van Rhoda, op. cit.
- 16 Levi et al., op. cit. p. 2.
- 17 Bankcard Association of Australia, op.cit.
- 18 NSW Bureau of Crime Statistics and Research (unpublished data).

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