



No. 253

Bank Robbery in Australia

Maria Borzycki

Bank robbery is costly at both a human level and a financial level. In order to minimise these costs, crime prevention measures need to be applied that are appropriate to the methods employed by bank robbers.

Bank robbery has traditionally been seen as the domain of "professional" armed offenders, although there is little evidence to suggest that all bank robbers today are professional, or even armed. This paper examines recent trends in bank robbery and how robbers operate. It presents information collated by the Australian Bankers' Association (ABA) and contrasts findings with a similar analysis of Australian bank robbery conducted in the 1980s.

Results suggest that Australian bank robbery in Australia is on the decline, and that the types of robbers committing such offences may have changed over the past two decades: they are planning less, using fewer weapons, and instead relying more on sheer numbers to intimidate bank staff. It seems that these new methods are less profitable for offenders because bank robbers fail more often than they did in the 1980s. Unfortunately, appropriate security measures to contend with changing robbery methods are not easily prescribed, although the present research provides information that could help to enhance crime prevention in this area.

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Robbery and Bank Robbers

In its exploration of recent trends in bank robbery, this paper draws on Australian Bureau of Statistics (ABS) data, as well as information from the Armed Attacks Database compiled by the Australian Bankers' Association (the organisation that represents Australian banks). This database contains details of the range of crimes perpetrated against member banks, although its name is somewhat of a misnomer because, as will be seen, not all attacks are *armed*. The database relates to the period 2 January 1998 to 3 May 2002 and, of the 848 incidents recorded, the overwhelming majority (831, or 98 per cent) were described as *hold-ups*. Only these hold-ups are considered in the following discussion. For current purposes, the words "hold-up" and "robbery" are used interchangeably.

The total recorded number of robbery victims attacked in any location in Australia has more than doubled since 1993 (when national crime statistics were first collated), with similar rates of increase in both armed and unarmed robbery (ABS 2002b). Popular images of robbery often depict banks as targets, yet ABS figures indicate that only a small proportion of robbery victims experience this crime in a bank. Of the 26,565 victims of (armed and unarmed) robbery recorded Australia-wide for the year 2001, 458 (or 1.7 per cent) were victimised in a bank. The annual number of bank robbery victims reported to the ABS since 1993 is shown in Figure 1. This figure also plots the relative percentages of victims who experienced robbery in a bank location as a proportion of all robbery victims in all locations. As illustrated, the number of bank robbery victims fluctuated in the early 1990s but tended to decrease in the latter half of the decade. The highest number of victimisations occurred in 1997–98, even though around this same time victims in banks tended to constitute a smaller percentage of all robbery victims.

Although the number of victims is relatively small, the financial loss to banks can be high. An examination of robbery in New South Wales during the 1980s indicated that of all location types, banks produced the highest median gains for robbers (NSW Bureau of Crime Statistics and Research 1987). Similarly, the possible human costs can be sizeable. Prior research (Mouzos & Carcach 2001) has shown that unlike virtually all

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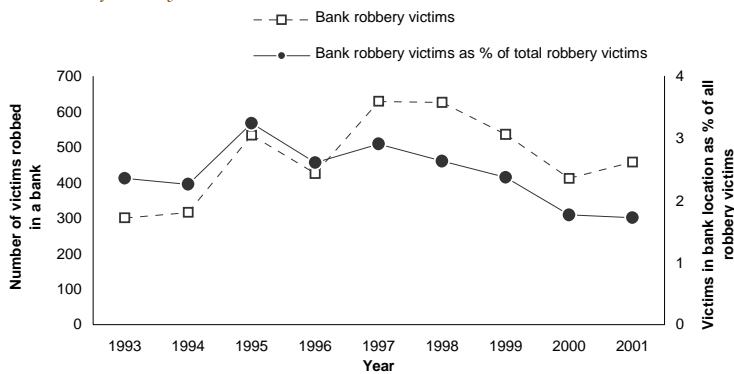
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Figure 1: Victims of robbery in a bank location (1993–2001)



Source: ABS, Recorded Crime Australia (1996–2002), National Crime Statistics (1994–1995)

other location types, the majority of armed robberies in a bank involve firearms.¹ These weapons have the most lethal potential and, although infrequently discharged, engender the most fear in victims. Investigators have found that bank workers experience a range of short-term psychological and physical reactions to a hold-up (Jones & Jones 1988), and that a minority of victims can experience long-term negative effects (Leymann 1985).

A greater knowledge of the precise circumstances of bank robbery can assist in the development of effective strategies for offence prevention, thereby reducing the costs associated with this crime. For instance, the victimisation of branches of a Canadian bank fell by 65 per cent in the two-year period following the implementation of tailored strategies generated by earlier research into robbery (Abraham & Baldassarro 2001).

However, because effective offence prevention is not a static process and must consider local conditions and changes over time (for example, Hunter & Jeffery 1991), any changes in bank robbery may necessitate changes in the security processes and strategies adopted by banks. The number of bank robberies in Australia is declining, yet two important gains can be made from a more detailed analysis of this crime. As noted, research-driven crime prevention may be able to further reduce the cost of robbery to banks but, equally important, crime prevention lessons learnt from the banking sector may be generalised to other locations that have experienced increases in robbery in recent years (for example, service stations—see Taylor 2002).

In an effort to deter attacks more effectively, attempts have been made to identify certain basic types of robbers. Often these typologies encompass a dimension of offender experience and planning (for example,

Walsh 1986; Gill 2000), usually spanning amateur to professional. Early Australian research showed that bank robbers tended to engage in more planning than those who target other types of premises (Nugent et al. 1989) although this does not mean that all bank robbers should be considered meticulous planners or highly professional. In his examination of bank robberies perpetrated in the mid-1980s, Griffiths (1991) identified four types of Australian bank robber, ranging from the unskilled (inexperienced and unarmed) lone offender, to the more professional, armed gang of three or more robbers. Although responsible for only a small number of all bank robberies, gangs inflicted 23 per cent of all injuries. Table 1 summarises Griffiths' 1991 findings and shows that, in contrast, the unarmed lone offender was responsible for 23 per cent of incidents but inflicted no injuries. As virtually all offender pairs and gangs were armed, unarmed gangs and unarmed pairs were not considered separately in Griffiths' typology.

Research suggests that the nature of commercial robbery (which includes banks, among other targets) may be changing. Matthews (2002), for instance, observed that armed robbery in England and Wales is on the decline, and is less often committed by professional and experienced "project" offenders

acting in coordinated groups. He argues that it is becoming a *deskkilled* offence. The new-style offenders are less likely to target financial institutions and, because robbery is only part of their criminal repertoire, they do not engage in the same level of planning and are less successful than career robbers. Of most concern, Matthews noted that these more spontaneous offenders may be increasingly likely to engage in gratuitous violence, or to respond to victim non-compliance with violence.

The following examines data relating to robberies perpetrated in recent years to assess if bank robbery in Australia is following trends observed in commercial robbery in England and Wales, and becoming a deskkilled and more spontaneous offence.

Bank Robbery Since 1998

Data contained in the Armed Attacks Database indicate a general downward trend in the number of bank hold-ups, from a high in 1998 (323 hold-ups; see Figure 2). The pattern is consistent with but not identical to ABS figures because this database records separate incidents, whereas the ABS collates the number of individual and organisational victims involved in those incidents, as recorded by police. The general decrease also follows trends observed in the United Kingdom. For example, Matthews (2002, p. 130) noted a decrease from over 300 bank robberies dealt with by specialist police in the London area in 1992, to fewer than 200 in the year 2000.

The risk of bank robbery has also decreased since the 1980s. Approximately 550 bank robberies occurred in 1987 (Marsden 1989) when there were 6,021 bank branches (figure as of June 1987; ABS 1988), resulting in an estimated risk of armed robbery of approximately 91 bank robberies per 1,000 branches. The equivalent figure for 2000 was

Table 1: Characteristics of bank robber types, after Griffiths (1991), April 1985 to September 1987 (n=806)

	Lone offenders		Offender pairs Armed	Offender gangs ^a Armed
	Unarmed ^b	Armed		
Responsible for				
% all robberies	23	45	26	6
% all injuries	0	34	43	23
% of each offender type				
Using weapons	–	100	93	96
Pistols	–	51	38	46
Longarms	–	38	48	48
Using note	44	1	<1	unknown
Using disguise	25	unknown	85	91
Failing ^c	19	10	8	7

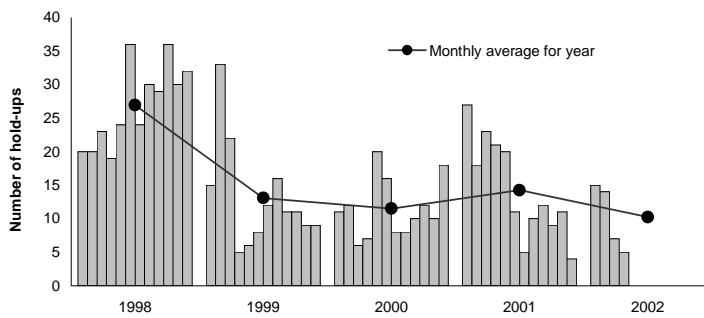
a Defined as a group of three or more offenders.

b Unarmed offenders were those involved in incidents in which a weapon was unseen and/or not specified.

c Failure was defined as escaping with less than \$10.

Source: Griffiths (1991)

Figure 2: Bank robberies by month, January 1998 to April 2002 (n=830)



Source: Australian Institute of Criminology, ABA Armed Attacks Database, 1998–2002 [computer file]

around 26 robberies per 1,000 branches (5,003 branches as of June 2000, after ABS 2002a).²

A range of factors might underpin the decline in bank robberies. For instance, reduced branch numbers, particularly in high-risk locations, might limit the geographical proximity of banks to some offenders, thus eliminating some potential targets for more opportunistic and spontaneous robbers. Branch security hardening is presumably also having the intended effect and deterring a subset of offenders. It is possible that, in general, robbery in Australia is also undergoing a deskilling, and there are two ways in which this could affect bank robbery. The more spontaneous and deskilled offender might be less likely to target banks because of the additional challenges associated with increased security, leaving only the most hardened and organised of robbers to attack financial institutions. The alternative, as suggested by Clarke, Field and McGrath (1991), is that traditional career robbers may turn to other sources of income, leaving only the more opportunistic and spontaneous robbers to victimise banks.

Bank Robbers Since 1998

Of the 808 incidents in which the number of offenders involved in the hold-up was recorded, more than half (55 per cent) were committed by lone offenders, about 25 per cent by pairs, and around 20 per cent by three or more robbers (that is, gangs). Compared to the 1980s, recent Australian bank hold-ups involved fewer lone robbers and more gangs (the proportion of bank robberies committed by pairs of offenders was virtually unchanged). Within Griffiths' (1991) categorisation, a greater number of instances involving gangs would suggest that hold-ups are, on average, more "professional" than in the 1980s. It is

more probable, though, that this signifies a new style of robbery, where relatively disorganised amateurs act together to victimise banks because, as will be shown, robbers in the current analysis do not show the same average levels of success.

Weapon Use in Bank Robbery

The type of firearm favoured by Australian bank robbers has varied over time. Marsden (1989) noted that pistols were used more often than longarms (rifles and shotguns) in Australian bank hold-ups in the early to mid-1980s, but the reverse held in the later 1980s. Between 1998 and 2002, pistols were once more used in the majority (68 per cent) of the hold-ups involving firearms (that is, 37 per cent of all incidents). The reasons behind these changes cannot be ascertained, although an increasing proportion of pistols relative to other firearms mirrors trends observed in other violent crime, such as homicide (see Mouzos 2001).

The weapon employed also varied with the number of offenders involved in the hold-ups recorded in the Armed Attacks Database. For instance, the greatest disparity in the proportion of pistols relative to longarms was found among lone offenders, whereas the largest proportion of hold-ups in which no weapon was sighted was recorded for gangs (see Figure 3).

Overall, a greater proportion of bank hold-ups today can be classified as unarmed robbery (around 48 per cent) relative to the 1980s. Griffiths (1991) observed that pairs and gangs were typically armed, and only lone offenders attempted unarmed robbery, with this offender type responsible for around one-quarter of all hold-ups in the 1980s (Table 1). If more "skilled" robbery involves weapons (in particular firearms), Australian bank robbers today are deskilled relative to offenders in the mid-1980s. However, findings are not consistent with Matthews' (2002) observation that the deskilling of commercial robberies includes an element of *downsizing* (literally a tendency to employ smaller firearms), even though more pistols were employed on average relative to other firearms. For example, pairs of offenders used fewer longarms than in the 1980s (cf. Table 1), although the proportion of pairs using pistols was relatively unchanged in recent bank robberies.

Similar findings also emerged in a separate examination of *armed* lone offenders (that is, ignoring unarmed solo robbers, consistent with Griffiths 1991): the proportion using pistols did not change markedly over the past two decades (around 55 per cent in recent robberies), yet the proportion of longarms used by armed lone offenders decreased (to 22 per cent in the current analysis).

The most dramatic change in weapons use, however, appeared among gangs of offenders. In the 1980s, virtually all gangs employed weapons, with almost half of their robberies involving pistols and around half involving longarms. Between 1998 and 2000, 62 per cent of bank robberies committed by gangs involved no weapon, with only around 10 per cent involving pistols and six per cent involving longarms.

Figure 3: Percentage weapon type by number of offenders involved in armed robbery (n=856)^a



a Some incidents involved multiple weapons, however each occurrence of each weapon type has been examined individually, as a percentage of the number of hold-ups perpetrated by either one, two, or three or more offenders. Note: The weapon category "nil" refers to hold-ups in which a weapon was not seen and/or recorded. Five cases in which an unknown type of firearm was recorded have been excluded. Source: Australian Institute of Criminology, ABA Armed Attacks Database, 1998–2002 [computer file]

New-style commercial robbers have also been characterised as having *disarmed*, relying instead on an element of surprise and weight of numbers to complete a robbery (Matthews 2002). Rather than downsizing, Australian bank robbers appear to be disarming: weapons were not sighted or recorded in 48 per cent of all incidents. Because of this, the remainder of this analysis will consider two types of offenders in addition to those observed in the 1980s—those operating in *unarmed* pairs and in *unarmed* gangs. Table 2 summarises findings from the current analysis regarding the six types of offenders.

Violence in Bank Robbery

By definition, robbery is a violent crime: offenders must pose a credible threat before victims will comply with demands. However, the level of violence necessary to establish that threat can range from an offender simply stating their intentions, to actual serious physical assault or even murder (see Mouzos 2000). A potential corollary of disarming is that offenders may have to be more physically violent in order to exact victim compliance.

Offenders' violent actions towards victims are recorded in the Armed Attacks Database. Violent acts were committed in 713 of the hold-ups, totalling 1,073 separate acts. Fourteen per cent of all hold-ups did not involve violent acts. Just under half (49 per cent) of the bank robberies involved a single violent act, whereas a little over one-third (37 per cent) involved more than one. Violent acts include:

- menacing victims (around 85 per cent of all hold-ups—presumably important in establishing a threat that will result in compliance);
- injuring victims (around six per cent);
- detaining victims (approximately one per cent of hold-ups);
- taking victims hostage (approximately one per cent); and
- discharging a weapon (approximately one per cent).

When compared to lone offenders, a higher proportion of incidents involving gangs resulted in multiple violent acts, with 55 per cent resulting in at least two violent acts. The strength of the association between these variables was small but significant³ ($r=.2$, $p<.01$), indicating a tendency for the number of violent acts to increase with the number of offenders.

Table 2: Characteristics of bank robber types, January 1998 to May 2002 (n=808)^a

	Lone offenders		Offender pairs		Offender gangs ^b	
	Unarmed	Armed	Unarmed	Armed	Unarmed	Armed
Responsible for						
% all robberies	28	26	7	18	13	8
% all injuries	1	7	10	10	51	21
% of each offender type						
Using weapons	–	100	–	100	–	100
Using note	46	8	13	2	<1	0
Using disguise ^c	30	47	20	59	24	42
Failing ^d	33	26	21	23	6	22

a Includes only incidents where information on number of offenders was recorded.

b Defined as a group of three or more offenders.

c Griffiths (1991) did not specify how the disguise variable he employed was calculated, thus caution should be exercised when comparing the disguise variable over the two periods.

d Failure was defined as failing to escape with any amount, a more liberal criterion than that employed by Griffiths (1991).

Source: Australian Institute of Criminology, ABA Armed Attacks Database, 1998–2002 [computer file]

Victim Injury

All violent acts can have a negative impact on victims, but perhaps the most immediate and tangible negative effects arise from victim injury. A total of 70 victims were injured in 52 separate hold-ups, with injuries inflicted most often by unarmed gangs (51 per cent of all injured victims; see Table 2). Furthermore, Table 3 indicates that, when compared to other offender types, a larger proportion of bank robberies involving unarmed gangs resulted in injury (around one-quarter), emphasising an association between an absence of weapons, multiple offenders and an increased propensity to violence in recent bank robberies. Interestingly, there is not huge variation between offender types in terms of their engagement in other violent acts.

In the 1980s, around 77 per cent of injuries were inflicted by armed offender pairs and armed lone robbers, with armed gangs responsible for 23 per cent (Table 1). The equivalent figures in the current analysis are 17 per cent and 21 per cent (Table 2). In both periods, unarmed robbers acting alone inflicted minimal injuries. Solo and paired armed offenders may engage in less violence than their 1980s counterparts for a range of reasons, such as perceived increases in penalties for assault, or because increased security has meant fewer opportunities to come into physical contact with victims. These possible factors do not seem to affect unarmed gangs, who appear to represent a new type of offender, particularly with respect to their willingness and capacity to use violence.

Note Passing

A proportion of robberies involved a relatively passive form of threat (not considered above), in which the offender passed the teller a note outlining demands, threats and/or

weapons. The majority of the 137 incidents in which notes were passed in the current analysis were carried out by lone robbers (89 per cent, or 122 hold-ups). Specifically, notes were used in approximately 46 per cent of the robberies committed by unarmed lone offenders (Table 2), a figure similar to the 44 per cent observed by Griffiths (1991, see Table 1). However, unlike the 1980s when only one per cent of armed lone offenders used notes (Table 1), around eight per cent of recent lone robbers employed notes in conjunction with weapons. A note may therefore also serve to emphasise the threat posed by an actual weapon. Additionally, a note allows offenders to threaten bank staff discreetly, without necessarily coming to the attention of other individuals on the premises, thereby further minimising the chance of resistance or capture. Pairs of armed and unarmed robbers only passed 10 notes, and gangs passed a single note, suggesting that multiple offenders in the current analysis did not attempt to conceal their offence from others present.

Disguises

It is difficult to ascertain the level of planning that bank robbers engage in prior to offending without surveying them in some way. However certain aspects of the incident can suggest levels of preparedness, such as whether offenders attempt to conceal their identity through a disguise. At least 38 per cent of all currently analysed hold-ups involved some form of disguise, although the number of disguise elements used in incidents ranged between one and five.⁴ Armed offenders used disguises more often than their unarmed counterparts (50 per cent versus 27 per cent). This pattern was characteristic of lone robbers, offender pairs and offender gangs, although armed pairs emerged as the best prepared using this criterion (59 per cent, see Table 2).

Table 3: Percentage types of violent acts by offender type (n=808) ^a

% of each offender type	Lone offenders		Offender pairs		Offender gangs ^b	
	Unarmed	Armed	Unarmed	Armed	Unarmed	Armed
No violence	15	10	20	11	15	17
Menaced victims	85	90	80	87	83	82
Detained victims	<1	2	0	2	0	3
Took victims hostage	0	<1	0	4	0	3
Injured victims	<1	2	7	5	25	15
Discharged weapon	-	1	-	3	-	0

a Includes only incidents where information on the number of offenders was recorded.

b Defined as a group of three or more offenders.

Source: Australian Institute of Criminology, ABA Armed Attacks Database, 1998–2002 [computer file]

Disguises were further classified as *soft* (items which could be improvised from everyday attire, such as a scarf, cap or sunglasses) or *hard* (which would need to be arranged before the incident, such as a balaclava or wig). Offenders in 17 per cent of all hold-ups employed soft disguises, and 23 per cent of incidents involved hard disguises. As shown in Figure 4, the use of soft disguises did not vary widely with offender type. However, armed offenders used hard disguises in a higher proportion of hold-ups than unarmed robbers, and this was especially true of armed pairs.

If using a disguise signifies planning, then data suggest that today's gangs and pairs of offenders engage in less planning when compared to robbers in the 1980s. Griffiths (1991) found that 91 per cent of gangs and 85 per cent of pairs used disguises (Table 1), in contrast to the 31 per cent and 48 per cent (respectively) observed in the current analysis. Proportions are higher when considering only *armed* gangs and pairs (see Table 2), but are nonetheless lower than the 1980s. Unfortunately, the exact proportion of armed loners using disguises in the 1980s was not specified by Griffiths (1991), although he noted that "like their unarmed counterparts, little planning is undertaken" (p. 27), observing that lone unarmed offenders used disguises in 25 per cent of the hold-ups they carried out (Table 1). Table 2 indicates that 30 per cent of the recently observed lone unarmed robbers used disguises, with armed solo offenders disguised in 47 per cent of incidents. It therefore appears that the level of preparedness of today's lone robbers has not changed to the same degree as it has for offenders operating in pairs or gangs. In the case of armed loners, it may in fact have increased.

Failed Bank Robberies

Offenders in the current analysis were less successful than bank robbers in the 1980s: Griffiths (1991)

found that 11 per cent of all hold-ups failed, whereas today's failure rate is more than double that (24 per cent), with about the same proportion of failures (around one-quarter) among armed and unarmed offenders. This failure rate applies to armed offenders irrespective of whether they acted alone, in pairs or in gangs. However, unarmed lone offenders were the least successful, tending to fail in about one-third of cases, whereas unarmed gangs were the most successful, with less than one in 10 hold-ups failing (see Table 2 and Figure 5).

It is probable that the presence of weapons compels victim compliance (and reduces resistance and attempts at apprehension), regardless of how many robbers wield those weapons. Yet without weapons, more offenders may be necessary to exert the control that produces compliance and results in success. The earlier findings on victim injury suggest that unarmed gangs inflict more injury. The increased compliance they generate may therefore arise from an increased preparedness to demonstrate control by inflicting injury, or simply from their greater numbers. Alternatively, injuries may arise because of factors unrelated to exacting compliance, such as less offender self-control or less professionalism. Unfortunately, the nature and direction of any relationships between violence,

success and offender type is beyond the scope of the current analysis.

Unsuccessful offenders do not appear to be a distinct type of bank robber, although they tended to act alone (65 per cent of unsuccessful robberies involved single offenders) and avoid unnecessary violence (73 per cent engaged in no, or only one, violent act, which was typically menacing victims). The majority carried weapons (52 per cent were armed, 29 per cent with pistols), and 39 per cent employed some form of disguise, yet these preparations were not sufficient to guarantee success.

Conclusions

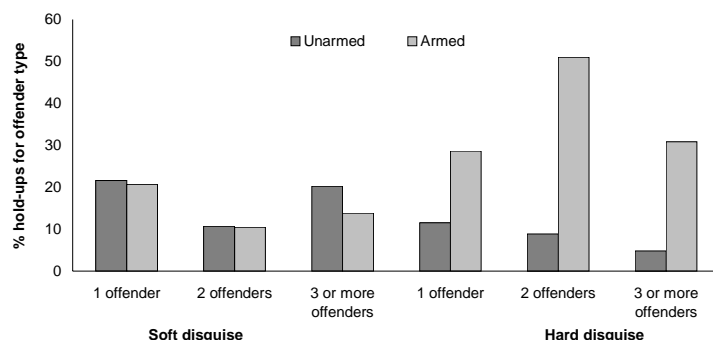
Robbery in Australian banks appears to be on the decline, with decreases in victimisation since the 1980s. Causes of the decline cannot be precisely pinpointed, but it appears that the type of offender who targets banks may have changed. Specifically, these new-style robbers:

- tend to operate in gangs;
- are less likely to be armed;
- injure a higher proportion of victims in the course of the hold-up; and
- appear to engage in less planning (for example, disguises).

The armed pair, gang and lone offender types identified by Griffiths (1991) were still evident in recent hold-ups, although in total they constituted a smaller proportion of all bank robbers than in the 1980s. It is possible that increased security at branches has deterred some of the more traditional types of offenders, and that those who do commit bank robbery may have adjusted their modus operandi (albeit ineffectively, given higher average failure rates) to respond to security changes.

The *professional* armed gangs observed in the 1980s tended to avoid banks because of the increased risk of capture, and the similarly

Figure 4: Percentage of disguises worn in bank robberies by offender type (n=808) ^a

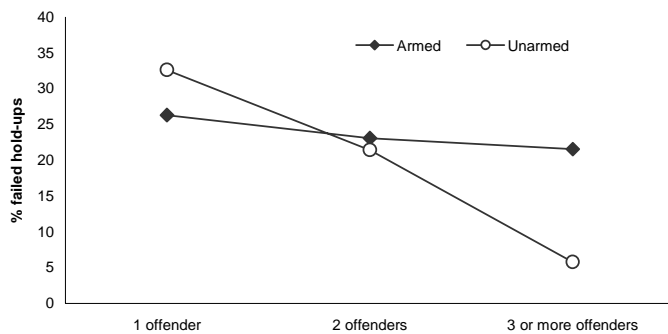


a Includes only incidents where information on number of offenders was recorded.

Note: Some hold-ups involved both soft and hard disguises, hence the disparity between these figures and those related to the variable capturing any form of disguise.

Source: Australian Institute of Criminology, ABA Armed Attacks Database, 1998–2002 [computer file]

Figure 5: Percentage unsuccessful bank robberies by offender type (n=808)^a



a Includes only incidents where information on number of offenders was recorded.
Source: Australian Institute of Criminology, ABA Armed Attacks Database, 1998–2002 [computer file]

small proportion of bank hold-ups perpetrated by armed gangs in the current analysis suggests that this still holds true. However, today's *unarmed* gangs seemingly have little concern for the consequences of their actions: these poorly disguised and inadequately armed gangs attack banks despite the high levels of security and well-practised staff responses to attacks. In this sense, they more closely resemble the perpetrators of a phenomenon called *steaming*, in which groups of unarmed and relatively unprepared offenders use weight of numbers, intimidation and confusion to achieve their ends (Matthews 2002).

The appropriate response by financial institutions to the new-style offender is not easily prescribed because aspects of today's bank robbery still need to be more fully examined. Key issues include:

- the relationship between offender type and the security available and subsequently deployed in hold-ups, allowing an examination of what security measures may be most effective with various offender modus operandi;
- the repeat victimisation of branches, to assess if certain branch or security configurations are more vulnerable to repeated attacks by specific types of offenders;
- the geographical areas targeted (for example, suburban or rural), to examine whether the geographic concentration of security is still optimally matched to patterns of victimisation; and
- the possible displacement to other types of premises (such as convenience stores or service stations), to less secure banks, or to other forms of criminality, in order to establish whether the more traditional robber is shunning bank targets.

The last point, while perhaps not of immediate concern to branch security, has implications for broader community crime prevention and reduction and is therefore relevant to banks as responsible corporate citizens.

Information contained in the Armed Attacks Database can address

some of these issues, such as security measures and geographical location; however, it is not capable of answering broader questions, such as those surrounding displacement. A national database containing detailed information about robbers and methods in all locations would be more suited to this task.

Notes

- 1 Researchers have recognised that both witnesses and police may overestimate the use of firearms, reporting the presence of an actual, operational firearm when the offender may have used an inoperable or imitation weapon, or merely have bluffed about the presence of a firearm (see O'Donnell & Morrison 1997).
- 2 Data were not available for the intervening years, thus any fluctuations in risk over this time could not be established.
- 3 Pearson's correlation, n=808 (includes only incidents with offender number recorded).
- 4 Disguise information is not a field contained in the Armed Attacks Database; the information examined here was extracted from text-based offender descriptions, and is therefore subject to the limitations associated with differing witness recall and various witness reporting styles.

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Note: Trends and Issues in Crime and Criminal Justice are refereed papers.

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