



# Card Fraud Report 2015





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Welcome

# Card Fraud Report – 2015

Certainly card fraud is one of the most fascinating aspects of the payment industry, not least because it is relentless and mutating. While overall, this comparison between card fraud losses and types in the French, British, Dutch, Canadian and the USA markets suggests that card fraud losses are being contained as a proportion of card turnover, there is no room for complacency.

EMV implementation and 3D-Secure, combined with strong authentication, have done much to reduce domestic losses from lost and stolen cards in Europe. However, losses from card fraud on the internet and cross-border fraud on domestic cards have grown significantly. In total, card fraud amounted to €1.33 billion in the European SEPA region in 2012. The global card fraud challenges are CNP (Card Not Present) fraud, cross-border fraud and counterfeit on non-EMV cards.

Also the individual figures of France, the UK, the Netherlands, Canada and the USA in this report indicate that the war against fraud continues to be a global threat. International

card fraud continues to be smaller in scale than domestic card abuse, but is proportionately far more common – e.g. 15 times higher than domestic fraud in France. And of course fraudulent cross-border transactions on cards continued to grow on all purchase channels.

This report aims to give some insight into how card fraud is perpetrated in the selected regions, what are the drivers for this fraud, the defence mechanisms that the various countries can select to combat card fraud and the figures that surround the various types of card fraud.

Alex Rolfe, Editor



# Card Fraud Report

## Introduction

It is the driver of major industry initiatives such as EMV implementation to combat the use of lost, stolen and counterfeit cards, while 3D-Secure authentication protects against the fraudulent use of stolen card details online.

But what is the scale of card fraud losses in selected European countries, Canada and the USA and how does it vary between markets?

In 2008, PCM prepared a report comparing card fraud losses in France, Spain and the UK. It drew on data covering the whole market for France, Spain and the UK. In 2009, the Netherlands was included because of its specific, domestic, best practices in Europe.

In 2015, this new report updates and extends the initial analysis. Data from the ECB Fraud Report provides a pan-European barometer. In addition to France, the Netherlands and the UK, national coverage has been extended to include Canada and the USA. Compared to the European experience, it is notable to understand the impact of card fraud in two major countries, where the EMV migration is not yet complete (Canada) and has just started (USA).

### The report is divided into the following main sections:

1. Examines the overall level of losses, including the variations between the countries profiled.
2. Draws on French, UK, Canadian and USA data to analyse losses by method of compromise that are the sources of fraudulently used cards.
3. Analyses losses by geographic place of misuse (domestic vs. international).
4. Analyses losses by type of fraudulent transaction (purchases vs. cash withdrawals, face-to-face vs. CNP purchases).
5. Draws on the French data to bring together the analysis of losses by method of compromise with the analysis by place and type of misuse.
6. Highlights notable card fraud trends.
7. Concluding Comments.



# 1. Total Card Fraud Losses

The most comprehensive overall measure of card fraud losses is the fraud loss ratio, which expresses fraud losses as a proportion of total card transaction values.

## Comparative Overview

Card fraud losses as a proportion of total card transaction values have changed/developed differently in Europe, Canada and the USA. Taking the ECB's figures as a barometer for the SEPA region as a whole, the card fraud-related share in the value of transactions fell from 4.5 basis points in 2007 to 3.8 basis points in 2012, its second lowest level since 2007. By individual European country, the losses ranged from 0.4 basis points to 6.6 basis points in 2012.

The national figures in this report show significant variation by country. Regarding the countries in this report, the losses in 2013 ranged from 2.8 basis points in the Netherlands, an example of fraud prevention best practice in Europe, to 7.1 basis points in France and to 5.9 basis points in the UK. The North American countries had card fraud losses calculated at 10.4 basis points in the USA (2012) and 8.7 basis points in Canada, showing that the

card fraud losses are higher in countries where EMV migration is in progress (Canada) or has just started (USA).

Undoubtedly, the implementation of EMV cards and 3D-Secure, combined with strong authentication, has contributed to declining card fraud rates in Europe and Canada (for EMV debit cards). Following EMV implementation, card fraud moves increasingly to countries where POS terminals have not yet been migrated to EMV and also to cross-border fraud with magnetic stripe only cards. Further, CNP fraud on the internet, the other challenge, continues to grow.

Table 2 compares the card fraud loss ratio for 2013 based on the losses from the payments value and cash withdrawals value both from domestic and international transactions.

Table 3 looks at the trends in card fraud loss ratios during recent years. Despite the changes in both card use and fraud prevention, it is striking that the card fraud loss ratios for France, the Netherlands and the UK (and therefore their positions relative to each other) have changed differently during the last five years.

In the European SEPA region the card fraud loss ratios declined from 2008 to 2011 due to the EMV implementation. From 2012, the card fraud loss ratios began to grow again due to rising CNP fraud and cross-border fraud.

### 1 – Comparative Overview in 2013

	EU	France	Netherlands	UK	Canada	USA
Population (m)	508.1	65.7	16.8	64.1	35.1	313.9
Number of cards (m)	759.7	85.5	30.4	157.3	105.0	827.4
Card payments value (€bn)	2,204.4	438.4	100.3	653.6	417.2	3,438.4
ATM withdrawals value (€bn)	1,418.3	135.6	51.5	242.5	na	534.7
EMV Implementation	cards: 81.6%	complete	complete	complete	debit cards: 95%	---
Total of card fraud losses (€m)	1,330.0	405.8	41.9	530.3	361.5	4,148.5
Card fraud loss ratio	0.038%	0.071%	0.028%	0.059%	0.087%	0.104%

Sources: ECB, ECB, OSCP, ECB, Betaal Vereniging, ECB, FFA UK, BIS, CBA, Interac, BIS, Federal Reserve

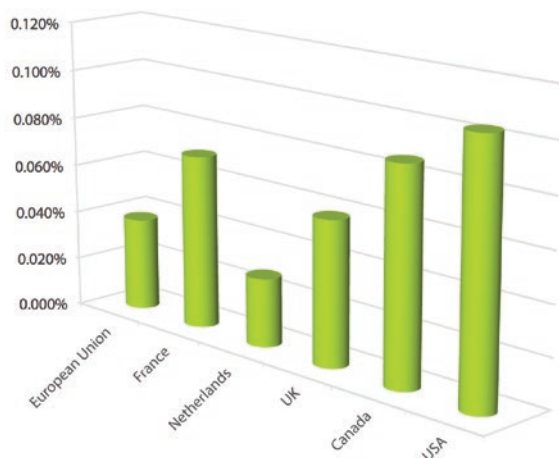
Notes: 1. Number of cards covers both debit and credit and e-purses. Card fraud losses cover both domestic and international transactions. 2. EU card fraud figures and all USA figures are from 2012. Canadian and USA card fraud ratios are calculated in order to comply with European figures. 3. France: Statistics cover 68.4 million 'CB' bank cards and Moneo e-purses and 17.1 million French 'private' cards issued by third parties. 4. Netherlands: Number of cards comprises 24.5 million debit cards and 5.9 million credit/delayed debit cards. 5. UK: Number of cards includes 0.19 million ATM only, 95.7 million debit cards and 57.6 million credit/delayed debit cards. 6. Canada: Number of cards includes 23.9 million debit cards and 81.1 million credit/delayed debit cards. 7. USA: Number of cards includes 290.8 million debit cards and 905.6 million credit/delayed debit cards.

Sources: European Central Bank (ECB), Bank of International Settlement (BIS); for other sources see above.



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## 2 – Card Fraud Loss Ratio by value 2013



Note: Card fraud loss ratio in % of total card transactions value. Note: Canadian and USA figures were calculated to comply with European figures.

Source: ECB, OSCP (F), Dutch Betaalvereniging (NL), Financial Fraud Action UK, Canadian Bankers Association, Federal Reserve (USA).

In the UK, the card fraud loss ratio has declined from 10.1 basis points in 2008 down to 4.9 due to the EMV implementation, but showing an upward trend to 5.9 basis points due to higher CNP fraud, since 2012.

In France, the EMV implementation was complete by the end of 2008 and the corresponding card fraud loss rate was 5.4 basis points in the same year.

However from 2009, the card fraud loss rate has continuously grown to 7.1 basis points in 2013 due to growing CNP fraud and higher cross border fraud.

However, the level of losses and trends in card fraud loss rates also needs to be seen in the specific context of debit card and credit card use in each country.

### France

Card fraud losses rose by almost 8.9% to €405.8 million, with international losses growing from 34.4% to 36.7% of total card fraud between 2012 and 2013. The card fraud loss ratio rose from 6.6 basis points in 2012 to 7.1 basis points of French card turnover in 2013. The rise in domestic card fraud loss was largely due to higher card not present (CNP) fraud, particularly on internet purchases and lost or stolen card fraud.

The rise in international losses was largely due to higher losses from the theft of card details and an increase in losses from lost/stolen cards and counterfeit cards. By type of misuse, the rise in international losses was mainly due to higher CNP fraud, particularly on internet purchases.

### UK

Card fraud losses were £450.5 million (€530.3 million) in 2013, equivalent to 5.9 basis points of the card transaction value, down from 10.1 basis points in 2008. The EMV migration is complete and 3D-Secure technology is applied.

By method of compromise, fraud losses from lost and stolen cards were 13.1% of the total card fraud losses. Card ID theft rose by 14% to £36.7 million (€34.2 million), accounting for 8.1% of total UK card fraud.

By place of misuse, CNP fraud accounted for £301.1 million (€354.5 million) up 22%, of which e-commerce was £163.3

## 3 – Card Fraud Loss Ratio Trends

	2008	2009	2010	2011	2012	2013	GR 2012/13
European Union	0.048%	0.048%	0.040%	0.036%	0.038%	na	na
France	0.054%	0.056%	0.061%	0.062%	0.066%	0.071%	7.38%
Netherlands	0.038%	0.050%	0.041%	0.035%	0.034%	0.028%	-17.65%
UK	0.101%	0.071%	0.056%	0.049%	0.054%	0.059%	10.42%
Canada					0.088%	0.087%	-0.99%
USA					0.104%	na	na

Note: Card fraud loss rates in % of total card turnover, i.e. payments and withdrawals value on cards.

Source: ECB, OSCP (F), Dutch Betaalvereniging (NL), Financial Fraud Action UK, Federal Reserve, Canadian Bankers Association.

million (€192.2 million) up 16% on 2012. In 2013, losses from CNP fraud had a 66.8% share of total card fraud losses compared with 54% in 2008.

The vast majority of CNP fraud involves the use of card details that have been fraudulently obtained through methods such as skimming, digital attacks including malware and data hacks, or through unsolicited emails or telephone calls. The card details are then used to undertake fraudulent purchases on the internet, phone or by mail order.

A second important factor is the high use of credit cards in the UK compared with France and the Netherlands. The card fraud loss ratio on UK credit cards in 2013 was 13.5 basis points (2008: 21bp) compared with 4.2 basis points on debit cards (2008: 7bp). Credit cards can be particularly attractive to fraudsters given the line of credit available (Table 4).

### Dutch Card Fraud Losses

Historically a country with one of the lowest levels of card fraud in Europe, the Netherlands experienced higher fraud losses due to a rise in skimming attacks on the domestic PIN debit cards (PIN, as referenced in the Netherlands, was the Dutch debit card brand that ran off mag stripe technology. It is not to be confused with chip and PIN which is largely used to describe the EMV movement).

The contrast to France and the UK is accentuated by the fact that the debit card loss rate only covers domestic transactions (with international debit transactions treated as Maestro transactions) and PIN debit cards have never been used online (the Dutch direct online transfer product iDEAL is used for internet purchases instead).

However, EMV implementation elsewhere in Europe increased the vulnerability of the Netherlands from 2009 to 2011. In particular, there was a growing problem with skimming of magnetic stripe PIN debit cards. POS terminals were targeted most by criminals, with skimming on unattended POS terminals a particular problem. The card fraud losses due to skimming were €43 million in 2009, €20 million in 2010, €39 million in 2011, but falling back to €8.6 million in 2013 due to EMV migration.

As at end-2012, EMV migration in the Netherlands was complete and all magnetic stripe PIN debit cards were replaced by EMV cards branded Maestro or V PAY.

The fact that overall card fraud losses remain significantly lower in the Netherlands suggest its strategy of online-to-issuer authorisation, combined with 3D-Secure, geo-blocking of debit

cards and the use of sophisticated fraud control and prevention systems has been effective in combating fraud.

Thus, card fraud losses on debit cards have declined by 60% from €81.8 million in 2012 to €33.3 million in 2013, with a fraud loss ratio of 2.2 basis points for debit cards, significantly lower than the total fraud loss ratio on Dutch cards with 3.4 basis points in 2012.

It is noted that Dutch card fraud losses on credit cards have a higher loss ratio than on debit cards. In 2008, the card fraud loss rate on Dutch PIN debit cards was only 3.2 basis points compared with 25 basis points on Dutch credit cards.

With PIN-entry and consequent online-to-issuer authorisation of all transactions (and continued low use of credit cards), card fraud losses have continued to be low in the Netherlands.

### Canadian Card Fraud Losses

The EMV migration in Canada is in progress. According to Interac, most of the domestic Interac debit cards (95%) and POS terminals in the country were EMV compliant at end-2013. Thus, the card fraud loss ratio on Interac debit cards declined from 8.3 basis points in 2008 to 1.5 basis point in 2013. However, fraud losses on Canadian credit cards remain high, with a fraud loss rate of 8.2 basis points, according to the Canadian Bankers Association. The fraud losses on credit cards were largely due to high CNP fraud (64.4%), followed by counterfeit domestic and cross-border fraud (24%).

### USA Card Fraud Losses

The absence of EMV-compliant cards and POS terminals in the USA has contributed to continued, high card fraud losses.

#### 4 – UK Card Fraud Loss Ratio by Type of Card 2013

	2008	2013
Credit	0.210%	0.135%
Charge	0.110%	0.087%
Debit	0.070%	0.042%
ATM-only	0.500%	0.022%
All cards	0.101%	0.059%

Notes: 1. Card fraud loss ratio based on fraud losses as a proportion of the total card transactions value.

2. Card transactions covers payments and cash withdrawals on cards, both domestic and international transactions. Excluded are card fraud losses on foreign cards used in the UK.

Source: Financial Fraud Action UK.



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EMV implementation elsewhere in the world has increased the vulnerability of the USA and fraud has moved increasingly to the USA. In 2012, the USA accounted for 47.3% of the worldwide payment card fraud losses but generated only 23.5% of the total card volume.

According to The Federal Reserve, card fraud losses on any type of USA cards totalled \$5.33 billion in 2012, up by 14.5% from 2011, with card fraud losses on debit cards at \$1.57 billion in 2012. .

The USA card issuers lost \$3.41 billion, equivalent to 6.7 basis points and 63% of the total card fraud in the USA while the card fraud losses of the merchants accounted for the other 36%.

The total card fraud losses in the USA were calculated to 10.4 basis points of total card transaction

value in 2012. According to the Federal Reserve, fraud losses on debit cards accounted for 8 basis points in 2013, up from 7.7 basis points in 2011.

The USA is the only region where counterfeit card fraud losses continue to grow. In addition, there is also high CNP fraud as well as lost and stolen card fraud.

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## 5 – Interac Debit Card Fraud Losses in Canada

	2009	2010	2011	2012	2013	GR 12/13	CAGR 5Y
Debit card transactions value (\$CADbn)	171.0	176.0	183.0	190.0	196.0	3.16%	3.01%
Fraud losses on Interac debit cards (\$CADm)	142.3	119.0	70.0	38.5	29.5	-23.38%	-22.35%
Number of cardholders reimbursed	238,000	205,200	154,170	93,800	72,220	-23.01%	-13.37%
On average loss per cardholder reimbursed (\$CAD)	597.90	579.92	454.04	410.45	408.47	-0.48%	-10.37%
Fraud loss ratio on Interac debit cards	0.0832%	0.0676%	0.0383%	0.0203%	0.0151%	-25.72%	-24.62%

Note: In 2013, only 25% (\$CAD 7.3 million) of losses are the result of debit card fraud in Canada. Source: Interac.

## 6 – Card fraud losses on USA debit cards reported by covered issuers

	All fraud <sup>1</sup>		Card-not-present fraud <sup>2</sup>		Counterfeit fraud			Lost and stolen fraud		
	Loss per transaction (\$) <sup>3</sup>	Loss as share of transaction value (bp) <sup>4</sup>	Loss per transaction (\$) <sup>3</sup>	Loss as share of transaction value (bp) <sup>4</sup>	Loss per transaction (\$) <sup>3</sup>	Loss as share of transaction value (bp) <sup>4</sup>	Loss per transaction (\$) <sup>3</sup>	Loss as share of transaction value (bp) <sup>4</sup>	Loss per transaction (\$) <sup>3</sup>	Loss as share of transaction value (bp) <sup>4</sup>
All transactions 2011 <sup>5</sup>	0.030	7.77	0.012	3.05	0.013	3.22	0.004	1.05		
All transactions 2013 <sup>5</sup>	0.031	8.02	0.012	3.14	0.014	3.54	0.004	1.00		
Merchant losses	0.011	2.90	0.009	2.21	0.002	0.42	<0.001	0.19	36%	70%
Cardholder losses	<0.001	0.24	<0.001	0.12	<0.001	0.03	<0.001	0.06	3%	4%
Issuer losses	0.019	4.88	0.003	0.81	0.012	3.08	0.003	0.75	61%	26%

Notes: 1 Card-not-present, counterfeit, and lost and stolen fraud losses do not necessarily sum to all fraud losses. 2 Card-not-present fraud losses may also be reported in another second category. 3 Fraud losses divided by the number of purchase transactions (both fraudulent and non-fraudulent). 4 Fraud losses divided by the value of purchase transactions (both fraudulent and non-fraudulent). 5 Only fraud losses reported by covered issuers are included.

Source: Federal Reserve

## 2. Method of Compromise

The method of compromise covers the means by which fraudsters obtain payment cards or card details.

### France, UK and Canada compared

Detailed breakdowns are available for France, the UK and Canada which are based on similar categories. This allows a valuable comparison of the three markets (see Table 7).

In France, the main methods of compromise responsible for losses are lost and stolen cards and theft of card details. Together, the two categories accounted for 98.8% of losses in 2013. Theft of card details on the internet accounted for 52.4% of total losses in France.

While theft of card details accounts for a growing proportion of fraud on French cards, it remains significantly smaller by value than on UK cards. In the UK, theft of card details accounted for 66.8 % of total losses and theft of card details on the internet accounted for 36.2% of total losses in the UK.

And while lost and stolen cards continued to account for over a third of French losses in 2013, they account for only 13.1% of UK losses. Other notable fraud categories in the UK are counterfeit

and account takeover/fraudulent application.

In Canada, the main methods of compromise for losses are theft of card details (64.4%) and counterfeit (24.0%). The latter proves that the EMV migration of Canadian credit cards is not complete.

Also in the non-EMV country, the USA, the dominating methods of compromise for losses are theft of card details, counterfeit, and lost and stolen cards. The USA is the only region worldwide where counterfeit continues to grow.

The main method of compromise responsible for losses in many countries is now the theft of card details.

Theft of card details accounted for over 60% of card fraud losses in many European countries, in Canada and in the USA in 2013. A high proportion of these card fraud losses are caused by the growth in ecommerce, and the lack of use of additional online verification methods such as 3D secure.

For example, according to a survey carried out by Eurostat, the Statistical Office of the European Communities, 77% of UK individuals (2008: 57%) have purchased goods or services on the internet in 2013 compared with 59% in France (2008: 40%) and 73% in the Netherlands (2008: 56%). (Eurostat Data: Internet use in 2008 and 2013: households and individuals).

By no surprise, the card fraud losses on credit cards in Canada

### 7 – Card Fraud Losses by Method of Compromise – France vs UK vs Canada

	France		UK			Canada (credit cards only)		
	(€m)	%	(£m)	(€m)	%	(CADm)	(€m)	%
Card lost or stolen	81.7	34.2%	58.9	69.4	13.1%	25.2	18.4	5.4%
Card not received	0.9	0.4%	10.4	12.2	2.3%	5.0	3.6	1.1%
Card altered / counterfeit	0.5	0.2%	43.4	51.1	9.6%	111.5	81.5	24.0%
Theft of Card Details	154.0	64.5%	301.1	354.5	66.9%	299.4	218.8	64.4%
– of which e-commerce	125.0	52.4%	163.2	192.2	36.2%	na	na	na
Account takeover, others	1.5	0.6%	36.7	43.2	8.1%	24.0	17.6	5.2%
<b>Total (€m)</b>	<b>238.6</b>	<b>100.0%</b>	<b>450.4</b>	<b>530.3</b>	<b>100.0%</b>	<b>465.1</b>	<b>339.9</b>	<b>100.0%</b>

Notes: 1. Figures cover both domestic and international transactions on French and UK-issued cards respectively. 2. France: Data covers both interbank ("CB") cards and private cards. "Other" covers, particularly for three-party cards, fraud resulting from the fraudulent opening of accounts with a false identity. 3. UK: "Others" covers third party application fraud. 4. Canada: Data covers Canadian credit cards only. Additionally, card fraud losses on debit cards were CAD 29.5 million.

Sources: Observatoire de la sécurité des cartes de paiement, Financial Fraud Action UK, Canadian Bankers Association.

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show the same fraud pattern (see Table 8). In Canada, the main methods of compromise responsible for card fraud losses are counterfeit and theft of card details. Together, the two categories account for more than 88% of fraud on credit card transactions in 2013 with theft of card details (CNP) fraud accounting for 64.4% of the losses.

The high counterfeit fraud (24%) in Canada compared with France, Netherlands and the UK illustrates that the EMV migration in Canada is not yet complete. However, domestic counterfeit fraud has declined while cross-border counterfeit is growing. This indicates that the fraudsters have adapted their counterfeit attack strategy cross-border.

## Fraudulent Debit Card Activities in the USA

Card fraud losses on debit cards and on prepaid cards in the USA show the same methods of compromise as in European countries (see Table 9). It is known that fraudulent transactions on USA credit cards follow the same kind of logic.

According to The Federal Reserve, the main methods of compromise responsible for losses are counterfeit and theft of card details. Together, the two categories account for almost 82% of fraud losses on debit card transactions in 2013 with theft of card details (CNP) already accounting for 53% of all losses followed by lost and stolen fraud (13%).

Also, the two categories accounted for almost 51% of fraud losses on prepaid card transactions in 2013 with theft of card

details (CNP) already accounting for 38% of all losses followed by lost and stolen fraud (17%).

The high counterfeit fraud (29%) in the USA compared with France and the UK illustrates clearly that the EMV migration in the USA has just started (0.3% of cards were EMV cards at end-2013). It is very likely that counterfeit fraud will decline significantly due to the EMV migration rollout.

## France: Domestic vs. SEPA vs. International

Simply looking at total fraud losses on the cards of a country by method of compromise hides the important regional differences. Such as in the method of compromise profile of card fraud losses in the SEPA region, and international card fraud losses compared with the domestic card fraud losses. This is underlined by a breakdown available for France (see Tables 10a and 10b).

**Domestic** – The two main methods of compromise responsible for domestic fraud losses on French cards are the theft of card details (64.6%) and lost and stolen cards (34.5%). Fraud losses from counterfeit cards fell from 16% of total domestic card fraud losses in 2006 to only 0.19% in 2013. However, over the same period, fraud losses from the use of card numbers rose from 31% in 2006 to 64.6% in 2013.

**SEPA region** – The methods of compromise responsible for fraud losses on French cards in the SEPA region outside of France is the theft of card details (67.9%) followed by counterfeit

## 8 – Credit Card Fraud Losses in Canada

Fraud Method:	Loss (\$CAD)			
	2012	2013	2013 in %	GR 12/13
Lost	8,663,910	8,773,052	1.9%	1.26%
Stolen	18,322,777	16,457,871	3.5%	-10.18%
Non-receipt	3,628,009	4,968,221	1.1%	36.94%
Fraudulent applications	8,522,715	11,803,264	2.5%	38.49%
Counterfeit – domestic	68,652,172	52,839,265	11.4%	-23.03%
Counterfeit – cross border	49,457,366	58,698,947	12.6%	18.69%
Theft of Card Details (CNP)	268,573,473	299,374,609	64.4%	11.47%
Account takeovers & other	13,543,195	12,219,780	2.6%	-9.77%
<b>Total</b>	<b>439,363,617</b>	<b>465,135,009</b>	<b>100.0%</b>	<b>5.87%</b>

Note: credit cards covered are American Express Canada, MasterCard Canada and VISA Canada; Card Not Present fraud is through e-commerce, telephone and mail (MOTO).  
Source: Canadian Bankers Association.

## 9 – Fraudulent Debit Card Activities in the USA

	2009		2011		2013	
	Fraud as % of purchase transactions <sup>1</sup>	Fraud as % of purchase transactions <sup>1</sup>	Average loss per fraudulent transaction (\$) <sup>2</sup>	Fraud as % of purchase transactions <sup>1</sup>	Average loss per fraudulent transaction (\$) <sup>2</sup>	
<b>All transactions<sup>3</sup></b>	<b>0.040%</b>	<b>0.030%</b>	<b>101</b>	<b>0.041%</b>	<b>75</b>	
– Theft of card details (CNP)		0.013%	42%	100	56	
– Counterfeit fraud		0.010%	33%	121	112	
– Lost and stolen fraud		0.005%	18%	76	71	
– Other fraud		0.002%	7%	83	68	
<b>Prepaid transactions</b>	<b>0.030%</b>	<b>0.037%</b>	<b>66</b>	<b>0.041%</b>	<b>38</b>	
– Theft of card details (CNP)		0.013%	36%	55	37	
– Counterfeit fraud		0.008%	23%	88	81	
– Lost and stolen fraud		0.011%	30%	56	37	
– Other fraud		0.004%	11%	94	24	

Notes: 1 Number of fraudulent transactions divided by the total number of purchase transactions. 2 Total fraud losses to all parties (merchants, cardholders, and issuers) divided by the number of fraudulent transactions. 3 Only fraudulent activity reported by covered issuers is included. Source: Federal Reserve

cards (15.4%) and by lost and stolen cards (14.3%). While fraud losses from counterfeit cards are no longer significant in the total of domestic card fraud losses, they played a moderate role in 2013 regarding card fraud losses on French cards in the SEPA region.

**International** – The two main methods of compromise responsible for international fraud losses on French cards are counterfeit cards (62.8%) and the theft of card details (27.1%) followed by lost and stolen cards (10.0%). Different from France and the SEPA region, card fraud losses from counterfeit cards are the dominating method of compromise for the total international fraud losses on French cards.

However, losses from the fraudulent use of card numbers abroad outside of the SEPA region rose from 23.8% in 2012 to 27.1% in 2013.

## 10a – Card Fraud Losses in France by Method of Compromise (€m)

€ million	Domestic		SEPA region		International	
	2012	2013	2012	2013	2012	2013
Lost or stolen cards	78.94	81.68	10.41	9.87	7.88	6.77
Card not received	1.14	0.94	0.21	0.11	0.03	0.06
Card altered / counterfeit	5.95	0.45	11.20	10.64	38.12	42.64
Theft of card details	138.47	153.03	33.93	46.82	14.92	18.43
Others	1.47	0.60	0.44	1.51	1.76	0.00
<b>Total losses on French cards</b>	<b>225.98</b>	<b>236.69</b>	<b>56.20</b>	<b>68.95</b>	<b>62.71</b>	<b>67.90</b>

Notes: 1. Figures cover both domestic and international transactions on French cards. 2. Data covers both interbank ("CB") cards and private cards. 3. "Other" covers, particularly for three-party cards, fraud resulting from the fraudulent opening of accounts with a false identity"

Source: Observatoire de la sécurité des cartes de paiement (OSCP).

## 10b – Card Fraud Losses in France by Method of Compromise (in %)

in %	Domestic		SEPA region		International	
	2012	2013	2012	2013	2012	2013
Lost or stolen cards	34.93%	34.51%	18.53%	14.31%	12.57%	9.97%
Card not received	0.50%	0.40%	0.37%	0.16%	0.05%	0.09%
Card altered / counterfeit	2.63%	0.19%	19.94%	15.43%	60.79%	62.81%
Theft of card details	61.28%	64.65%	60.37%	67.91%	23.79%	27.14%
Others	0.65%	0.25%	0.79%	2.19%	2.80%	0.00%
<b>Total losses on French cards</b>	<b>225.98</b>	<b>236.69</b>	<b>56.20</b>	<b>68.95</b>	<b>62.71</b>	<b>67.90</b>

Source: Observatoire de la sécurité des cartes de paiement (OSCP).

## Card Fraud Report

### 3. Geographic Place of misuse

The breakdown of card fraud losses by method of compromise already indicates the importance of distinguishing between domestic and international card fraud losses.

A clear effect of more stringent anti-fraud measures in domestic markets has been that the fraudulent use of cards has moved from domestic to cross-border, into locations where anti-fraud protection is weaker for the time being. The much higher fraud losses on the international use of cards compared to domestic card fraud losses are evident, e.g. in the figures for France and the UK.

In monetary terms, international card fraud losses in the UK accounted for almost 27.1% of total card fraud losses in 2013 compared with the international card transaction value of just 5.6% of total card transactions value on UK cards.

Also, international card fraud losses in France accounted for 36.7% of total card fraud losses in 2013 compared with the international card transactions value of just 5.4% of total card transactions on French cards.

Further, international card fraud losses on UK-issued cards rose significantly by 20.4% from 2012 while international card fraud losses on French cards rose by 16.2% from the previous year.

From 2008 to 2011, international card fraud losses on UK cards showed a remarkable fall. Losses were 65.2% lower in 2011 compared with 2008. Indeed, international card fraud losses fell

to their lowest level since 2005. This is likely to reflect more pre-notification by cardholders travelling abroad, greater monitoring of international transactions, more transaction declines in locations identified as high-risk and, not to forget, the EMV implementation. However from 2012, international card fraud losses have started to grow again.

Also, the international card fraud losses in France declined between 2009 and 2011 and have started to grow again, since 2012.

Following EMV implementation, fraud has moved increasingly to countries where POS terminals have not yet been migrated to EMV and also to cross-border fraud with magnetic stripe only cards. The impact on countries with complete EMV migration is growing international card fraud losses as France and the UK show.

However, international card fraud losses by value understate the significant scale of international card fraud. The international card transactions value on cards is much lower than the domestic card transaction value while the international card fraud loss ratios are many times higher than the domestic card fraud loss ratios. In 2013, international loss ratios were 15 times higher in France and 6.6 times higher in the UK than domestic ratios (see Table 12).

#### UK Fraud Losses acquired on Foreign Cards

On an annual basis, transactions acquired inside the UK show that there is higher card fraud losses on non-SEPA issued foreign cards used inside the UK than there are on SEPA-issued cards used in the UK. In 2013, the top five countries for fraud losses acquired in the UK

#### 11 – Domestic and International Card Fraud Losses 2013

€ millions	2009	2010	2011	2012	2013	GR 12/13	CAGR 5Y
UK domestic fraud	373.85	319.69	307.33	337.59	386.69	14.5%	-2.9%
UK international fraud	144.36	110.57	94.20	119.28	143.65	20.4%	-11.9%
French domestic fraud	144.00	163.80	211.50	226.40	238.60	5.4%	12.8%
French international fraud	121.60	105.50	95.30	118.80	138.10	16.2%	3.1%
UK fraud abroad (in%)	27.9%	25.7%	23.5%	26.1%	27.1%	3.7%	-6.4%
French fraud abroad (in%)	45.8%	39.2%	31.1%	34.4%	36.7%	6.5%	-5.0%

Notes: 1. Card fraud loss rates based on fraud losses as a proportion of the total card transactions value. 2. Total card transactions value covers both purchases and cash withdrawals. 3. UK losses converted from GBP to EUR at the £/€ rate 0.84926 (2013).

Source: Financial Fraud Action UK, OSCF.

### 12 – Domestic and International Card Fraud Loss Ratios 2013

(in%)	2008	2009	2010	2011	2012	2013	GR 12/13	CAGR 5Y
UK domestic fraud	0.066%	0.053%	0.044%	0.039%	0.042%	0.046%	9.7%	-7.2%
UK international fraud	0.830%	0.479%	0.342%	0.285%	0.294%	0.302%	2.6%	-18.3%
UK fraud abroad vs domestic	12.5	9.0	7.9	7.3	7.1	6.6	-6.4%	-12.0%
French domestic fraud	0.031%	0.033%	0.036%	0.044%	0.045%	0.046%	2.2%	8.2%
French fraud in SEPA region	na	na	0.331%	0.255%	0.316%	0.366%	15.8%	na
French international fraud	0.594%	0.594%	0.728%	0.638%	0.759%	0.688%	-9.4%	3.0%
French fraud abroad vs domestic	19.2	18.0	20.2	14.5	16.9	15.0	-11.3%	-4.8%

Notes: 1. Card fraud loss rates in % are calculated based on losses as a proportion of corresponding total card transaction values. 2. International card fraud loss rate covers use of domestic cards abroad.  
Source: Financial Fraud Action UK, OSCP.

on foreign-issued cards were the USA, Canada, Australia, France and Germany. Knowing that the UK is the largest e-commerce market in Europe and having in mind the historic British Empire background, the top 5 countries are no surprise. Fraud losses are shown as a percentage of total fraud losses at UK acquired merchants on foreign issued cards (see Table 13).

### Cross-Border Card Fraud in the European SEPA Region

From a geographical perspective, the European Central Bank (ECB) provided cross-border card fraud insight for the European SEPA region in 2012:

- Domestic transactions accounted for 93% of all transactions, but only 50% of fraudulent transactions.
- Cross-border transactions within SEPA accounted for 5% of all transactions, but 25% of fraudulent transactions.
- Although only 2% of all transactions were acquired from outside SEPA, they accounted for 25% of all fraud.

It is likely that the disproportionately high share of cross-border card fraud committed outside SEPA is mainly a result of the preference among fraudsters to exploit low security standards, such as magnetic stripe technology in the case of counterfeit fraud on cards. The Euro zone area experienced slightly lower card fraud levels from an issuing and acquiring perspective than SEPA as a whole.

Compared with SEPA as a whole, fraudsters in the Euro zone area focused more on ATM and POS fraud. Card fraud losses committed at ATMs and POS terminals accounted for 47% of the total value of card fraud losses in the Euro area, compared with 40% in SEPA.

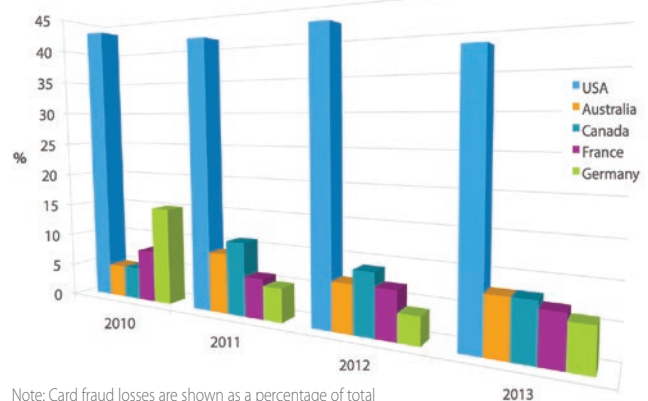
The difference can be attributed mainly to the influence of the UK, which had a relatively high share of CNP fraud accounting for 36% of total fraud losses on cards issued within SEPA.

Data on transactions conducted using cards issued outside SEPA, but acquired inside SEPA shows that there are higher fraud losses on non-SEPA issued cards used inside SEPA (2012: €618 million) than there are on SEPA-issued cards used outside SEPA (2012: €341 million).

This also holds in relation to the value of transactions: 0.63% of the values of transactions acquired inside SEPA using non-SEPA issued cards were fraudulent, compared with 0.46% of the value of transactions acquired outside SEPA using cards issued inside SEPA.

The ECB key finding suggests that European cardholders also benefit from high European security standards for transactions conducted outside SEPA.

### 13 – Fraud Losses Acquired in the UK on Foreign Cards



Note: Card fraud losses are shown as a percentage of total fraud losses acquired at UK merchants on foreign issued cards.  
Source: Financial Fraud Action UK.



## Card Fraud Report

### 4. Type of misuse

Looking at the type of misuse, the broadest breakdown is between card payments and cash withdrawals on cards and, also, by the type of purchase channel, i.e. POS, ATM and internet.

According to the ECB, 60% of the card fraud losses in the European SEPA region in 2012 resulted from CNP payments on cards, i.e. payments via mail, telephone or online, about 23% at POS terminals and 17% at ATMs.

While being the largest category, CNP fraud continues to grow and accounts for €794 million in 2012, up 21% from 2011. Card fraud at ATMs grew by 3.7% from 2011, while fraud at POS terminals increased by 8.9%.

The growth in POS fraud on cards is driven mainly by an increase in counterfeit fraud, but also by higher card-not-received and other fraud. In 51% of cases, ATM and POS fraud was committed using counterfeit cards, while in 38% of cases it was committed using lost or stolen cards.

As observed in previous years, counterfeit fraud typically occurs

in countries located outside SEPA. This trend continued in 2012, contributing to an increase in counterfeit fraud and is expected to continue when 2013 figures are published.

#### Card Payments vs. Cash Withdrawals

The available data only allows a comparison of domestic transactions. The breakdown is broadly similar, with card payments accounting for approximately 80-90% of losses across mature card markets. Further domestic card fraud loss rates on cash withdrawals are lower than those on card payments in the markets. Reflecting, in particular, the greater security surrounding ATMs and the high loss rates on CNP purchases (see Table 14).

#### Card Fraud Losses by type of purchase channel

The data available for France and the UK also allow an analysis of fraud losses on domestic card payments. The main distinction available in the statistics for both markets is between card payments at a distance (mail order, telephone order and internet) and fraud losses on other (mainly face-to-face) card payment transactions.

**14 – Domestic Card Fraud Losses – Split Between Card Payments and Withdrawals**

	2008	2009	2010	2011	2012	2013	GR 12/13	CAGR 5Y
UK domestic fraud from card payments (€m)	334.0	280.8	238.3	231.7	257.8	296.5	15.0%	-2.4%
UK domestic fraud from withdrawals (€m)	45.7	36.7	33.2	29.3	28.9	31.9	10.4%	-6.9%
UK domestic fraud from card payments (in%)	88.0%	88.4%	87.8%	88.8%	89.9%	90.3%	0.4%	0.5%
UK domestic fraud from withdrawals (in%)	12.0%	11.6%	12.2%	11.2%	10.1%	9.7%	-3.6%	-4.2%
UK domestic fraud ratio from card payments (in%)	0.088%	0.071%	0.056%	0.049%	0.053%	0.057%	7.8%	-8.4%
UK domestic fraud ratios from withdrawals (in%)	0.023%	0.019%	0.017%	0.015%	0.014%	0.016%	11.4%	-7.4%
French domestic fraud from card payments (€m)	111.8	123.2	137.3	177.8	190.0	199.9	5.2%	12.3%
French domestic fraud from withdrawals (€m)	19.1	20.8	26.5	33.7	36.4	38.6	6.2%	15.1%
French domestic fraud from card payments (in%)	85.4%	85.6%	83.8%	84.1%	83.9%	83.8%	-0.1%	-0.4%
French domestic fraud from withdrawals (in%)	14.6%	14.4%	16.2%	15.9%	16.1%	16.2%	0.7%	2.1%
French domestic fraud ratio from card payments (in%)	0.036%	0.038%	0.041%	0.049%	0.049%	0.050%	0.7%	6.9%
French domestic fraud ratios from withdrawals (in%)	0.018%	0.019%	0.024%	0.029%	0.031%	0.033%	5.6%	12.6%

Notes: 1. Card fraud loss rates in% are calculated based on fraud losses as a proportion of corresponding total card transactions value. 2. International card fraud loss rates cover the use of domestic cards abroad.

Source: Financial Fraud Action UK, OSCP.

Losses from card payments at a distance continued to grow significantly from 2004, matching the growth in the theft of card details. In 2013, such transactions accounted for 77.1% (2004: 21.8%) of total domestic fraud losses on card payment value in France and for 91.7% (2004: 31.3%) in the UK (see Table 15).

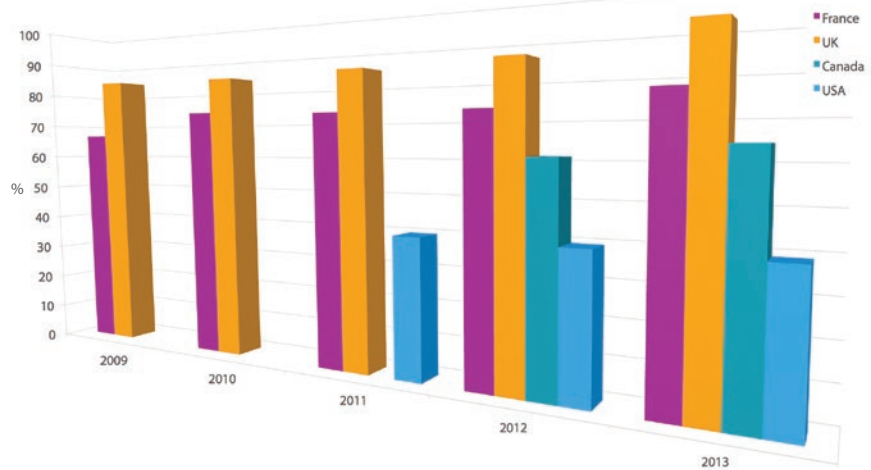
It is noted that the growth in the number of online merchants implementing 3D-Secure authentication (e.g. Verified-by-Visa, MasterCard SecureCode, American Express SafeKey, JCB J/Secure) has gained momentum. However, these anti-fraud measures seem to have only contributed to slow down the CNP fraud loss growth rates. Generally, strong authentication for distance payments (MOTO/Internet) is still underdeveloped from a global perspective.

Interestingly, Visa and MasterCard have recently announced that they will be starting to move away from traditional 3D secure methods to more use of one-time-passwords and biometrics. 3D secure has suffered with a lack of uptake and resistance from consumers who don't want to remember another password, and these new moves by the card schemes show how seriously they

take the need for additional verification.

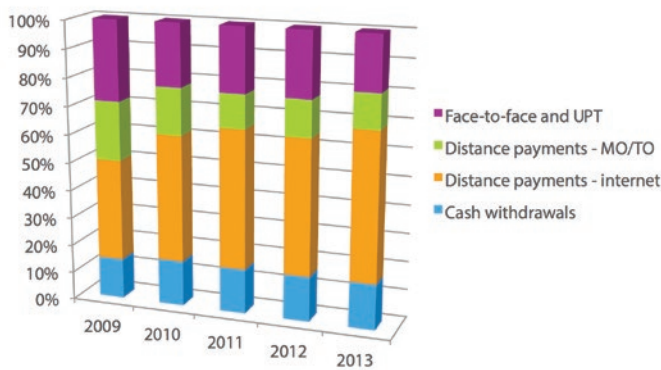
The French, British, Canadian and USA data also highlights the internet as the dominating source of CNP fraud losses. In France, they accounted for four times the fraud losses from domestic distance payments on cards in 2013, and for 52.4% of the total domestic fraud losses on cards, up from over a third in 2008.

**15 – Domestic Card Fraud Losses – CNP Fraud Share**



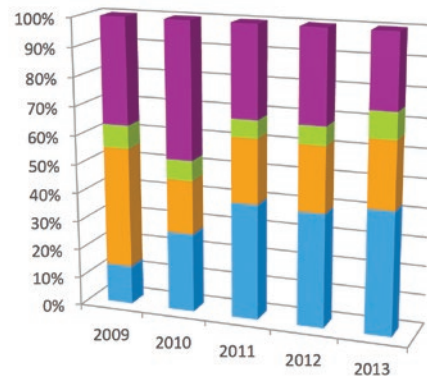
Notes: 1. Losses on CNP purchases as a proportion of total losses on domestic card payments. 2. Losses on CNP purchases in Canada are on credit card payments. 3. Losses on CNP purchases in the USA are on debit card payments. Sources: Observatoire de la sécurité des cartes de paiement (F), Financial Fraud Action UK.

**16a – Card Fraud Losses by Type of Misuse – France Domestic**



Notes: 1. Charts cover both domestic and international transactions on French cards. 2. Data covers both bank cards incl. 'CB' cards and French private cards. 3. UTP = unattended payment terminal; MO/TO = mail order / telephone order. Sources: Observatoire de la sécurité des cartes de paiement (F).

**16b – Card Fraud Losses by Type of Misuse – France International**





# Card Fraud Report

However, international fraud losses on French cards show a different pattern compared with 2008. In 2013, dominating were fraud losses from fraudulent cash withdrawals (42.6%) and face-to-face and UPT (Unattended Payment Terminal) payments (25.2%). Obviously, the fraudulent use of French cards at cross-border ATMs and POS terminals is more likely to be successful from the fraudsters’ point of view (counterfeit, lost and stolen, card-not-received, etc.).

Thanks to 3D-Secure authentication of French bank cards (especially ‘CB’ cards), losses from international internet purchases accounted for 23.1% of international card fraud losses in total in 2013, down from 41.8% in 2009 (see Table 16b).

## Domestic Card Fraud Loss Rates

The detailed data available for France confirms that fraud loss rates on card payments on the internet are many times higher than those on other payments. The domestic fraud loss rate on face-to-face and UPT payments on cards was only 1.5 basis points in 2008 and 1.3 basis points in 2013, thanks to the use of the EMV technology.

In contrast, the fraud loss rate on domestic card payments on the internet was almost 15 times higher. The fraud loss rate on domestic card payments on the internet rose from 21 basis points in 2006 to 34 basis points in 2011 before it declined to 23 basis points in 2013. It can be assumed that 3D-Secure combined with strong authentication (i.e. one-time authentication codes) and more sophisticated fraud detection tools have contributed.

## Higher International Card Fraud Loss Rates

International card fraud loss rates are much higher across all types of card transaction. From 2008 to 2013, card fraud loss rates on international face-to-face/UPT card payments and on international cash withdrawals on cards continued to be higher than on domestic online card payments.

In 2013, the fraud loss rate on international online payments using French cards was 75.1 basis points and the fraud loss rate on international withdrawals accounted for astonishing 105.4 basis points, down from 181.5 basis points and 39.9 basis points respectively in 2008 (see Table 17).



## 5. Linking method of compromise to place of misuse

The detailed French insight allows the data on card fraud losses by method of compromise to be brought together with the data by place and type of misuse, giving a comprehensive overview of the relationships between the two.

Though a little simplified (see Table 19 for the full data), the main patterns evident in the French data for 2013 are highlighted in Table 18.

### Looking first at domestic fraud losses on French cards in 2013:

- Lost and stolen cards accounted for 94.6% of face-to-face and UPT losses (2008: 83%) and 99% of fraudulent cash withdrawals (2008: 97%).
- Appropriated card numbers accounted for almost all MOTO fraud losses and CNP fraud losses on the internet.

### The picture is slightly different for card fraud losses in the SEPA region:

- Lost and stolen cards accounted for 52.1% of face-to-face and UPT losses in the SEPA region.
- Appropriated card numbers accounted for 68% of MOTO fraud losses and for 78.8% of CNP fraud losses on the internet in the SEPA region.

### The picture is more complex for international card fraud losses:

- Counterfeit cards accounted for over 61.5% of international face-to-face and UPT losses (2008: 60%).
- Counterfeit cards accounted for almost 91.9% of international fraudulent cash withdrawals (2008: 90%).
- Appropriated cards numbers accounted for 75% of international CNP fraud losses on the internet.

The main change in 2013 compared with 2008 is the substantial increase in domestic and international CNP fraud losses on the internet, which rose from €56.5 million to €174.0 million. Analyzing the domestic and international internet card fraud losses by method of compromise, lost and stolen cards, counterfeit cards and appropriated card numbers were significant contributors.

In particular, international card fraud losses and those in the SEPA region both from internet payments using appropriated French card numbers, which were negligible in 2007, totaled €17.9 million in 2008 and €61.1 million in 2013. (Table 19, p18).

**18 – Linking Method of Compromise with Place of Misuse**

	Lost or stolen cards	Counterfeit cards	Appropriated card numbers
<b>DOMESTIC</b>			
– Face-to face purchases	○		
– MOTO purchases			○
– CNP purchases			○
– ATM withdrawals	○		
<b>IN THE SEPA REGION</b>			
– Face-to face purchases	○		
– MOTO purchases			
– CNP purchases	○	○	○
– ATM withdrawals			
<b>INTERNATIONAL</b>			
– Face-to face purchases		○	
– MOTO purchases			
– CNP purchases			○
– ATM withdrawals		○	

Notes: Cells highlighted are those where losses accounted for notable card fraud losses in 2013. In the context of this table Appropriated Cards means those card details acquired via phishing, hacking, etc.

Source: author's analysis based on French data for 2013.

# Card Fraud Report

## 19 – French Card Fraud Losses 2013 in € millions

	Lost or stolen cards	Intercepted cards	Forged / counterfeit cards	Appropriated numbers	Other	Total	Total in %
Face-to-face and UPT	51.49	0.81	12.95	4.92	1.48	71.67	19.0%
Distance payments – MO/TO	1.34	0.01	4.50	40.66	0.38	46.88	12.4%
Distance payments – internet	5.57	0.03	8.49	173.96	0.42	188.48	50.0%
<b>Withdrawals</b>	<b>39.91</b>	<b>0.25</b>	<b>27.80</b>	<b>0.29</b>	<b>1.38</b>	<b>69.63</b>	<b>18.5%</b>
<b>TOTAL</b>	<b>98.31</b>	<b>1.10</b>	<b>53.74</b>	<b>219.83</b>	<b>3.66</b>	<b>376.66</b>	<b>100.0%</b>
<b>– OF WHICH DOMESTIC LOSSES</b>							
Face-to-face and UPT	43.31	0.70	0.35	0.47	0.92	45.76	19.2%
Distance payments – MO/TO	0.00	0.00	0.00	28.96	0.25	29.21	12.2%
Distance payments – internet	0.12	0.01	0.02	124.54	0.28	124.98	52.4%
Withdrawals	38.24	0.22	0.08	0.06	0.00	38.61	16.2%
<b>TOTAL</b>	<b>81.67</b>	<b>0.94</b>	<b>0.45</b>	<b>154.03</b>	<b>1.46</b>	<b>238.56</b>	<b>100.0%</b>
<b>– OF WHICH LOSSES in SEPA</b>							
Face-to-face and UPT	4.25	0.08	1.69	1.86	0.28	8.17	12.0%
Distance payments – MO/TO	0.78	0.01	2.79	7.66	0.03	11.27	16.6%
Distance payments – internet	4.00	0.01	5.91	37.30	0.10	47.33	69.7%
Withdrawals	0.84	0.01	0.24	0.01	0.04	1.13	1.7%
<b>TOTAL</b>	<b>9.87</b>	<b>0.11</b>	<b>10.64</b>	<b>46.83</b>	<b>0.44</b>	<b>67.90</b>	<b>100.0%</b>
<b>– OF WHICH INTERNATIONAL LOSSES</b>							
Face-to-face and UPT	3.93	0.03	10.92	2.58	0.28	17.74	25.3%
Distance payments – MO/TO	0.56	0.00	1.71	4.03	0.10	6.40	9.1%
Distance payments – internet	1.45	0.00	2.55	12.13	0.04	16.17	23.0%
<b>Withdrawals</b>	<b>0.83</b>	<b>0.02</b>	<b>27.47</b>	<b>0.22</b>	<b>1.34</b>	<b>29.89</b>	<b>42.6%</b>
<b>TOTAL</b>	<b>6.77</b>	<b>0.06</b>	<b>42.64</b>	<b>18.97</b>	<b>1.76</b>	<b>70.20</b>	<b>100.0%</b>

Notes: 1. Statistics cover both domestic and international transactions on French cards. 2. Data covers both bank cards incl. 'CB' cards and French private cards. 3. UTP = unattended payment terminal; MO/TO = mail order / telephone order.

Sources: Observatoire de la sécurité des cartes de paiement, author's research.

## 6. Card Fraud Trends – Overview

According to the ECB, four significant card fraud trends in SEPA continued to be identified in 2012:

- Counterfeit fraud is decreasing due to the implementation of EMV chip cards.
- Magnetic stripe skimming compromised cards and subsequent created fraud outside of chip countries.
- Card Not Present (CNP) fraud continued, increasing significantly in e-commerce.
- Organised crime activities are targeting weak sectors, processing infrastructure and environments.

Undoubtedly, the implementation of EMV cards continues to contribute to significantly declining card fraud loss rates in Europe. However, card fraud has moved to countries where POS terminals have not yet been migrated to EMV, and cross-border purchases using fraudulent data have increased.

**Fraud by Card Type** – ECB reported separate fraud shares for delayed debit, credit cards and for debit cards:

- For delayed debit and credit cards, CNP fraud was the most common type of fraud, accounting for 69% of the total value, followed by fraud occurring at POS terminals (24%) and ATMs (7%).
- For debit cards, CNP fraud was also the most common type, accounting for 52%, followed by ATM fraud (30%) and POS fraud (18%).
- In 2010, fraud on debit cards amounted to 2.2 basis points, whereas fraud on credit cards was 9.9 basis points, i.e. more than four times level of fraud on debit cards. In 2011 and in 2012, these levels declined but kept a ratio of higher than 3:1.
- One obvious reason is that less debit cards are used for payments on the internet.

**Fraud shares by country**, i.e. the fraud-related share of transaction value or volume, ranged from 0.4 basis points in Romania to 6.6 basis points in France in terms of value, and from 0.1 basis points in Lithuania to 3.1 basis points in France in terms of volume.

According to the ECB, there were huge differences with respect to the transaction channels used by fraudsters:

- Broken down by country of card issue, fraud committed at ATMs ranged from 2% to 52% of the total, the share of CNP fraud ranged from 34% to 81% and the share of POS fraud ranged from 6% to 50%.
- Broken down by country of acquirer, these variations were even larger; ATM fraud ranged from 1% to 36%, CNP fraud from 30% to 90% and POS fraud from 9% to 68%.

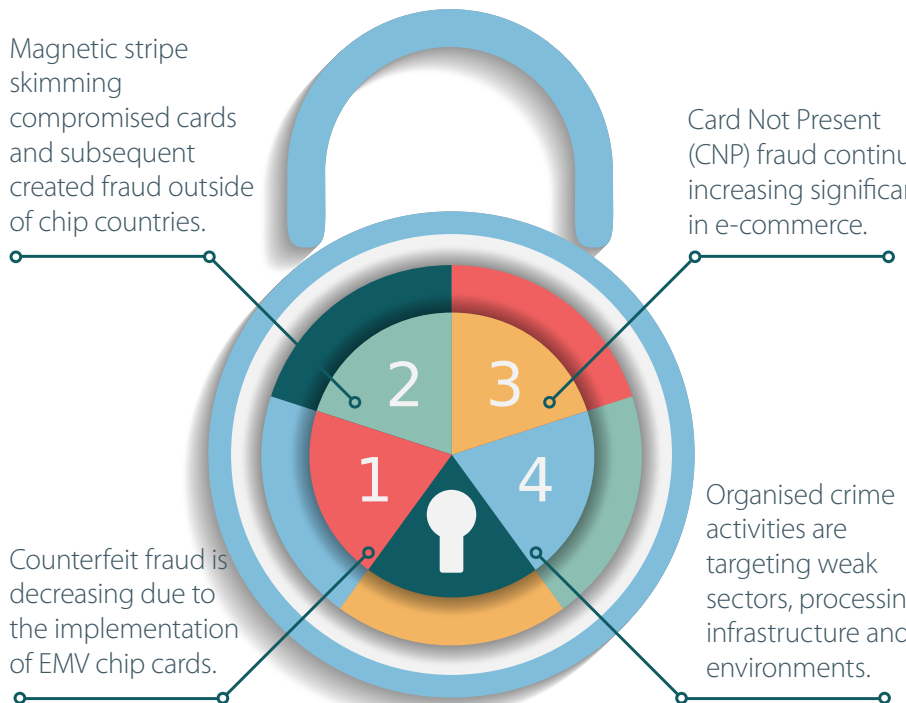
However, most of the countries with mature card markets (i.e. with high volumes and values of card transactions per inhabitant) experienced high fraud rates. CNP fraud was typically the most common type of fraud experienced in these markets.

Magnetic stripe skimming compromised cards and subsequent created fraud outside of chip countries.

Counterfeit fraud is decreasing due to the implementation of EMV chip cards.

Card Not Present (CNP) fraud continued, increasing significantly in e-commerce.

Organised crime activities are targeting weak sectors, processing infrastructure and environments.





# Card Fraud Report

By contrast, countries with limited card usage experience relatively low levels of fraud. Owing to limited use, the potential financial gains for fraudsters are lower and, since EMV migration is almost complete, it is much easier for fraudsters to target non-EMV countries outside SEPA.

As stated in the ECB summary, the value of fraud on cards issued inside SEPA increased in 2012 across all transaction channels. This increase was strongest for CNP fraud which accounted for 60% of total card fraud losses on cards issued inside SEPA.

Furthermore, despite the near completion of migration to the EMV standard within SEPA, fraud at ATMs and POS terminals increased as fraud shifted to countries outside SEPA with lower security standards for the time being.

While ATM and POS fraud may diminish as further countries outside SEPA migrate to EMV, CNP fraud may grow further unless appropriate mitigation measures are adopted, such as strong authentication and one-time tokenisation of card payments removing card credentials from the ATM, from POS terminals and from the internet.

## Notable Fraud Trends

For European payment card businesses, the fraud picture has changed dramatically in recent years. In fact, the implementation of EMV chip and PIN has changed the whole game – for the banks and also for the criminals.

Following the worldwide growth of e-commerce and online sales, and the high growth rate of online and mobile payment fraud and new organised crime data breach activities, fighting fraud is mandatory for all payment industry players.

The rise in the use of online payments has drastically increased the scope for fraud beyond cards, ATMs and POS terminals. In addition to counterfeit, lost and stolen, mail not received fraud (intercepted cards), ID fraud (theft of card data, account data) and False ATM Fraud – criminals have invented new types of computer fraud:

- Phishing, pharming, hacking and carding.
- 3D-Secure fraud when static password.
- Device manipulation: POS terminal breaches, ATM breaches, Personal PCs and mobile phones.
- Data breaches into processing infrastructures or other places with large stores of card details (such as merchants).

### The latest organised crime trends include:

- From petty criminals towards organised fraudster crime.
- From skimming of a single card towards large data breaches
- From local fraud towards global fraud organised by decentralised international crime gangs.
- From one criminal working across the entire fraud lifecycle, to fraudsters instead specializing on one part of the value chain, and selling that value on to the next level – for example one part of the chain could specialize on getting hold of card data, and another could specialize on actually using it.

20 – Evolution of Card Fraud					
	1980	1990	2000	2010	2015
Fraudsters	Individuals	Teams	Local crime rings	Global crime rings	Global crime rings with decentralised organisation
Target	Consumers	Small retailers	Larger retailers	Banks Processors	Payment Industry
Leading fraud types	Lost/stolen, Intercepted	Domestic, counterfeiting/skimming	Identity theft, Phishing, Rudimentary data compromise	Cross-border data compromise, CNP fraud, 3D-Secure Fraud, ATM fraud, ID fraud	Cross-border data compromise, CNP fraud, ATM fraud, ID fraud, Pharming, Hacking
Type of cards targeted	Travel & Entertainment cards	Premium credit cards	Mass market credit cards	All types: credit cards, debit cards, prepaid cards	All types: credit cards, debit cards, prepaid cards, banking accounts
Necessary resources	Opportunism	Rudimentary knowledge	Technical knowhow	Audacity, Technical expertise, Insider information, Global connections	Audacity, Technical expertise, Insider information, Global connections

Source: Visa Europe, PCM research.

Therefore, continuously higher levels of fraud detection, fraud prevention and security technologies are demanded. Consequent active risk management is mandatory to fight e.g. online fraud on the internet and mobile internet. Further, it must adapt anti-fraud measures on a day-to-day basis.

Fraud as an international organised activity requires cooperative fraud prevention measures, the use of the use of fraud prevention systems that incorporate modern modelling techniques with rules systems that can be rapidly adapted to respond to attacks, higher levels of IT security and international standards, combined with strong authentication.

Fraud cases like “Heartland US” and “Spain 2009” point out that, organised high-tech criminal attempts to defraud have started a higher level of fraudster activity, which can be seen as a kind of new criminal cyber war challenge.

Recent new fraud trends and identified new fraud scenarios include:

**High Tech Data Breach** – A specialised high tech fraudster team hacks into a retailer or bank with poor fraud control levels. The hackers use a Trojan horse type virus to steal thousands of valid card details and/or other payment data. This data is then sold on the internet to fraudsters or other criminals of the so-called underground economy.

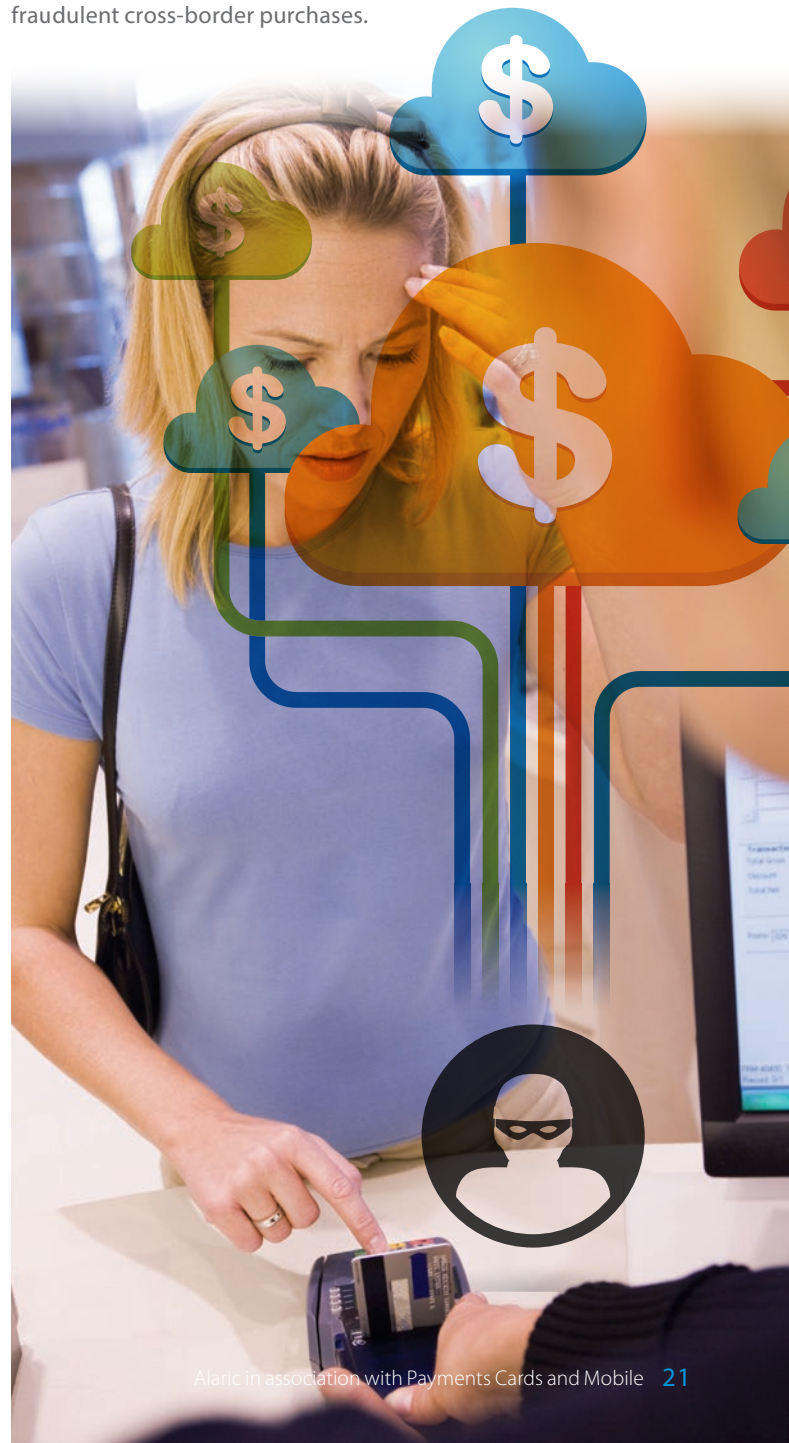
**Cross-border Purchases using Fraudulent Data** – Fraudsters buy large volumes of products online (e.g. attractive electronic devices) from online merchants. Payment is made using fraudulently obtained card data and/or other payment data from data breaches. Mostly, cardholders are not caused financial loss as credit cards allow for dispute of the fraudulent use.

**Anonymous Collection** – The fraudulently purchased products are delivered by bona fide online merchants to fraudulent delivery addresses, e.g. unattended freight stations, drop zones, fraudulent small merchants.

**Online Sales** – The fraudulently purchased products are offered to online buyers on internet auctions websites or by using fraudulent small merchants (“better than best price”) acting as receivers of fraudulently purchased goods.

**Repacked Delivery** – After repacking, and again using unattended freight stations (drop zones), the fraudulently purchased products are delivered to unaware online buyers who assume the seller is bona fide when buying the products on internet auctions.

**Phishing** – One of the biggest fraud challenges the industry faced during 2013 was an increase in efforts by criminals to deceive consumers into giving away their own personal and financial information. Criminals attempt to acquire sensitive information such as usernames, passwords and credit card details by pretending to be a trustworthy entity in an electronic communication. The stolen personal data is then used e.g. for fraudulent cross-border purchases.





# Card Fraud Report

## 7. Concluding Comments

Clearly, a short research report such as this cannot cover in detail all aspects of a topic as complex and fast moving as card payment fraud.

It analyses just data for direct card fraud losses, which provide only part of the picture. A full analysis of fraud-related costs also needs to incorporate aspects like fraud management expenses and opportunity costs.

However, a comparison of the data available on direct card fraud losses for selected markets across Europe compared with Canada and the USA helps to identify important card fraud trends.

Though the figures indicate that card fraud losses are being contained (as a proportion of the total card transaction value), they also underline that the challenge is relentless and mutating.

Looking at methods of compromise, undoubtedly, the implementation of EMV cards and 3D-Secure, combined with strong authentication, has contributed to declining fraud rates in Europe. The same is very likely for Canada, where the EMV migration is in progress, and the USA, once the EMV migration is complete there.

Following EMV implementation, fraud moves increasingly to countries where POS terminals have not yet been migrated to EMV (e.g. the USA) and cross-border purchases using fraudulent data has increased. Further, CNP fraud on the internet, the dominating challenge by volume, continues to grow significantly.

**The figures confirm continuing higher losses from counterfeit cards and the use of stolen card details.**

In the UK, fraud losses from lost and stolen cards fell from £114.4 million in 2004 to £44.1 million in 2009, but grew again to £58.9 million in 2013. UK fraud losses on counterfeit fell from £169.8 million

### 21 – Card Fraud Prevention Overview

Type of Misuse	Prevention Measures	Developments
Domestic/International transactions at EMV POS & ATMs	<ul style="list-style-type: none"> <li>• EMV with DDA/CDA, PIN-only, SMS notification</li> <li>• Cardholder awareness</li> </ul>	<ul style="list-style-type: none"> <li>• DDA to CDA</li> <li>• Dynamic authentication</li> </ul>
International transactions in non-EMV POS & ATMs	<ul style="list-style-type: none"> <li>• Prevention of initial data capture                             <ul style="list-style-type: none"> <li>– Merchant (skimming protection, PCI DSS)</li> <li>– ATM security (skimming protection)</li> </ul> </li> <li>• Issuer and acquirer monitoring:                             <ul style="list-style-type: none"> <li>– Card use, rule-based fraud prevention</li> <li>– Major locations of POS &amp; ATM fraud</li> </ul> </li> <li>• Cardholder awareness (pre-notification of international travel, SMS notification)</li> <li>• Virus protection</li> </ul>	<ul style="list-style-type: none"> <li>• Global EMV Rollout, including now USA</li> <li>• Dynamic authentication</li> <li>• Chip only cards (e.g. V PAY)</li> <li>• Geo-blocking</li> <li>• phase-out of magstripe processing of EMV cards</li> </ul>
Card-not-present, especially online transactions	<ul style="list-style-type: none"> <li>• Prevention of initial data capture:                             <ul style="list-style-type: none"> <li>– Merchant (PCI DSS),</li> <li>– ATM security (skimming protection)</li> </ul> </li> <li>• Card Security Codes (e.g. CVC2, CVV2, CID, CID2)</li> <li>• 3D-Secure combined with one time authentication code</li> <li>• Cardholder awareness (use of anti-virus software, secure websites, transaction alerts, etc)</li> </ul>	<ul style="list-style-type: none"> <li>• Dynamic one-time authentication codes</li> <li>• Geo-blocking (e.g. Maestro cards)</li> <li>• MCC blocking</li> <li>• Tokenisation</li> <li>• Digital Wallets</li> <li>• Mobile phone location</li> </ul>

Source: PCM research.

in 2008 to £36.1 million in 2009, but grew again to £43.4 in 2013. Fraud losses from lost and stolen cards increased in 2013 to €81.7 million in France, up from €55.8 million in 2008. Thus, fraud losses from counterfeit and stolen cards remain significant.

All are susceptible to fraud on a professional scale that is more difficult to achieve with lost and stolen cards. Behind losses from CNP fraud, they remain the largest sources of losses in the UK, France, Canada and the USA. And, in terms of emerging threats, the UK figures show a growth in theft of card details, account takeover and fraudulent applications.

Looking at place of misuse, the French, British, Canadian and USA data highlights the much higher fraud loss rates on remote CNP payments compared with other forms of card transaction. And fraud loss rates on all types of international card transaction are many times higher than comparable domestic fraud loss rates.

The scale and changing profile of card fraud losses underlines the urgency of implementing comprehensive security measures and of reinforcing those measures through use of the right fraud tools. Ultimately, a determined and well-resourced criminal will manage to bypass new security techniques, so it is essential that even the strongest types of security are underpinned by intelligent fraud detection systems that can learn and adapt as fraud changes, and which can be very easily updated to respond to changing threats when they happen (Table 21).





# Card Fraud Report

## Appendix: Note on statistics

### Europe

The European Central Bank published its 'Report on Card Fraud' and provided insight on European level based on 2012 figures. The report analyses fraud developments related to card payment schemes (CPSs) in the EU and, in total, covers almost the entire cards market. Highlights in this report are taken from this ECB report.

### France

The Observatoire compiles its statistics based on those received from:

- The 124 members of the "CB" Bank Card Consortium, with international data provided by MasterCard and VISA Europe France.
- Private "three party" card issuers: American Express, Banque Accord, BNP Paribas Personal Finance, Crédit Agricole Consumer Finance (Finaref, Sofinco), Cofidis, Cofinoga, Diners Club France, Franfinance, JCB and UnionPay.
- Issuers of the electronic purse Moneo.

The French statistics include French retail cards as part of the coverage of three-party card networks.

The Observatoire supplements the data from the banks, card issuers and card networks with statistics compiled by the Fevad (Fédération du e-commerce et de la vente à distance), which consults a sample of 580 companies representing a significant market share of the turnover of distance selling to individuals.

In addition to domestic transactions involving French cardholders and French merchants and international transactions between French cardholders and foreign merchants, the Observatoire report includes statistics on transactions between foreign cardholders and French merchants. These are excluded from the analyses and comparisons in this report as it is focused on fraud from an issuer perspective.

Of the 85.5 million cards in circulation in 2013, 68.4 million were four-party cards ("CB", MasterCard, VISA and Moneo) and 17.1 million were three-party cards (around 861,000 cards were reported lost or stolen in 2013). However, the four-party cards accounted for approximately 95.6% of purchases and 99.7% of withdrawals by value in 2013.

Four-party cards accounted for approximately 97% of French card fraud losses by value in 2013. There are some notable differences in the profile of card fraud losses between French four-party and three-party cards:

- While almost all the domestic fraud losses on four-party cards are due to lost/stolen cards and stolen card numbers, approximately half of the domestic fraud losses on three-party cards fall under the "Other" category. According to OSCP, this category covers, particularly for three-party cards, fraud resulting from the fraudulent opening of accounts with a false identity.
- International card fraud losses by value account for a higher share of total fraud losses on four-party cards. This is unsurprising given the greater international use of "CB" cards and other bank cards. Though three-party card issuers include American Express and Diners Club, they also include eight French private card issuers.

### Netherlands

The data for the Netherlands has been supplied by Dutch Betaalvereniging, the Dutch Payment Association. It organises the collective tasks in the Dutch payment system for its members. Its members are providers of payment services: banks, payment institutions and electronic money institutions. The responsibilities of Dutch Betaalvereniging lie in the areas of infrastructure, standards and shared product features. It also works closely with all interested parties to prevent fraud.

The figures for Dutch debit cards only cover domestic turnover and domestic fraud losses on Dutch debit cards (i.e. domestic debit card transactions).

The figures for total card fraud losses cover debit card transactions plus use of Dutch debit cards internationally, plus domestic and international transactions on Dutch credit cards.

### UK

The UK figure of 157.6 million cards in circulation in 2013 includes 0.19 million ATM cash cards. There were 157.3 million UK cards with a payment function as of 2013, of which 95.7 million were credit cards, 2.3 million delayed debit cards, and 55.4 million

were debit cards. The UK statistics do not include private-label cards issued by UK retailers and fleet cards.

The UK fraud statistics by card type (credit, charge, debit, etc.) and method of compromise (lost/stolen, mail non-receipt, etc.) cover both domestic and international transactions. However, the breakdown by place/type of misuse (ATM, MO/TO/internet, etc.) covers only domestic transactions.

The UK breakdown of domestic card fraud losses by place/type of misuse includes losses of £31.9 million of losses at UK ATMs. The UK domestic fraud loss rate on cash withdrawals on cards quoted includes the fraud losses from UK cash withdrawals at bank counters.

## Canada

The data for Canada has been supplied by Interac Association and the Canadian Bankers Association (CBA). Both work closely with all interested parties to prevent fraud.

Interac is responsible for the development and operations of the Interac network, a national payment network that allows Canadians to access their money through Interac Cash at 60,000 ATMs and Interac Debit at 766,000 POS terminals across Canada.

The figures for Canadian debit cards cover domestic turnover and domestic fraud losses on Interac debit cards.

The figures for total card losses cover debit card transactions plus use of Canadian debit cards internationally, plus domestic and international transactions on Canadian credit cards. CBA provided fraud figures for Canadian credit cards.

## USA

The data for the USA debit cards has been supplied by The Federal Reserve, the national central bank. It works closely with all interested parties to prevent fraud.

Fraud losses data for USA credit cards has been calculated using data from the schemes and the Bank of International Settlement (BIS). Fraud losses data on debit cards were provided from Federal Reserve while total fraud figures were collected from the schemes and various sources on the internet.

The figures for USA cover domestic debit card transactions value and domestic fraud losses on debit cards. The figures for total card fraud losses cover debit card transactions, the use of USA debit cards abroad, and domestic and international transactions on USA credit cards.



# Card Fraud Report

## Eurostat

The Eurostat data quoted in Section 2 on use of the internet to order goods and services is taken from the Eurostat statistics internet usage in 2013 Households and individuals, available on the Eurostat web site.

The full set of data can be found under: <http://ec.europa.eu/eurostat/ict> under "Data".

## Gross and net losses

The fraud loss statistics for the UK are explicitly specified as recording gross rather than net losses, i.e. the gross value of fraudulent transactions before any recoveries. It is assumed that the statistics for France, Netherlands, Canada and the USA are reported on the same basis.

Evaluating the true costs of card fraud losses is a complex business. On one hand it can be split between issuer fraud, acquirer fraud, and merchant fraud. Also, it can be split between fraud prevention, fraud detection and investigation, and recovery activities.

Different card issuers have calculated the figures in different ways, also focusing on net losses, and overlooking a number of secondary costs and potentially more significant costs.

In addition to the value of fraudulent transactions, there are significant additional costs associated with card fraud, notably the staff and other costs associated with monitoring and processing fraudulent transactions and liaising with cardholders and merchants, the costs of developing, purchasing and maintaining fraud prevention systems, and the opportunity cost of lost card business.

For issuers, these costs include card issuing, card replacement, PIN delivery, customer service, fraud operations, first party fraud losses, human resources, facilities/overheads, processing systems, fraud prevention systems, and operating expenses.

For acquirers, they include customer service costs, fraud operations, human resources, facilities/overheads, processing systems, fraud prevention systems and operating expenses.

## Remarks on Card-not-present (CNP) Fraud

CNP fraud is very often referred to as both the method of compromise (theft of card details) and as the place/type of misuse (use of card details in MO/TO/internet transactions). However, the equal uses are misleading as the French data shows. While the theft of card details results mainly in MO/TO/internet fraud losses, there are also MO/TO/internet losses from lost/stolen and counterfeit cards.

For example, the French statistics for 2013 show fraud losses from appropriated card numbers of €221.1 million. Almost all of this was in the form of MO/TO/internet losses. However, total MO/TO/Internet losses were €235.4 million in 2013 because there were significant losses, also, from the use of lost/stolen cards, counterfeit cards in a MO/TO/internet environment.

### 22 – France – four-party and three-party cards compared 2013

	Four-party cards	Three-party cards	Total
Number of cards (m)	68.4	17.1	85.5
Value of purchases (€bn)	408.7	18.71	427.41
Value of withdrawals (€bn)	123.5	0.42	123.91
<b>Fraud losses (€m)</b>	<b>455.8</b>	<b>14.0</b>	<b>469.9</b>

Notes: 1. Four-party cards include 1.9 million Moneo electronic purses. 2. Four party cards include 61.7 million CB cards and 6.7 million cards with international brands. 3. Statistics on value of purchases and withdrawals, and on fraud losses cover both domestic and international transactions on French cards. They do not include transactions in France on non-French cards.

Source: Observatoire de la sécurité des cartes de paiement

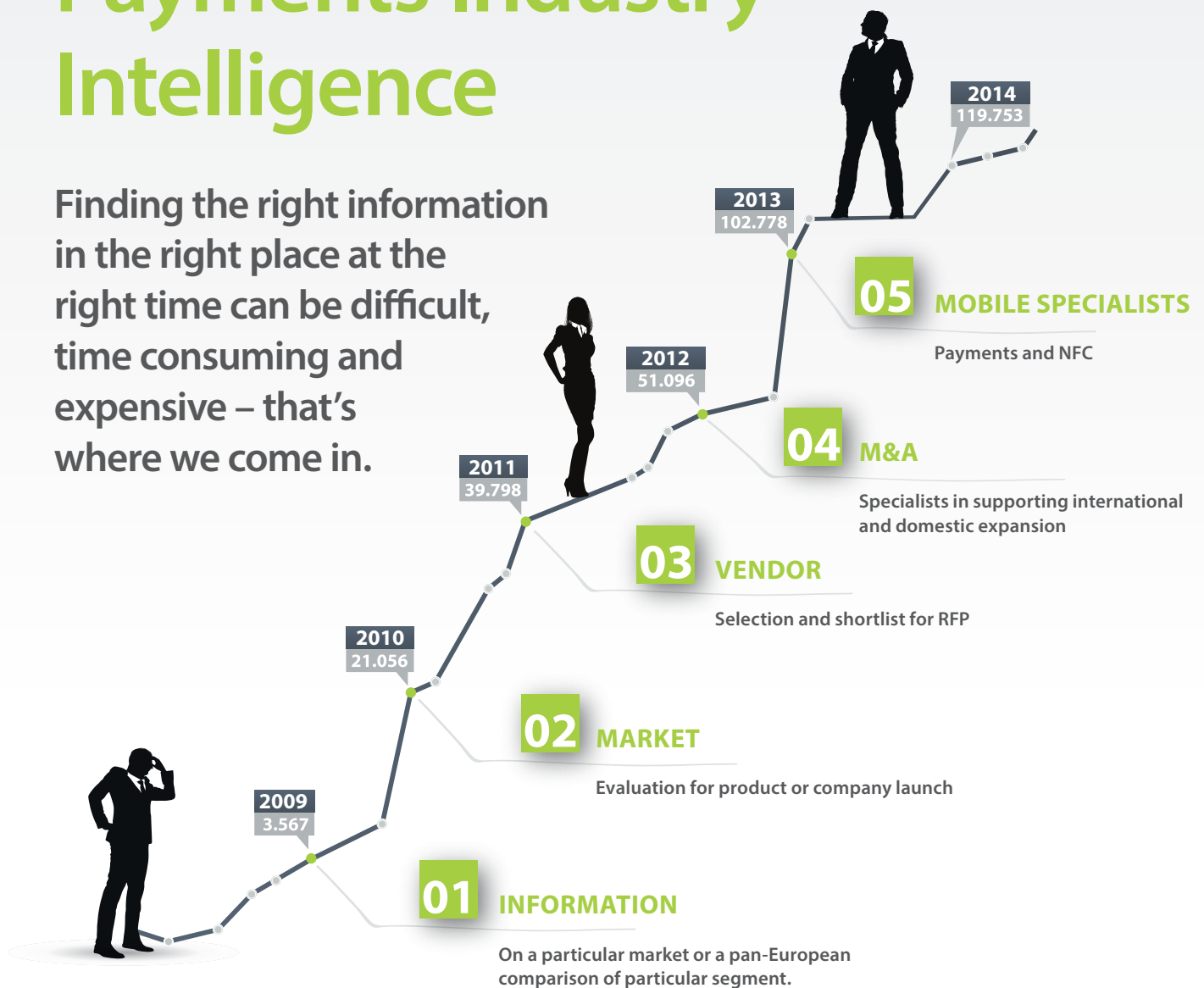
### 23 – Fraud losses on French four-party and three-party cards 2013

(€ millions)	Four-party cards	Three-party cards	Total
<b>Domestic losses on French cards</b>			
Lost or stolen	81.0	0.6	81.7
Intercepted	0.6	0.3	0.9
Forged or counterfeit	0.2	0.3	0.5
Appropriated numbers	152.3	1.7	154.0
Other	0.0	1.5	1.5
<b>Domestic total</b>	<b>234.1</b>	<b>4.4</b>	<b>238.6</b>
Losses in the SEPA region	66.2	1.7	67.9
International losses abroad	68.8	1.4	70.2
<b>Total Fraud losses on French cards</b>	<b>369.1</b>	<b>7.5</b>	<b>376.6</b>

Source: Observatoire de la sécurité des cartes de paiement

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