



EUROPEAN CENTRAL BANK

EUROSYSTEM

# SECOND REPORT ON CARD FRAUD

JULY 2013





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## EXECUTIVE SUMMARY

This second public report on card fraud analyses developments in fraud related to card payment schemes (CPSs) in the Single Euro Payment Area (SEPA) and covers almost the entire card market.<sup>1</sup>

The total level of fraud using cards issued within SEPA and acquired worldwide amounted to €1.16 billion in 2011. This corresponds to a decrease of 5.8% since 2010. Fraud in relative terms, i.e. the fraud-related share in the value of transactions, fell from 0.040% in 2010 to 0.036% in 2011, its lowest level since 2007. In 2011 56% of the value of fraud resulted from card-not-present (CNP) payments, i.e. payments via post, telephone or the internet, about one-quarter at point-of-sale (POS) terminals, and almost one-fifth at automated teller machines (ATMs)<sup>2</sup>. While being the largest category, CNP fraud remained rather stable and accounted for €655 million in 2011. Card fraud acquired at ATMs grew by 7.4% from 2010 to 2011, while fraud acquired at POS terminals decreased by 24.2%. This decrease was mainly driven by a 43% reduction in counterfeit fraud at POS terminals. In 51% of cases, ATM and POS fraud was conducted with counterfeit cards and in 40% of cases with lost or stolen cards. While losses using lost and stolen cards grew, there was a marked decrease in counterfeit fraud, probably owing to EMV migration. Moreover, nowadays counterfeit fraud typically occurs in countries located outside SEPA. This trend has gained considerable momentum since 2010.

For delayed debit and credit cards, CNP fraud was the most used fraud channel, accounting for 68% of all fraud, followed by fraud occurring at POS terminals (25%) and at ATMs (7%). For debit cards, CNP fraud was most common, accounting for 48% of all fraud, followed by ATM fraud (34%) and fraud at POS terminals (18%).

From a geographical perspective, some 93% of the transactions took place within the same country, and their share in overall fraud increased from 46% to 51%. The share of cross-border transactions within SEPA amounted to 5% and, from a fraud perspective, decreased from 28% to 24%. Finally, although only 2% of transactions were acquired outside SEPA, they accounted for 25% of all fraud, which was an improvement on 2010, when this share represented 26%. It is likely that the disproportionately high share of cross-border fraud results mainly from the preference among fraudsters to exploit low security standards, such as magnetic stripe technology in the case of counterfeit fraud. The euro area experienced slightly lower fraud levels from an issuing and acquiring perspective than SEPA as a whole. Fraudsters in the euro area relied more on ATM and POS fraud than on CNP fraud (fraud committed at ATMs and POS terminals accounted for 52% of the total value of fraud in the euro area compared with 44% in SEPA). This can be attributed mainly to the influence of the United Kingdom, which accounted for more than 75% of the total value of fraud issued in SEPA countries not belonging to the euro area.

For individual European Union (EU) Member States, large variations with respect to card usage could be identified: the number of cards per inhabitant ranged from 0.6 to 3.3, the number of payments made per year and inhabitant ranged from 16 to 236, while the corresponding transaction values ranged between around €1,200 and more than €12,700 per year. Fraud shares, i.e. the fraud-related share of transaction value or volume, ranged from 0.004% for Romania to 0.061% for Luxembourg in terms of value, and from 0.001% for Lithuania to 0.027% for France in terms

<sup>1</sup> This report is a limited version focusing on data analysis and key messages; general information on card usage and on interpretational aspects as outlined in the first report on card fraud are not repeated in this updated version.

<sup>2</sup> The same trends were observed with respect to fraud volumes, although here ATM fraud was less prevalent while POS fraud was more common.

of volume. There were also huge differences with respect to the transaction channels used by fraudsters: by country of card issue, fraud acquired at ATMs accounted for between just 2% and 61%, the share of CNP fraud ranged from 21% to 76%, and the share of POS fraud varied between 7% and 55%. From an acquiring perspective, these variations were even larger, as ATM fraud varied from 0% to 54%, CNP fraud from 15% to 87% and POS fraud from 11% to 70%.

Most of the countries with mature card markets, defined as countries 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. On the contrary, countries with limited card usage experience relatively low levels of fraud: owing to limited use, the potential financial gains are lower and, furthermore, since EMV migration is almost complete, it is much easier to target non-EMV countries outside SEPA. The Eurosystem and Europol, as well as payment service providers, retailer and consumer associations have encouraged the market to abandon the magnetic stripe and migrate to EMV-chip technology. The CPSs, in particular card issuers and acquirers, as well as ATM and POS operators, have made considerable effort to promote EMV migration. Nevertheless, POS fraud was typically the most prominent category of fraud seen in less developed card markets.

Summarising the developments in fraud in 2011, it can be said that EMV has led to a shift in counterfeit fraud towards non-SEPA countries where EMV is less prevalent. Moreover, a decrease in fraud was observed in those countries that have made significant efforts to increase the use of 3-D Secure, such as the United Kingdom. In this respect, the European Forum for the Security of Retail Payments has, inter alia, recommended that PSPs and payment schemes use strong customer authentication for card transactions conducted via the internet from February 2015.

## INTRODUCTION

In January 2008 the ECB's Governing Council approved an oversight framework for card payment schemes (CPSs). As part of the harmonised implementation of this framework, statistical information is gathered on card schemes. Each scheme is asked to supply general business data and state the number and value of fraudulent and total transactions for each EU Member State, as well as for Switzerland, Iceland, Liechtenstein and Norway (which are also Single Euro Payment Area (SEPA) countries). For automatic teller machines (ATMs) and point-of-sales (POS) terminals, fraud figures are broken down into "lost and stolen", "card not received", "counterfeit" and "other", while for total card-not-present (CNP) transactions, there is an option to provide a breakdown of the figures according to "online" and "mail or phone" fraud. Data collection is based on common templates and definitions. Note that fraud is defined independently of whether the loss is borne finally by the customer, issuer, acquirer or merchant.

This report summarises the information received from the following 25 schemes: 4B, American Express, Bancomat, Bancontact/MisterCash, Banque Accord, BNP Paribas Personal Finance, Carrefour Banque, Cartes Bancaires, Cashlink, Cofidis, Cofinoga, COGEBAN/Pagobancomat, Crédit Agricole Consumer Finance, Diners Club International, Euro6000, Franfinance, girocard, JCB International, LaserCard, MasterCard Europe, PIN, Quikcash, Servired, SIBS' Multibanco, and VISA Europe.

A comparison of the transaction data with data held in the ECB's Statistical Data Warehouse (SDW) suggests that the data available for 2011 represented 96% of the total value of transactions within the European Union (EU). This figure should be treated with caution as it may incorporate both gaps in SDW data and double counting in data reported for oversight purposes. Unfortunately, for three countries the coverage is below 80% of the value of transactions owing to the fact that oversight requirements were waived for some CPSs or as a result of incomplete data reporting. In one country, for example, a national arrangement for ATM withdrawals exists and only a subset of the domestic ATM withdrawals was reported to the international card payment schemes.

Compared with the first year of data collection in 2007, the data from one CPS are incorporated from 2008 onwards, while data from three CPSs are used from 2009 onwards and data from another two CPSs are used from 2011 onwards. Note that this variation in data coverage renders some comparisons across time invalid. Moreover, an assumption had to be made in order to avoid overlaps between figures reported by international and national CPSs. Finally, revised data were received for three CPSs, leading to some correction of previously submitted figures. Nevertheless, the overall trends of time series for transactions and fraud are less affected and, more importantly, the main conclusions drawn in the previous report remain valid.

The national central banks and the ECB have checked and processed the data with due care. Nevertheless, errors related to data provision, transmission or processing may remain. Therefore all results presented in this report should be read and interpreted with caution.

All results refer to payments with cards issued in SEPA and acquired worldwide. Payments with cards issued outside SEPA and acquired within SEPA do not form part of this report. Moreover, results are generally derived from an issuing perspective<sup>3</sup>, except in Chapter 6, where the acquiring

<sup>3</sup> From an issuing perspective, some CPSs have split their card data according to the area of use of a card, i.e. the main country of use defined by the issuer upon issuance of a card, while other CPSs have reported according to the country in which the card issuer is domiciled. This may lead to discrepancies for some countries (e.g. Luxembourg) if card issuers issue cards for areas of use other than their own country.

perspective is adopted for some results. In these cases, the change of perspective and the fact that the figures refer only to transactions with cards issued within SEPA is highlighted.

The report is structured as follows: the first chapter presents findings on the total level of card fraud. The second chapter looks at card fraud for different card functions and is followed by a chapter on CNP fraud. Next is an analysis of different categories of card fraud at ATMs and POS terminals. Chapter 5 compares domestic transactions and fraud figures with cross-border figures both within and beyond SEPA. Chapter 6, which is based on EU countries only, provides total and relative fraud levels, as well as other information on individual EU countries. Finally, Chapter 7 concludes.





I TOTAL LEVEL OF CARD FRAUD

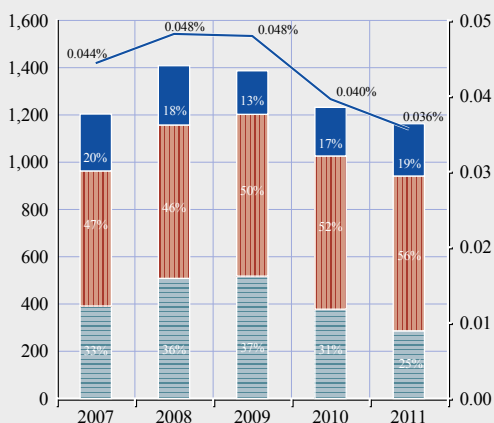
- Chart 1a: The total value of card fraud issued in SEPA amounted to €1.16 billion<sup>4</sup> in 2011.
  - This represented a decrease of 5.8% since 2010 and of 7.6% since 2007.
- Fraud as a share of the total value of transactions fell to 0.036% in 2011, its lowest level since 2007.
  - The value of regular card transactions grew by 4.8% from 2010 to 2011 and contributed further to a reduction in the fraud share.
- Compared with 2010, POS terminals have become a less important channel for acquiring fraud.
  - CNP accounted for more than one-half, POS for one quarter and ATM for almost one-fifth of the total value of fraud.
- Chart 1b: The total number of cases of card fraud issued in SEPA amounted to 7.9 million in 2011.
  - This represented a decrease of 6.4% since 2010 and of 3.0% since 2007.
- Fraud as a share of the total number of transactions fell to 0.016% in 2011.
  - This reduction also reflects growth in regular transactions (+ 6.4% from 2010 to 2011).

Chart 1a Evolution of the total value of card fraud using cards issued within SEPA<sup>1)</sup>

(EUR millions; percentages)

value of card fraud (left hand-scale)  
value of fraud as share of value of transactions  
(right hand-scale)

ATM POS  
CNP fraud share



Source: All reporting CPSs.

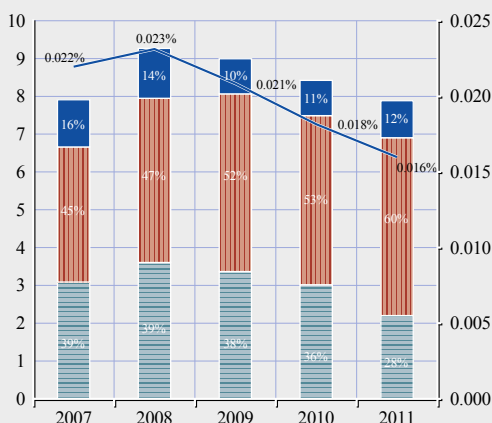
1) Note that, as outlined in the introduction, total levels of fraud in the years 2008, 2009 and 2011 increased partly owing to the inclusion of data from additional CPSs.

Chart 1b Evolution of the total volume of card fraud using cards issued within SEPA<sup>1)</sup>

(percentages)

millions transactions (left hand-scale)  
volume of fraud as share of volume of transaction  
(right hand-scale)

ATM POS  
CNP fraud share



Source: All reporting CPSs.

1) Note that, as outlined in the introduction, total levels of fraud in the years 2008, 2009 and 2011 increased partly owing to the inclusion of data from additional CPSs.

4 The €1.16 billion figure reflects the losses of all reporting CPSs, whereas growth rates in this section are calculated based on the data of those CPSs which have provided data for the two years to be compared. The growth rates are thus not influenced by variations in data provision.

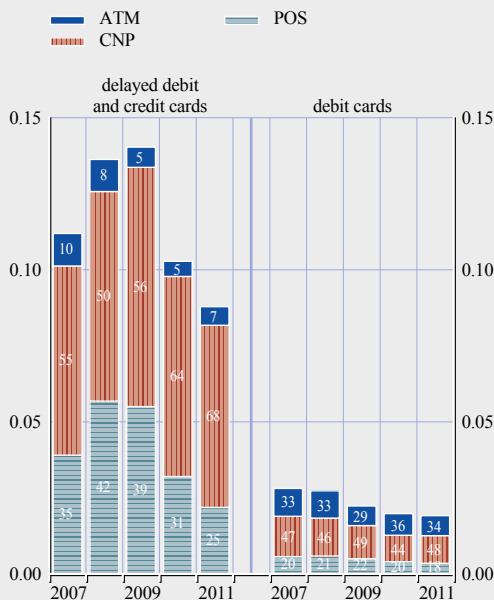
- With regard to the volume of fraud, the relevance of POS terminals as an acquiring channel for fraud has decreased.
- The share of ATM fraud in terms of volume was lower than the share in terms of value resulting from high average values for ATM fraud.

## 2 CARD FRAUD ACCORDING TO DIFFERENT CARD FUNCTIONS

- Chart 2: The total share in overall fraud declined for all card functions.
- The share of delayed debit and credit card fraud in overall fraud remained at a higher level than that of debit cards.
- For delayed debit and credit cards:
  - CNP fraud was highest, followed by POS and ATM fraud;
  - there was an increase in ATM fraud compared with previous years, whereas CNP and POS fraud both diminished.

**Chart 2 Fraud shares and the composition of fraud for different card functions<sup>1), 2)</sup>**

(value of fraud as share of value of transaction; percentages)



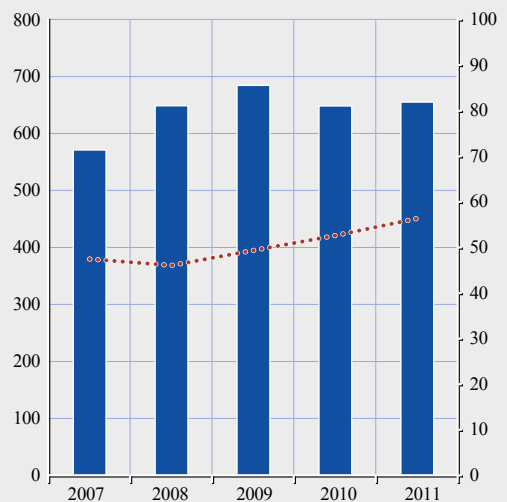
Source: All reporting CPSs excluding cards issued in France and Spain.

1) Correction to the first card fraud report: although Chart 2 stated that it was based on all reporting CPSs except those in France and Spain, the calculation contained transactions from Spanish CPSs, but not the corresponding fraud figures. As a consequence, the number of transactions was overstated and fraud shares were reported as being lower than was actually the case.

2) Note that, as outlined in the introduction, total levels of fraud in the years 2008, 2009 and 2011 increased partly owing to the inclusion of data from additional CPSs.

**Chart 3 Evolution of the value of CNP fraud and its share of the total value of fraud<sup>1)</sup>**

■ CNP (EUR millions, left-hand scale)  
 ●●● share of total fraud (percentage, right-hand scale)



Source: All reporting CPSs.

1) Note that, as outlined in the introduction, total levels of fraud in the years 2008, 2009 and 2011 increased partly owing to the inclusion of data from additional CPSs.

- For debit cards:
  - the total share in fraud decreased slightly;
  - the relevance of the acquiring channel remained rather stable from 2010 to 2011.

### 3 CNP FRAUD

- Chart 3: CNP fraud accounted for 56% of the total value of card fraud in 2011.
  - The total value of CNP fraud remained almost unchanged in 2011.

#### Box 1

#### EFFORTS TO TACKLE CNP FRAUD

Fraud acquired in card-not-present (CNP) transactions accounted for 56% of all fraud transactions and has been a main driver of fraud rates in previous years. Consequently, several initiatives have been launched to tackle CNP fraud. Notably, according to the UK Cards Association, CNP fraud in the United Kingdom has been reduced by one-third since 2007 thanks to increasing use of fraud screening tools by retailers and payment service providers, as well as the use of 3D Secure.<sup>1</sup>

At the European level, supervisors of payment service providers and overseers in the European Forum for the Security of Retail Payments (SecuRe Pay) elaborated recommendations for the security of internet payments.

The main recommendations are:

- to protect the initiation of internet payments, as well as access to sensitive payment data by means of strong customer authentication;
- to limit the number of log-in or authentication attempts, define rules for internet payment services session “time out” and set time limits for the validity of authentication;
- to establish transaction monitoring mechanisms designed to prevent, detect and block fraudulent payment transactions;
- to implement multiple layers of security defences in order to mitigate identified risks;
- to provide assistance and guidance to customers with regard to the secure use of the internet.

These recommendations were published in January 2013 and should be implemented by payment service providers and the governance authorities of payment schemes by 1 February 2015.

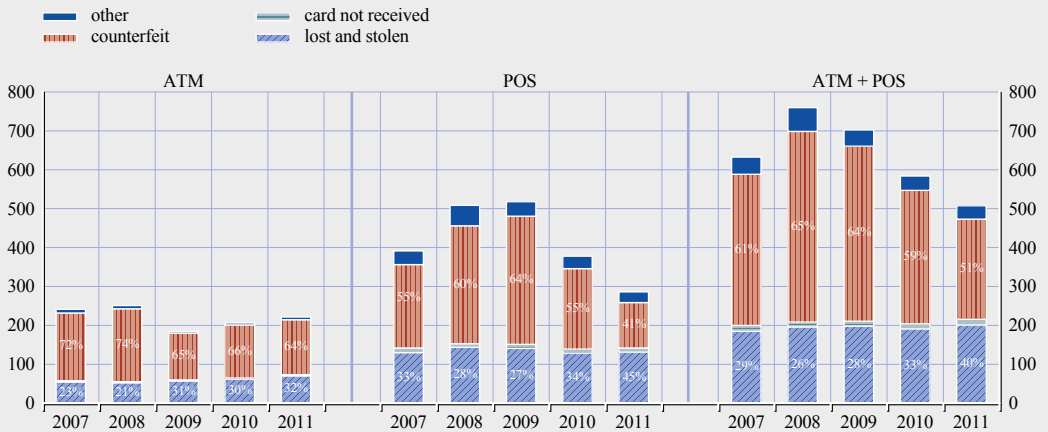
The full recommendations for the security of internet payments can be found on the ECB’s webpage.

<sup>1</sup> For more details on measures combating CNP fraud in the United Kingdom, see <http://www.financialfraudaction.org.uk/Publications/#/12/>



Chart 4 Evolution of the value of fraud categories at ATMs and POS terminals<sup>1)</sup>

(EUR millions)



Source: All reporting CPSs.

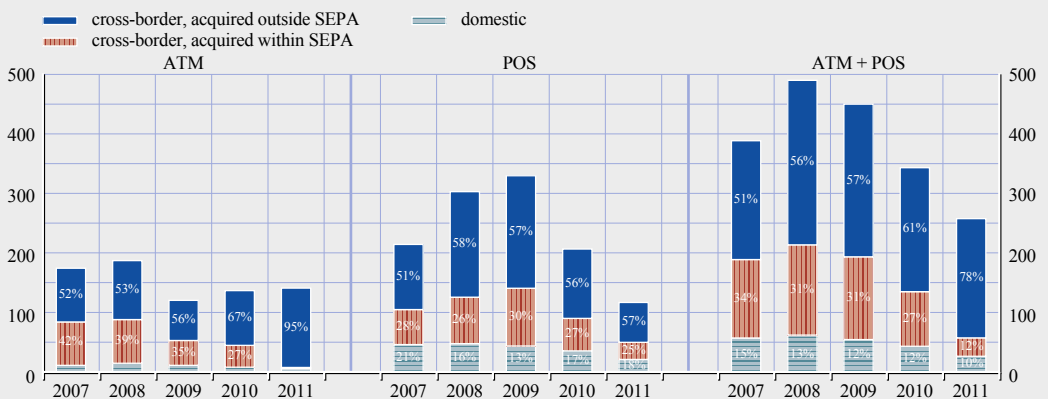
1) Note that, as outlined in the introduction, total levels of fraud in the years 2008, 2009 and 2011 increased partly owing to the inclusion of data from additional CPSs.

#### 4 FRAUD CATEGORIES AT ATMS AND POS TERMINALS

- Chart 4: The combined value of ATM and POS fraud decreased from 2010 to 2011.
  - The value of ATM fraud increased, whereas the value of POS fraud decreased.
- At ATMs, the increase was driven mainly by higher losses owing to fraud using lost and stolen cards, while other fraud types remained rather stable in absolute terms.
- The decrease at POS terminals results mainly from a major reduction in counterfeit losses.

Chart 5 Evolution of the value of counterfeit fraud at ATMs and POS terminals<sup>1)</sup>

(EUR millions)



Source: All reporting CPSs.

1) Note that, as outlined in the introduction, total levels of fraud in the years 2008, 2009 and 2011 increased partly owing to the inclusion of data from additional CPSs.

Table 1 EMV migration levels in the EU

(percentages)					
	Q4 2007	Q4 2008	Q4 2009	Q4 2010	Q4 2011
ATMs	81	91	92	96	97
POS terminals	65	74	80	90	94
Cards	60	67	71	81	88

Source: ECB.

Note: Percentages are based on quarterly data collected by the European Payments Council.

- Fraud using counterfeited cards continued to be the most common type of ATM fraud, followed by fraud using lost and stolen cards. For POS terminals, however, lost and stolen cards was the most relevant category following the reduction in counterfeit fraud.
- Since 2007 the absolute value of counterfeit fraud at ATMs and POS terminals combined decreased by 34%, while lost and stolen fraud increased by 9%.
- Chart 5: In 2011 counterfeit fraud was increasingly acquired outside SEPA:
  - 95% of ATM counterfeit fraud and 57% of POS counterfeit fraud was acquired outside SEPA;
  - cross-border fraud within SEPA and domestic fraud reduced drastically from 2010 to 2011;
  - this was probably the result of progress made on migration to the EMV security standard within SEPA (see Table 1 above).
- The total value of counterfeit fraud decreased from 2010 to 2011.

## Box 2

## EMV TECHNOLOGY AND GLOBAL MIGRATION

EMV is a chip-based security standard developed by international card payment schemes. In general, chip-based transactions offer higher levels of security than transactions based on a magnetic stripe. As indicated in Table 1, the migration to the EMV standard was almost complete at the end of 2011 for automatic teller machines (ATMs) and point-of-sale (POS) terminals within the European Union. Lower migration levels for ATMs and POS terminals in most other parts of the world mean that fraudsters have the possibility of by-passing high security standards. Not only the Eurosystem and Europol, but also payment service provider, retailer and consumer associations have encouraged the market to abandon the magnetic stripe and migrate to EMV-chip technology.<sup>1</sup> Consequently, all cards newly issued within Single European Payment Area should be issued, by default, as “chip-only” cards and should include a magnetic stripe only upon customer request.<sup>2</sup> Card payment schemes (CPSs), in particular card issuers and acquirers, as well as ATM and POS operators, have made considerable efforts to promote the EMV migration.

1 Further information can be found in the 7th SEPA Progress Report and the SEPA Council Statement of 6 February 2012.

2 The card industry may also decide to keep the magnetic stripe for practical reasons, provided that it does not contain any data-enabling magnetic stripe transactions.

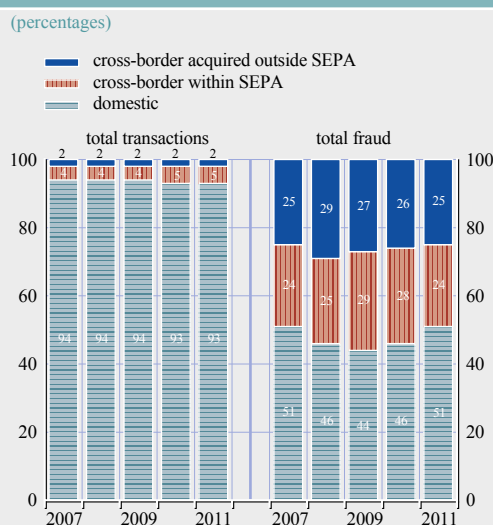
Authorisation standards, i.e. the technology used to authorise a transaction, are typically agreed between the card payment scheme, potential partners such as banks, and the merchants and ATM providers. The current migration plans of the major international CPSs are aimed at establishing a global liability shift for EMV for most transaction types by the end of 2015.

Even where EMV has been adopted as the security standard, transactions may still be authorised using weaker standards. However, if such transactions turn out to be fraudulent, the loss usually has to be borne by the merchant or ATM provider. EMV, therefore, offers an incentive to rely on higher security standards, while remaining flexible in terms of actual usage.

## 5 DOMESTIC AND CROSS-BORDER FRAUD

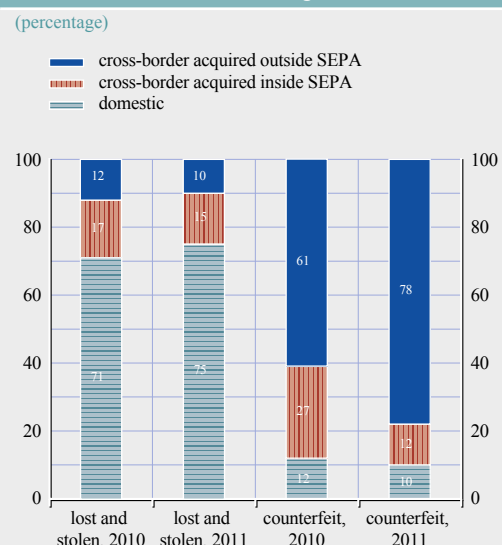
- Chart 6: The geographical composition of the value of regular transactions remained stable from 2010 to 2011.
  - Domestic transactions accounted for 93% of all transactions, followed by cross-border transactions within SEPA (5%) and cross-border transactions acquired outside SEPA (2%).
- Domestic transactions also accounted for the largest part of fraudulent transactions (51%), followed by cross-border fraud acquired outside SEPA (25%) and within SEPA (24%).
  - The share of cross-border fraud acquired within SEPA and outside SEPA decreased, while the shares of domestic fraud increased.
- Chart 7: The geographical composition of fraud usually depends on the type of fraud:
  - lost and stolen fraud typically took place at the domestic level;
  - counterfeit fraud was typically acquired outside SEPA;
  - these patterns intensified in 2011 compared with 2010.

**Chart 6 Evolution of the value of domestic and cross-border transactions and fraud**



Source: All reporting CPSs.

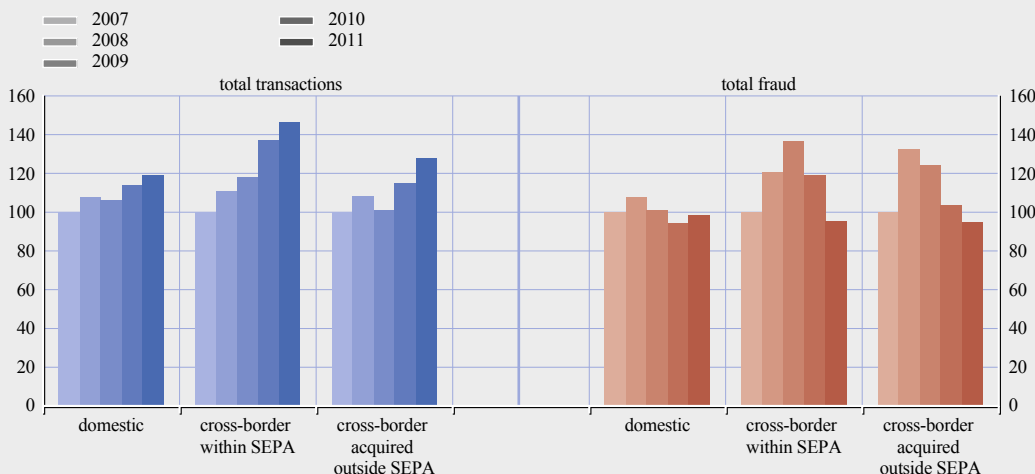
**Chart 7 Geographical composition of lost and stolen fraud and counterfeit fraud at ATMs and POS terminals according to fraud value**



Source: All CPSs, 2010 and 2011.

Chart 8 Evolution of the total value of domestic and cross-border transactions and fraud<sup>1)</sup>

(2007=100)



Source: All reporting CPSs.

1) Note that, as outlined in the introduction, total levels of fraud in the years 2008, 2009 and 2011 increased partly owing to the inclusion of data from additional CPSs.

- Chart 8: All three categories of regular transactions grew from 2010 to 2011.
- The value of domestic fraud increased from 2010 to 2011, albeit by less than the value of transactions.
- Cross-border fraud within SEPA and cross-border fraud acquired outside SEPA fell from 2010 to 2011 to reach their lowest levels since 2007.

## 6 A COUNTRY PERSPECTIVE ON CARD FRAUD<sup>5</sup>

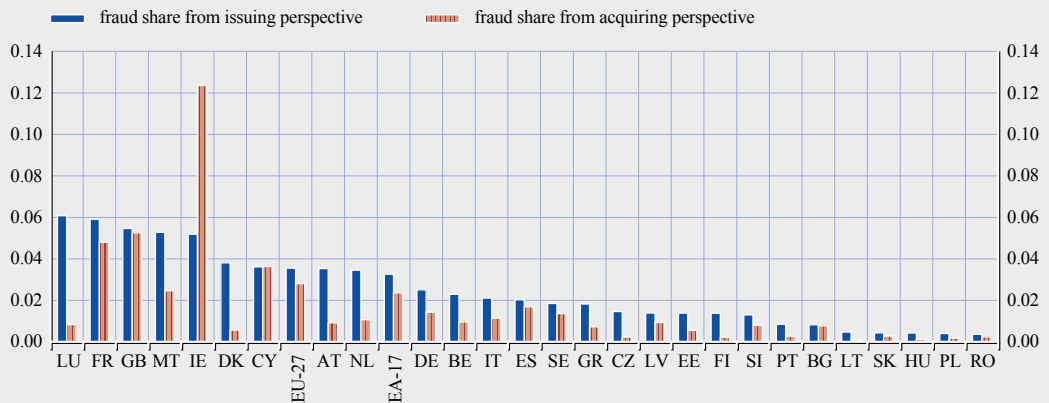
- Chart 9: Fraud shares varied substantially between different EU countries:
  - from an issuing perspective, the rates of fraud in Luxembourg and France were the highest and more than ten times higher than, for instance, those in Romania, Poland, Hungary, or Slovakia, which had the lowest rates;
  - from an acquiring perspective, Ireland experienced the highest rates of fraud, which were much higher than, for example, Lithuania, which had the lowest rates.
- Some countries, such as Luxembourg and Denmark, were successful in fighting fraud from an acquiring perspective, but faced high fraud rates from an issuing perspective. In this context, it should be understood that successful fraud prevention requires measures on both the issuing and the acquiring side and can, therefore, only partially be controlled by the issuing country.

<sup>5</sup> From an issuing perspective, some CPSs have split their card data according to the area of use of a card, i.e. the main country of use defined by the issuer upon issuance of a card, while other CPSs have reported according to the country in which the card issuer is domiciled. This may lead to discrepancies for some countries (e.g. Luxembourg) if card issuers issue cards for areas of use other than their own country.



**Chart 9 Value of fraud as a percentage of the total value of transactions for cards issued in a country (blue) and payments acquired within this country (reddish brown)**

(percentage; value of fraud as share of value of transactions)



Source: All CPSs, 2011.

- The euro area experienced lower fraud rates than the EU as a whole (from an issuing and an acquiring perspective).
- Since this report covers only cards issued within SEPA that are acquired worldwide, it is not surprising to see fraud rates from an issuing perspective that are higher than the rates from an acquiring perspective. In order to obtain a full picture, cards issued outside SEPA and acquired within SEPA would need to be included. However, this information is currently incomplete and therefore cannot be included in this report.
- Table 2: In general, smaller countries had much higher shares of (regular, i.e. non-fraudulent) cross-border transactions than larger countries.
- Chart 10: Main fraud category channel by country:
  - CNP fraud: AT, BE, BG, CY, CZ, DE, DK, EE, FI, FR, GB, GR, IE, LU, MT, PL, PT, RO, SE, SK
  - POS fraud: ES, HU, IT, SI
  - ATM fraud: LT, LV, NL

**Table 2 Percentage of value of regular transactions taking place domestically or cross-border from an issuing perspective**

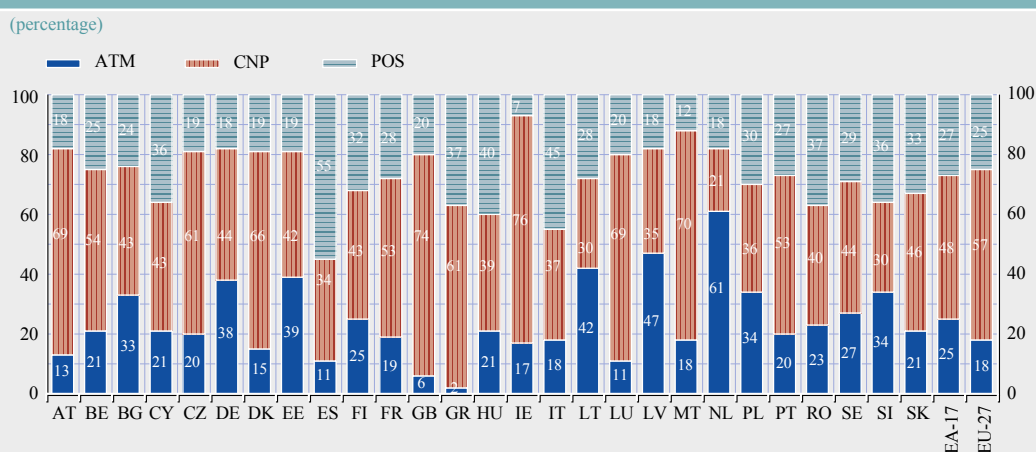
Country	PT	PL	HU	ES	GR	FR	CZ	RO	IT	GB	FI	DE	BG	SK
Domestic	97	97	97	96	96	95	95	95	95	94	94	94	93	93
Cross-border	3	3	3	4	4	5	5	5	5	6	6	6	7	7

Country	LT	SE	EE	SI	NL	IE	BE	DK	LV	AT	MT	CY	LU
Domestic	93	92	92	91	90	90	88	87	84	82	79	69	61
Cross-border	7	8	8	9	10	10	12	13	16	18	21	31	39

Source: All CPSs, 2011.

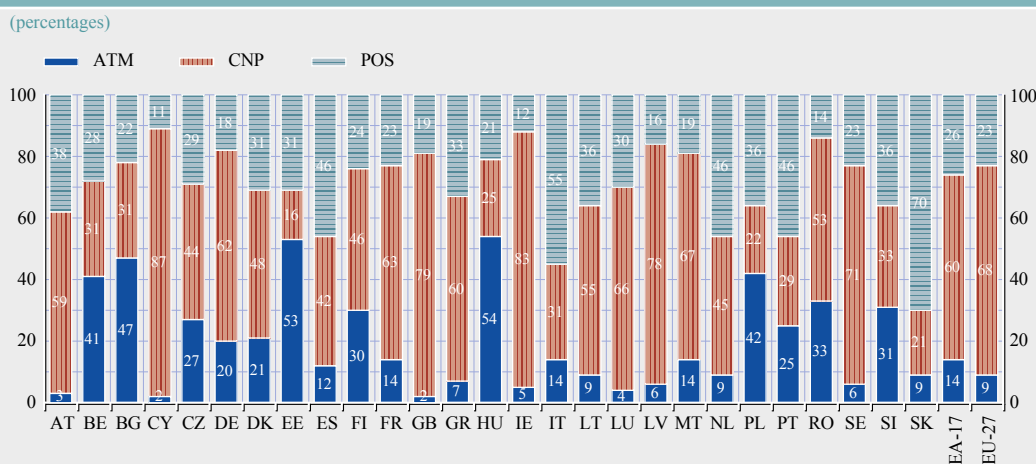
Chart 10 Geographical distribution of the value of card fraud by transaction channel from an issuing perspective



Source: All CPSs, 2011.

- There was a large variation in the acquiring channel in which cards issued in different EU countries were used fraudulently:
  - fraud at ATMs accounted for between 2% and 61%, with a median share of 21%;
  - fraud using CNP accounted for between 21% and 76%, with a median share of 44%;
  - fraud at POS terminals accounted for between 7% and 55%, with a median share of 27%.
- Chart 11: There was a large variation in the acquiring channel used to commit fraud in different EU countries:
  - fraud at ATMs accounted for between 2% and 54%, with a median share of 14%;
  - fraud using CNP accounted for between 15% and 87%, with a median share of 48%;
  - fraud at POS terminals accounted for between 11% and 70%, with a median share of 29%.

Chart 11 Geographical distribution of the value of card fraud by transaction channel from an acquiring perspective



Source: All CPSs, 2011.

Table 3 Card, transaction and fraud levels from an issuing perspective

issuing country / region	cards / inhabitant	transactions / card		transactions / inhabitant	
		value	volume	value	volume
LU	3.3	3667	44	11956	143
FR	1.3	6350	116	8088	147
GB	2.3	5427	86	12738	203
MT	1.7	2957	35	5147	60
IE	1.3	7699	88	10128	116
DK	1.4	6278	133	8526	181
CY	1.5	4181	40	6456	62
AT	1.3	1493	30	1960	39
NL	1.8	5063	96	9238	175
DE	1.6	4062	39	6486	63
BE	1.8	5728	79	10439	143
IT	1.1	3978	37	4413	41
ES	1.5	2991	46	4472	69
SE	2.1	4240	97	9096	208
GR	1.2	3796	19	4634	23
CZ	0.9	3713	45	3472	42
LV	1.1	3009	67	3398	76
EE	1.3	3575	135	4743	179
FI	1.5	6689	162	9715	236
SI	1.6	3383	59	5413	94
PT	1.9	4271	84	8067	158
BG	1.1	1098	16	1193	18
LT	1.3	2324	45	2980	57
SK	1.0	2874	38	2819	37
HU	0.9	3213	41	2864	36
PL	0.8	2902	55	2414	46
RO	0.6	2070	26	1294	16
EA-17	1.4	4437	63	6318	89
SEPA	1.4	4463	67	6448	97

The cell colour helps with the interpretation of the associated values:

- green is associated with high card usage and low levels of fraud;
- red is associated with low card usage and high levels of fraud;
- darker colours indicate more extreme values;
- all columns are formatted independently

Sources: Data on cards, inhabitants, transactions per card and per inhabitant were drawn from the ECB's SDW; data on fraud and fraud per transaction were collected for oversight purposes by all CPSs for 2011.

Note: Values are in euro.

- Variations in the acquiring channel were more pronounced from the acquiring perspective than from the issuing perspective.
- Table 3: There was a large variation in card use and fraud levels across EU countries.
- Most of the mature card markets, which are characterised by high transaction values per inhabitant (for example France or the United Kingdom) experienced high fraud rates. Fraud in these markets was predominantly CNP fraud (see Chart 10).

fraud / transaction		fraud / 1000 cards		fraud / 1000 inhabitants	
value	volume	value	volume	value	volume
0.061%	0.025%	2399	11.2	7821	36.6
0.059%	0.027%	3553	30.6	4525	39.0
0.055%	0.022%	2613	17.3	6132	40.5
0.053%	0.024%	1580	9.1	2750	15.8
0.052%	0.018%	4166	17.0	5481	22.3
0.038%	0.011%	2413	14.9	3276	20.3
0.036%	0.017%	1433	6.7	2213	10.4
0.035%	0.013%	1463	6.7	1921	8.8
0.035%	0.009%	1744	8.3	3183	15.1
0.025%	0.013%	1013	4.8	1618	7.6
0.023%	0.008%	977	5.4	1780	9.9
0.021%	0.010%	810	3.8	899	4.2
0.020%	0.020%	641	9.5	959	14.2
0.019%	0.006%	886	5.8	1900	12.5
0.018%	0.016%	547	2.5	668	3.0
0.015%	0.004%	525	1.7	491	1.6
0.014%	0.004%	432	2.8	487	3.1
0.014%	0.002%	493	2.8	653	3.7
0.014%	0.003%	879	5.1	1276	7.4
0.013%	0.005%	301	2.0	482	3.1
0.009%	0.002%	378	2.0	714	3.9
0.008%	0.004%	85	0.7	92	0.7
0.005%	0.002%	120	0.8	154	1.0
0.004%	0.002%	126	1.0	123	0.9
0.004%	0.002%	135	1.0	120	0.8
0.004%	0.001%	113	0.8	94	0.6
0.004%	0.002%	77	0.6	48	0.4
0.033%	0.016%	1418	10.1	2019	14.4
0.036%	0.016%	1600	10.9	2253	15.3

- In countries where card use was rather low, e.g. Romania, Poland or Hungary, fraud shares were typically also low. Fraud in these markets often took place at POS terminals.
- Countries are listed according to fraud as a share of the total value of transactions.

Table 4 Relative fraud levels and trends per channel and category from an issuing perspective

issuing country / region	ATM					
	Value of fraud in percentage of value of transactions	change to year before	Value of lost+stolen as share of all transactions	change to year before	Value of counterfeit as share of all transactions	change to year before
LU	0.00061	-26%	0.000012	22%	0.000057	-46%
FR	0.00059	9%	0.000068	16%	0.000041	32%
GB	0.00055	-11%	0.000008	0%	0.000018	2%
MT	0.00053	27%	0.000019	8%	0.000060	101%
IE	0.00052	43%	0.000007	120%	0.000047	87%
DK	0.00038	-7%	0.000012	35%	0.000045	106%
CY	0.00036	-3%	0.000004	-56%	0.000066	-22%
AT	0.00035	25%	0.000003	-53%	0.000042	131%
NL	0.00035	63%	0.000017	10%	0.000190	141%
DE	0.00025	-45%	0.000028	-5%	0.000066	-40%
BE	0.00023	-33%	0.000030	34%	0.000016	-83%
IT	0.00021	-13%	0.000010	-28%	0.000029	-33%
ES	0.00020	-30%	0.000010	0%	0.000011	-21%
SE	0.00019	-30%	0.000011	NA	0.000037	-54%
GR	0.00018	-10%	0.000000	-60%	0.000004	-37%
CZ	0.00015	124%	0.000003	-3%	0.000026	142%
LV	0.00014	-7%	0.000000	20%	0.000065	32%
EE	0.00014	-37%	0.000001	-52%	0.000053	145%
FI	0.00014	0%	0.000012	-16%	0.000022	60%
SI	0.00013	30%	0.000002	52%	0.000042	340%
PT	0.00009	14%	0.000004	27%	0.000011	27%
BG	0.00008	29%	0.000002	-28%	0.000024	70%
LT	0.00005	-14%	0.000000	-100%	0.000020	-7%
SK	0.00004	-15%	0.000001	-21%	0.000008	87%
HU	0.00004	-15%	0.000005	-32%	0.000004	-35%
PL	0.00004	-5%	0.000003	14%	0.000010	15%
RO	0.00004	-33%	0.000001	-37%	0.000008	80%
EA-17	0.00033	-11%	0.000029	9%	0.000050	-7%
SEPA	0.00036	-10%	0.000022	8%	0.000043	-2%

The cell colour helps with the interpretation of the associated values:

- green is associated with low fraud shares and reductions in fraud shares;
- red is associated with high fraud shares and increases in fraud shares;
- darker colours indicate more extreme values.

• Fraud shares and growth rates for individual fraud categories are jointly formatted to allow for the comparison of different types of fraud. Source: all reporting CPSs, 2010 and 2011.

- Table 4 reports fraud levels and changes in fraud levels from 2010 to 2011 at a country level as a total and for selected types of fraud:
  - developments in and levels of fraud differed substantially across different countries;
  - while issuers and card schemes managed to reduce fraud in some countries with relatively high fraud rates, such as Luxembourg or the United Kingdom, they also experienced further growth in other markets, for example in France or Malta;
  - similarly, among countries with low fraud shares, some experienced a further reduction in fraud, such as Slovakia, while others experienced major growth, for example the Czech Republic or Slovenia.

POS				CNP	
Value of lost+stolen as share of all transactions	change to year before	Value of counterfeit as share of all transactions	change to year before	Value of CNP fraud as share of all transactions	change to year before
0.000009	39%	0.000107	-48%	0.000418	-5%
0.000114	12%	0.000043	-42%	0.000314	19%
0.000053	-16%	0.000027	-36%	0.000406	-8%
0.000012	-7%	0.000047	-39%	0.000371	42%
0.000007	4%	0.000024	-49%	0.000395	47%
0.000016	-17%	0.000054	-28%	0.000251	-10%
0.000009	-28%	0.000117	5%	0.000154	8%
0.000020	5%	0.000038	-27%	0.000243	33%
0.000039	536%	0.000019	-47%	0.000072	2%
0.000012	-5%	0.000030	-65%	0.000112	-48%
0.000009	-29%	0.000047	-44%	0.000123	2%
0.000025	-10%	0.000063	-36%	0.000078	49%
0.000035	-43%	0.000050	-60%	0.000070	20%
0.000017	-28%	0.000030	-49%	0.000082	-1%
0.000014	-12%	0.000049	13%	0.000112	-14%
0.000006	104%	0.000021	19%	0.000089	198%
0.000007	-52%	0.000018	-54%	0.000049	5%
0.000003	42%	0.000021	-84%	0.000059	11%
0.000005	-40%	0.000036	12%	0.000060	-9%
0.000008	41%	0.000037	55%	0.000039	-25%
0.000012	26%	0.000010	-30%	0.000045	22%
0.000002	-3%	0.000013	-23%	0.000036	45%
0.000001	-14%	0.000007	-55%	0.000014	0%
0.000002	213%	0.000011	-27%	0.000020	43%
0.000002	-17%	0.000011	-21%	0.000017	-8%
0.000002	-41%	0.000009	-23%	0.000014	12%
0.000001	-33%	0.000011	-22%	0.000014	-7%
0.000042	6%	0.000039	-49%	0.000155	-2%
0.000040	-3%	0.000036	-46%	0.000201	-4%

- Table 5: By the end of 2011 EMV migration had been nearly or fully completed in a number of countries.
- ATM migration was most advanced, followed by the migration of POS terminals and of cards.

## 7 CONCLUSIONS

This second report found that there was a further decrease in the total value of fraud from 2010 to 2011. This decrease was accompanied by an increase in regular card transactions. The report confirmed the finding that levels of fraud were lower in the euro area than in SEPA as a whole.

An analysis of payment flows within and across SEPA demonstrates once more that card fraud is an internationally organised activity, necessitating cooperative fraud prevention measures and international industry standards. In particular, when looking at fraud using counterfeited cards, there continues to be a major shift towards acquiring countries with low security standards. Where magnetic stripe usage in such countries cannot be completely avoided, joint measures should be considered which quickly identify points of compromise that can then be communicated to card issuers as a precondition for card blocking.

Another finding is that domestic transactions typically experienced lower fraud levels than cross-border transactions. This suggests that access to information is key in preventing fraud. Improving the exchange of information between the different actors involved could thus be seen as a major factor in combating fraud.

As POS fraud declined markedly, the composition of fraud across acquiring channels changed: in 2011 CNP payments accounted for 56% of the total value of fraud, with fraud at POS terminals making up around one-quarter and fraud at ATMs roughly one-fifth of the total value of fraud.

Most, but not all, countries with mature card markets had high rates of fraud. CNP fraud was typically the most common type of fraud in these markets. On the contrary, countries with only limited card use experienced relatively low levels of fraud, possibly owing to lower usage limits which made them a less attractive target for fraudsters. Furthermore, since EMV migration within SEPA has almost been completed, it has been much easier to target non-EMV countries outside SEPA. POS fraud was typically more common in less developed card markets. There were higher rates of fraud for payments made over the internet than for traditional payment methods. Therefore, in 2011 the European Forum on the Security of Retail Payments, where relevant public authorities overseeing and supervising payment service providers cooperate voluntarily, focused its work on developing recommendations to improve the security of internet payments. These recommendations were published on the ECB's website on 31 January 2013.

**Table 5 EMV migration levels**

(percentage)			
Country	Cards	ATMs	POS terminals
AT	100.00	100.00	98.50
BE	100.00	95.60	99.25
BG	56.55	99.98	95.82
CY	98.23	100.00	90.00
CZ	97.59	100.00	99.93
DE	95.11	99.00	95.00
DK	92.11	100.00	100.00
EE	100.00	100.00	100.00
ES	84.95	99.95	96.15
FI	99.71	100.00	93.90
FR	100.00	100.00	99.50
GB	100.00	100.00	100.00
GR	83.47	100.00	76.03
HU	69.06	100.00	98.00
IE	100.00	100.00	99.99
IT	69.78	80.00	81.00
LT	100.00	100.00	100.00
LU	100.00	100.00	100.00
LV	98.80	100.00	99.30
MT	96.64	57.20	100.00
NL	100.00	100.00	96.00
PL	73.37	81.72	80.00
PT	84.65	100.00	95.62
RO	81.20	99.69	98.54
SE	97.73	100.00	88.00
SI	95.27	97.34	99.69
SK	95.70	100.00	99.65
EA-17	90.43	96.28	92.96
SEPA	87.72	96.73	94.36

Source: EMV migration.

Note: The ECB's figures are based on EPC data; Q4 2011.

