SVERIGES RIKSBANK

The Swedish retail-payment market

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SVERIGES RIKSBANK

The Riksbank's review of the retail payment market in Sweden

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Foreword

In a modern economy, it is important that payments can be implemented safely and efficiently. From previously mainly having involved the change of ownership of banknotes and coins, payments have become increasingly complex and are currently usually performed with the help of various payment intermediaries. As a result, payment intermediation has become a service that is offered in a market, *the retail-payment market*, which is used on a daily basis by households, companies and authorities.

The Swedish retail-payment market has entered a process of change in which new payment services are being introduced and new payment intermediaries are establishing operations. In addition, legislation concerning payment services is developing rapidly in the EU and thus in Sweden.

For the Riksbank, the retail-payment market is of interest for various reasons. Firstly, the Riksbank is itself an important player in this market by providing it with cash. Secondly, the Riksbank has been mandated to promote a safe and efficient payment system, in which the retail-payment market is an important component. The on going changes are naturally giving rise to a number of questions concerning the safety and efficiency of the future retail-payment market.

Against this background, the Riksbank initiated a review in 2012 with the purpose of describing the retail-payment market. The results are presented in this report, which describes the market and the players who are active in it, surveys, innovations and trends, identifies any risks that could arise in the retail-payment market due to the ongoing developments and identifies the areas that are particularly important for authorities and market players to focus actively on in the future.

The members of the task force were Ulrika Johansson, Anna Wilbe and Tomas Öberg. Björn Segendorf was editor and Jonas Milton served as project manager. The Steering Committee for the project comprised Mattias Persson, Malin Alpen, Christina Wejshammar and Kai Barvèll. The task force was also supported by an internal reference group, comprising Susanna Grufman and Jan Schüllerqvist. Marianne Sterner assisted with language editing.

As support for the review, the Riksbank arranged roundtable discussions on two occasions, 26 November 2012 and 8 March 2013, involving a selection of market players, authorities and academic experts.[1]

Mattias Persson
Head of Financial Stability Department

1 This selection of market players comprised representatives from Bankgirot, Bankomat, CERT-SE, the Ministry of Finance, Finansinspektionen, 4T, Klarna, the Swedish Competition Authority, the Royal Institute of Technology, Dalarna County Administrative Board, Nordea, the Swedish Post and Telecom Authority, Seamless, SEB, the Swedish Trade Federation, the Swedish Bankers' Association, Svenska Handelsbanken, Swedbank and Södertörn University.

Summary

Retail payments are payments of minor value and urgency and constitute a collective term for payments between individuals, companies and authorities. In Sweden, the prevalent means of payment are by card, in cash, by direct debit and credit transfers. Cards and cash are used primarily for payments at the point of sale, with cards accounting for approximately two third of the payments. Credit transfers and direct debits are used for remote payments. A prerequisite for all payments that are not performed in cash is the involvement of a third party who in some way assists in mediating payment between the paying and the receiving party.

Cash is used relatively infrequently in Sweden, compared with other countries, while cards are used to a great extent. Moreover, the use of cash is decreasing, while payment by card, giro and direct debit is increasing. Similarly, payments for online shopping are increasing, as is Electronic Bill Presentment and Payment (EBPP). Payment by cheque or money order is rare and is decreasing all the time. The same fundamental trend is also noticeable internationally.

A number of new payment services have been introduced recently. The main development is occurring in the field of payments by card and mobile phone and through improvements in the technological systems that mediate and process payments. Increased interest in offering payment services is also noticeable among companies other than banks, such as telecom operators and online service companies. The principal factors enabling new market players to establish a position are technological development and the changing behaviours and needs of consumers. The latter factor is also increasing the companies' need to be able to accept payments in various ways. There are also factors that can impede the new payment services and market players. These include the fact that the major and already established players generally enjoy benefits in terms of low costs and a broad offering of supplementary services that complement the payment services, and that they already control most of the accounts between which the payments are to be made.

The Riksbank is of the opinion that in the foreseeable future the Swedish retail-payment market will develop in two phases. During the first phase, the retail-payment market will move towards increased fragmentation, characterised by a large offering of various payment services from many market players. No single player will be large enough to control this development. The multifaceted offering of payment services could result in no payment service being broadly

accepted. Fragmentation could also occur at the customer level and on the basis of various customer groupings, such as older or younger consumers, whereby the grouping's ability to assimilate new technology results in different behaviours. Various categories of companies could also choose different solutions; for example, on the basis of how quickly a payment has to be executed. Those who shop online could feasibly also choose payment solutions that differ from the solutions used by in-store shoppers.

During the second phase, concentration in the market will increase instead. Competition will benefit players who mediate large amounts of payments and whose payment services enjoy broad acceptance. Thereafter, minor players and less competitive payment services will be eliminated and the market will move gradually towards even higher concentration. Accordingly, the factor determining the market's future structure will be whether the inflow of new innovative payment services and market players exceeds the rate of elimination.

The Riksbank is of the opinion that cash will remain as a means of payment during the foreseeable future, even if its importance will diminish. This will happen regardless of whether the future retail-payment market becomes concentrated or fragmented.

A prerequisite for an efficient retail-payment market is a proper balance between cooperation and competition within the framework of a well-functioning regulatory system. In line with how the Riksbank believes that the Swedish retail-payment market will develop, the Riksbank has identified a number of risks that could negatively affect the retail-payment market. These risks could arise in three areas. The first involves the *technological systems* where payments are mediated and processed, the second is in the *supply and demand* of payment services and the third area is the *roles of authorities and legislation*.

In respect of the technological systems, the risks are inability to mediate payments between the technological systems used by the various market players, complex and incomprehensible chains of players and, finally, vulnerability and lack of competition due to high concentration in parts of the chain of players. With respect to supply and demand for payment services, the Riksbank is of the opinion that these risks are being distorted due to the payment-service providers' inability to charge consumers for the transaction cost and uncertainty concerning consumer protection and privacy. The potential problems in respect of authorities and legislators largely derive from the fact that, to a great extent, the authorities and legislators are not fully aware of the entire course of events in the market and are therefore forced to act in retrospect. Problems can then arise due to laws and authorities roles lagging behind the pace of development or simply being inappropriately designed.

Finally, the Riksbank believes that certain groupings in society risk not having full access to fundamental payment services. In addition, the role played by cash as generally accepted legal tender could end up being questioned.

The Riksbank has identified four areas in which it is particularly important that development is monitored by market players and authorities: *cash, competition issues, technological development* and *regulatory processes at the EU level*.

The Riksbank intends to actively continue to monitor developments in the retail-payment market. The fast pace of activity in the retail-payment market requires a holistic view of the market and increased dialogue among all market players. The Riksbank intends to work to bring about such a holistic view and dialogue.

1 The Swedish retail-payment market

In Sweden, the prevalent means of payment are by card, cash, credit transfers and direct debit. The two first named are used primarily for payments at the point of sale while the latter are used for remote payments. All payments apart from cash payments are directly dependent on intermediaries that help to mediate payment. In turn, these intermediaries are dependent on a financial infrastructure for enabling execution of the payments. This chapter describes the prevalent means of payment, how payments are mediated between the various parties in a transaction and how the financial infrastructure is designed.

Since payments occur in a variety of different situations and for a variety of different reasons, their appearance varies considerably. For example, a payment from a consumer to a company at the point of sale (POS) differs from a payment between two companies. What they have in common is that they concern the transfer of monetary value from one party to another. The value also tends to be lower than the amount exchanged between large financial institutions such as banks. Generally speaking, it is not of vital importance to the stability of the financial system that the amount is entered into the payee's account on a certain day. The payee may indeed experience problems if payment is received later than expected but there is no elevated risk for the financial system as a whole. Accordingly, in this report a retail payment is defined as *a payment of a lower amount that is not usually urgent and that often takes place between individuals, companies and authorities*. A retail payment is, in other words, a generic name for a payment between non-banks.

The most common payment methods in the Swedish retail-payment market are described below. The classification is based on how they are mainly used for POS payments or for remote payments. Primarily cash, cards or cheque/money orders are used for POS payments. Electronic money and prepaid card are also described here even though they can be used for both payments at the point of sale and remotely. Innovative payment methods, such as mobile-phone based payment services are described in Chapter 3. Credit transfers and direct debit are the instruments primarily used for remote payments.

Point of sale payments

Payments at the point of sale are currently made by cash or cards, with approximately two thirds of the payments made by card. Before cards appeared on the market, cheques or money orders were used. The Swedish Bankers' Association found that in 1945 cheques accounted for 38 per cent of the value of all payments in the economy.[2, 3] Money orders and account transfers accounted for 7 per cent, plusgiro payments and postal money order for 23 per cent and cash for 27 per cent.[4] Accordingly, *payment instruments*, meaning tools that allow a user to make a payment at the point of sale, accounted for a large percentage of the paid value. However, the percentage of cheques that was actually used for POS payments is unknown. Many cheque payments were probably payments between companies. As late as the start of the 1980s, the Riksbank stated that 90 per cent of the households' POS payments were made in cash, 7 per cent by cheque and 3 per cent by credit card.[5] The extensive use of cards that is now characteristic of Sweden is, in other words, a relatively new phenomenon, see diagram 1:1 for the period 1993-2011. The figure also shows that the turnover for retail, and thus also the use of various payment services, varies over the year. Turnover is high during the summer and in the run-up to the Christmas holidays, and lower during the spring and autumn. This means that additional cash needs to be distributed to the retail sector and consumers during periods of high turnover, and this cash is returned to banks and thereafter the Riksbank. The various payment methods are described below.

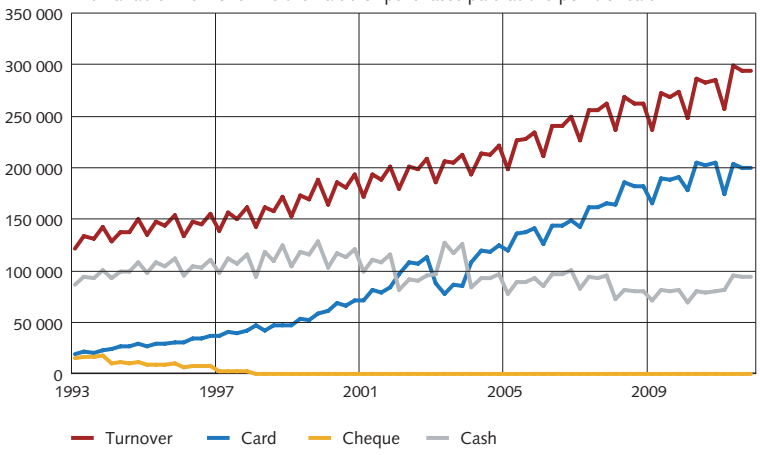
2 The Swedish Bankers' Association is a professional association for banks and finance companies and mortgage institutions (mortgage companies) included in banking groups. The Swedish Bankers' Association represents its member companies in relation to authorities and organisations at both national and international level. For more information about the Association, see www.swedishbankers.se

3 See Thunholm (1949), page 61.

4 Account transfers and giro payments are different types of credit transfers. There are two types of giro payments in Sweden, plusgiro and bankgiro payments. See the glossary.

5 See CPSS(1985), page 243. The report is based on contributions from the relevant national central banks.

Diagram 1:1. The value of POS payments per quarter 1993-2011 for cards, cash and cheques
The variable "Turnover" is the value of purchases paid at the point of sale



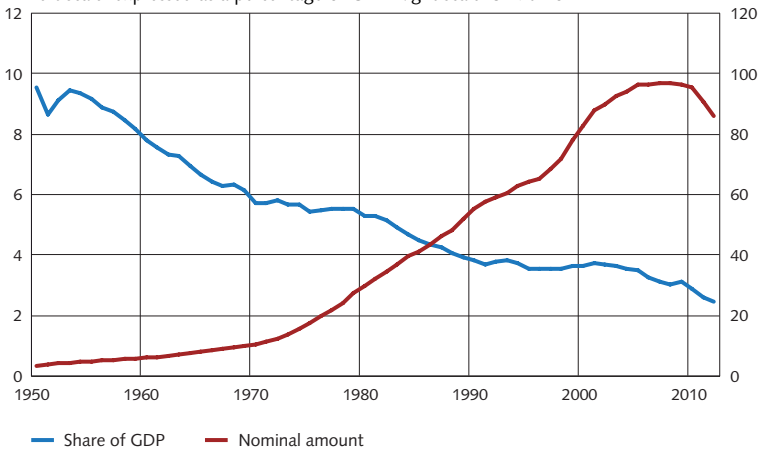
Source: The Riksbank

CASH PAYMENTS

Swedish banknotes and coins represent a claim from the Riksbank similar to a promissory note, meaning that the financial value is represented by the note or coin. Should, for example, a note be destroyed, the holder's claim on the Riksbank will also be lost. The fact that the monetary value is inherent in the cash means that the liability between the buyer and seller is settled immediately once the banknotes and coins have been handed over.

In an interview survey carried out by the Riksbank in 2012 (see box below), 93 per cent of respondents stated that they had used cash in the past month. Unfortunately, no statistics are available on the number of cash payment in the economy. A common method for estimating the use of cash is to relate the value of cash in circulation to the gross domestic product (GDP). Measured as a percentage of GDP, cash has gradually reduced from almost 10 per cent in 1950 to 2.6 per cent in 2011. However, the value of banknotes and coins in circulation increased every year between 1950 and 2007 when the trend is considered to have been broken. Subsequently, the value has declined each year; see diagram 1:2.

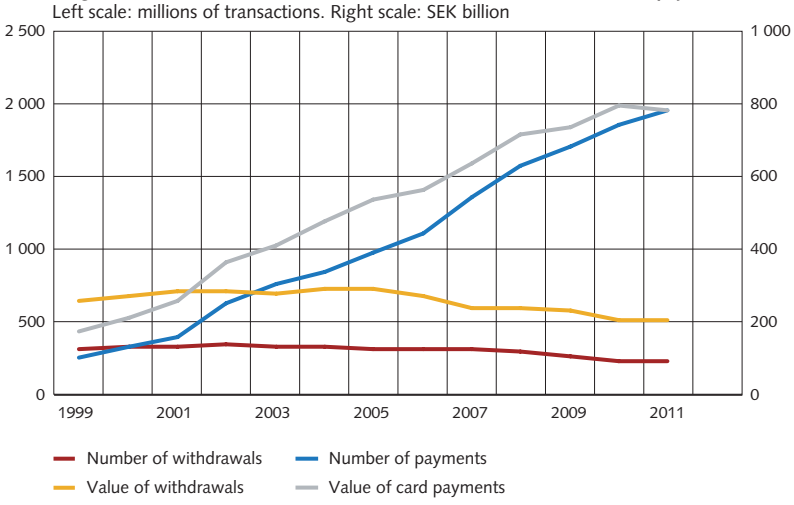
Diagram 1:2. The value of banknotes and coins in circulation 1950-2012 (annual average, excluding banks' holdings)
Left scale: expressed as a percentage of GDP. Right scale: SEK billion



Source: The Riksbank

Another way of indirectly measuring the use of cash is to analyse cash withdrawals. Primarily households use ATMs to obtain cash. The number of ATM withdrawals and the total value of withdrawals rose until the start of the 2000s, but has declined over the past ten years, see diagram 1:3. The total value of withdrawals fell by almost 30 per cent between 2004 and 2011. There are no reliable statistics for withdrawals over the counter at bank branches, but it is estimated that in 2009 households withdrew almost SEK 30 billion, which was balanced by an almost equal amount of deposits over the counter. No statistics are available for cash withdrawals in conjunction with card payments (*cash back*). Nevertheless, the Riksbank's interview survey suggests that approximately SEK 20 billion was withdrawn via cash back in 2012, although not a sufficient amount to compensate for the lower withdrawals from ATMs. The overall impression is that the use of cash has declined.

Diagram 1:3. Number of transactions and total value from ATMs and card payment terminals
Left scale: millions of transactions. Right scale: SEK billion



Source: The Riksbank (2009) and (2012a)

The Riksbank's interview survey

In the autumn of 2012, the Riksbank arranged for an interview survey to be carried out into the payment habits of the Swedish population.[6] The survey was conducted by telephone and included 1,005 interviews with members of the public aged between 16 and 85.

Access to payment services: Almost all (more than nine in ten) of the respondents said that they had access to cash and debit cards, while slightly more than four in ten had access to a credit card. The vast majority said that they could pay their bills via online banking (eight in ten) or direct debit (seven in ten). Slightly more than two in ten had access to giro forms.

Use of payment services: Nine in ten said that they had made a payment using card or cash in the past month and three in ten said that they had paid by credit card. It is estimated that two in three POS payments were made by card and a third in cash. Cash is most common for purchases under SEK 100. It was also common to pay bills via online banking (seven in ten), direct debit (six in ten) and credit transfer from the users' own accounts to another person's account via online banking (five in ten).

Security and speed: Very few people feel insecure when they make a purchase using a debit card, credit card or cash, regardless of the year in which the survey was conducted. For online purchases, one in ten said that they felt rather insecure or very insecure. More than nine in ten believe that paying in cash and by card is quick.

6 The survey was performed by Markör Marknad och Kommunikation AB on behalf of the Riksbank. Similar surveys were made in 2009 and 2010.

Cards are primarily used for POS payments, meaning when the buyer and seller meet directly. Payments are initiated electronically through the selling company's card-payment terminal.[7] Cards are also used increasingly often for remote payments for buying products and services online. In addition, cards are used for withdrawing cash from ATMs and for cash back. Card payments are generally *pull transactions*, which means that the selling company's bank requests payment from the consumer's bank.

The cards issued by banks in Sweden are *debit cards, charge card* or *credit cards* which are almost always tied to an international *card system*, usually Visa or MasterCard. Some non-financial companies also issue various types of cards. These usually include retailers and petrol stations. Also, a single card can be equipped with the function of both a debit card and a charge card or some other combination of the three basic functions.

A *debit card* is issued by a bank and linked to an account. The transaction amount is debited directly to the cardholder's account and does not give the holder any credit. Two main types of debit cards are common in Sweden: *offline* and *online cards*. A payment using an online card can only be conducted if the card-payment terminal is directly connected to the bank so that it is immediately possible to check whether there is sufficient money in the buyer's bank account. This type of card can also be issued to individuals who are under the age of 18. Examples of online cards are Visa Electron and Maestro. For the second type of debit card that exists in Sweden, the offline card, a simple credit assessment is performed when the card is issued. The reason for this is that purchases are often permitted despite the card-payment terminal not being connected to the bank, thus entailing the risk that the bank account is overdrawn. The advantage of an offline card is that it can be used at more points of sale or in the event that the card-payment terminal is for some reason temporary disconnected to the network. An increasing number of stores accept online cards due to technical advancements.

A *charge card* does not immediately debit the cardholder's account. Instead, the card issuer collects the purchases for a specified period and then invoices the cardholder with the total amount for the period.

A *credit card* works the same as a charge card but offers credit to the cardholder. This means that the cardholder can choose to pay the entire invoiced amount, some of it or none at all. In the latter case, the outstanding debt is rolled over into a new period and starts to accrue interest.

The use of cards has increased rapidly in Sweden in recent years; see Figure 1.3. In terms of the number of payments and the total transaction value, cards are the

7 It is also possible to initiate a card payment via paper form in the same way as before electronic terminals were in use. However, this is very uncommon nowadays.

most widely used payment instrument for POS payments.[8] Between 1998 and 2011, the number of card payments increased nine fold, from 213 million to 1,956 million transactions per year. Over the same period, the value of these transactions has increased more than fivefold, from SEK 149 billion to SEK 779 billion. The debit card is the dominating type of card and accounted for 82 per cent of the number of card transactions and 74 per cent of the total value.[9]

The value of an average card payment fell markedly between 1998 and 2011, from SEK 700 to around SEK 400.[10] Swedes are thus using cards to a greater degree to pay smaller amounts than previously. Moreover, cards are increasingly acting as a substitute for cash. Slightly more than nine in ten individuals in the Riksbank's 2012 interview survey responded that paying by card in a store is quick and easy.

8 This statement is based on calculations in Segendorf and Jansson (2012a) and data from the Swedish Trade Federation.

9 See Sveriges Riksbank (2012a), table X.

10 See Sveriges Riksbank (2012a), table Z.

EMV chip

Card fraud is becoming more attractive for criminals in line with cards being used more often and risks are becoming an escalating problem for banks and card companies. EMV[11] (also known as Chip and PIN) is a global commercial card standard where the magnetic strip on a card is replaced by a chip. The chip technology makes transactions more secure by making it more difficult to use false cards in ATMs and payment terminals. In addition, transactions become safer since the customer never gives the card to a third party and is present during the entire payment procedure. Many of the new card-payment terminals are portable allowing the retailer to pick up the terminal and take it over to the customer, for example, in a restaurant. Payment is approved by entering a PIN code and the customer's card cannot be charged afterwards, which is possible with the older card-payment terminals that only use the magnetic strip.[12]

The introduction of EMV is driven by the market and encouraged by the authorities. For practical reasons, the transition to Chip and PIN did not take place simultaneously in all countries. The option of paying using the magnetic strip will continue for some time and in certain environments.[13] That is why the card-payment terminals have both strip and chip readers. See also the box under SEPA in Chapter 4.

However, the introduction of Chip and PIN led to unwanted consequences that impacted certain industries. For example, it became difficult to serve several customers at once in lunch restaurants, bars and nightclubs since the seller had to be present for the entire payment procedure. In Sweden, it meant that some restaurants do not accept card payments and instead place an ATM in the restaurant so that customers can pay in cash. Another situation in which it is important that the payment procedure be quick is during large-scale events with breaks, such as sport events. In these cases, it is important that the retailer can serve and receive payment from as many customers as possible during the break.

11 EMV stands for Europay, MasterCard and Visa.
12 A study, see Ardizzi (2013), confirms that EMV has noticeably reduced card fraud.
13 To encourage use of EMV, the card companies introduced a rule whereby retailers that had not adapted their systems to EMV would bear the fraud risk, something that in most cases was borne by the card issuer. This rule was gradually introduced in the EU between 2005 and 2008.

CHEQUES AND MONEY ORDERS

A cheque is a written instruction from the writer of the cheque to the acquiring bank to pay a certain amount, either to the person writing the cheque or a third party specified by this person.

Similar to cards, cheques can be used both for payments that are made when the actual transaction is carried out and for remote payments. In Sweden, information about cheques that have been cashed in is sent electronically (from the bank that cashed the cheque to the bank that issued the cheque). In other words, a cheque is a pull payment.

A money order is a safe method of payment that is sometimes used for large purchases where it would be impractical to pay in cash and where the seller does not except normal cheques or card payment. The money order is bought at one of the Swedish banks for the desired amount and is made out to the payee or to the buyer of the money order. The value of the money order then represents a claim from the bank, in contrast to a cheque, where the money is drawn from the buyer's account when the cheque is cashed in. If the money order is made out to the buyer of the money order, the buyer can then use the draft as a means of payment by transferring it to the payee.

Cheques never had the same strong position in Sweden as in certain other countries (see Chapter 2), which was often attributed to the widespread use of giro payments for remote payments. In 1989, the share of the value of non-cash payments in the economy accounted for by cheques and money orders had fallen to just under 6 per cent, despite the fact that 170 million cheque and bank-drafts payments accounted for about 22 per cent of the total number of payments.[14] Cheques met competition in the market for POS payments with the rise in popularity of card payments. Even in 1992, the number of cheque payments had fallen to 70 million. The banks introduced a fee for cheques at the start of the 1990s to reduce the use of cheques and, in the space of only a year, cheque payments almost completely disappeared, see Figure 1:1. Only approximately 2 million cheque payments were made in 2000, corresponding to 0.3 per cent of the value of account-based payments. Today, the use of cheques and money orders is negligible, although the latter is sometimes used for payment in certain specific situations.

ELECTRONIC MONEY AND PREPAID CARDS

Electronic money (e-money) is money in the form of digital value units that is used only for electronic payments.[15] In theory, e-money is to serve as a substitute for

14 See CPSS (1990), page 56. As a percentage of the number of payments, this figures is surprisingly close to the 25 per cent share that cheques had in 1978, see CPSS (1980).

15 A legal definition of e-money is provided in Chapter 4.

cash and it exists independently only on a single storage medium, for example, a computer memory or the chip on a card. Accordingly, e-money is not comparable with a balance in a bank account. However, e-money has characteristics that are similar to both cash and account-based payments. Like electronic payment instruments, using e-money requires a financial infrastructure. The real difference is that the money is deposited with the issuer of the e-money rather than in a bank account. The e-money holder can cash in the money for a traditional account balance or cash at the issuer.[16]

Since e-money is such a broad term, it is difficult to obtain relevant statistics. However, almost a fifth of the respondents in the Riksbank's 2012 interview survey stated that they had access to e-money to shop online. E-money plays a marginal role in today's Swedish retail-payment market. Certain foreign payment services for e-money are available online.

Prepaid card are closely related to e-money but differ in that they can often be used within a limited network of points of sale or for a limited range of goods and services.[17] Nowadays there are prepaid cards in the form of prepaid phone cards for mobiles, cards linked to a specific chain of stores and a prepaid card that ICA-banken has produced on behalf of the Swedish National Debt Office.[18] Such authorities as the Swedish Migration Board, the Swedish Prison and Probation Service and the Swedish Social Insurance Agency have mainly been using cards for payments to people who do not have bank accounts and thus cannot use normal cards.

16 However, e-money is a broad term. In addition to "e-money," the terms e-wallet, digital money, electronic currency, etc. are used. The term "e-money" is sometimes used even when referring to card payments. The products that come under the framework of the definition of e-money include: prepaid cards that are topped up with the cardholder's money and can be used in all stores and e-commerce companies that accept this type of card, m-payments that entails that money is stored and transferred via mobile telephone, and payments stored via the Internet, for example, Paypal.

17 For this limited usability, prepaid cards are not encompassed by the Electronic Money Act, see Chapter 4.

18 This service is called "Prepaid card." The existing agreement expires in 2013 and the National Debt Office will hold a new procurement round.

Cash Card

In 1997, three of the four large banks introduced e-money through the *Cash Card* payment service that was intended to save time and reduce risks for both consumers and the retail sector, for example, by reducing cash handling.[19] However, Cash card never succeeded in becoming sufficiently popular among retailers or consumers. The majority of large chain stores had doubts about the product. Among other things, there was concern that Cash Card would increase administrative work. Neither did there seem to be any clear advantages for consumers. E-money was to be held in an interest-free account, most people already had other cards and, from the consumer's point of view, Cash Card was practically like a normal card. Cash Card was withdrawn in the autumn of 2004.

19 See Holmström and Stalder (2001) and Nyberg and Guibourg (2003).

Remote payments

Remote payments now mainly take place as giro payments, credit transfers, direct debit or by cards but can also be made using a cheque or a money order. Remote payments are fewer in number than POS payments but their total value is significantly higher. In 2011, 1,120 million remote payments by giro, direct debit and credit transfer were made at a total value of SEK 13,147 billion. The corresponding figures for card payments were 1,956 million payments at a value of SEK 779 billion.[20]

Cards, cheques and money orders were previously described under the section on POS payments. This section will focus on credit transfers, giro payments and direct debit.

CREDIT TRANSFERS AND GIRO PAYMENTS

A credit transfer is a *push payment,* meaning that the paying party's bank carries out the payment without being requested to do so by the payee's bank. The payee's account number is stated on the payment instruction together with the amount and, if applicable, a short message. In the Riksbank's interview survey, 48 per cent of the respondents stated that they had made at least one credit transfer to another person's account in the past month.

A giro payment is a particular kind of credit transfer. Instead of using the payee's account number, the giro payment uses a special bank or plusgiro number to identify the payee. Giro payments and credit transfers are initiated either by using a paper form or electronically. For the latter, it usually takes place via online bank (individuals and small companies) or using electronic files that are sent to the bank or a clearing institution if the payer is a large company. Giro payments usually include an OCR number that is to be stated when payment is made. This is a reference number that is often stated on the invoice or notice of payment and that allows the payee (the company) to identify the payment and automatically process it in its bookkeeping and accounts receivable ledger. The payer can provide a written message or reference number if there is no OCR number.

Giro payments are the dominating method for paying household bills and other invoices and for payments between companies. In the 2012 interview survey, 89 per cent of the respondents said that they had paid bills using a giro in the past month. However, the corporate sector accounts for the majority of the total value.[21]

20 See Sveriges Riksbank (2012a), table X.

21 It is difficult to determine the exact value represented by the corporate sector and authorities. However, the total value of giro payments and credit transfers is approximately eight times larger than households' disposable income. Therefore, these households cannot account for most of the total value.

A total of 91 per cent of the number of giro payments were initiated electronically and, in terms of value, amounted to a full 98.6 per cent.[22] Slightly more than 90 per cent of people between the age of 25 and 44 pay their bills online, while the corresponding figures for people over the age of 65 is approximately 60 per cent. A total of one fifth of households said that they used paper forms. Companies and authorities almost exclusively initiate their payments electronically.

Electronic Bill Presentment and Payment (EBPP) is a service for electronic invoices in Sweden. If customers have signed up for the service, they receive an invoice that appears directly in their online bank and, just as for direct debit, thus do not have to manually register all information, such as payee, amount, date and OCR number. Customers simply check the payment details and then approve the payment. Other benefits of EBPP for the payee include lower costs for paper invoices and more opportunities for integration with the company's accounting system. Some banks offer EBPP with automatic (push) payments, thus giving the customer similar benefits to direct debit (see below), while the customer retains control of the payment and can easily decide to stop the payment.

DIRECT DEBIT

Direct debit is a payment service whereby the payee and payment sender agree on automatic payment debiting of the payer's bank account. Direct debit is essentially an automated giro payment but in contrast to normal giro payments it is initiated by the payee's bank (pull payment). It is used for the same purposes as other giro payments, but is particularly suited to recurring payments of low amounts.

Electronically initiated payments are generally less costly for banks and households since there are fewer manual and physical steps to be taken. Direct debit and EBPP are two payment services that were created specifically to increase the degree of automation of the payment process.

At the start of the 1980s, direct debit represented only 1 per cent of account-based payments and an even lower percentage of the value.[23] However, the usage has increased steadily and in 2011 the number of direct debit payments was approximately a third of the number of giro payments. In terms of value, however, this type of payment only represented 4 per cent of the value of giro payments.[24] In 2012, slightly more than 70 per cent of households said that they use direct debit to pay their bills.

22 The figures are for 2011, see Sveriges Riksbank (2012a), table X.
23 See CPSS (1985).
24 See Sveriges Riksbank (2012a), table X.

How payments work

One way of providing a general description of how payments work is to categorise them based on the number of parties involved in the transaction. A cash payment does not require any intermediaries in the form of payment intermediaries, whereas, for example, card and giro payments are more complicated in this respect since one or more payment intermediaries must be involved. This section outlines the three fundamental types of payments: simple payments, payments with one intermediary and payments using several intermediaries.

A SIMPLE PAYMENT

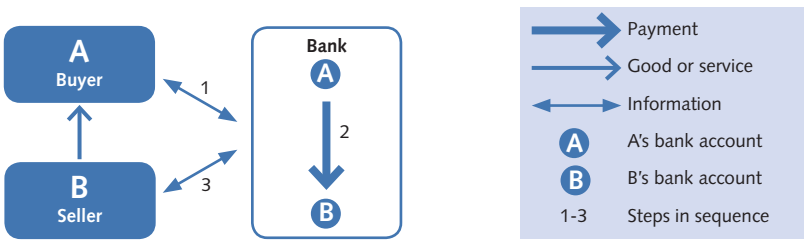
In a *simple payment*, the claim is extinguished when the buyer hands over the monetary value directly to the seller, for example, using banknotes or coins. No intermediary is required for such a payment and there is no time lag between the initiation and completion of the payment.

PAYMENT USING INTERMEDIARIES

In cases where the buyer does not directly hand over the monetary value, it instead takes place in the form of an account transfer of any kind. In addition to the end users, an account transfer involves one or more payment intermediaries who serve as intermediaries. An underlying, supportive financial infrastructure is also necessary for implementing such a payment.

The simplest case is when the end users have accounts in the same account-operating institute (often a bank). The buyer initiates the payment by instructing the institute to transfer a certain amount to the seller's account; see (1) in Figure 1:4. The institute performs the requested credit transfer (2) and informs the seller that his account has been credited (3).

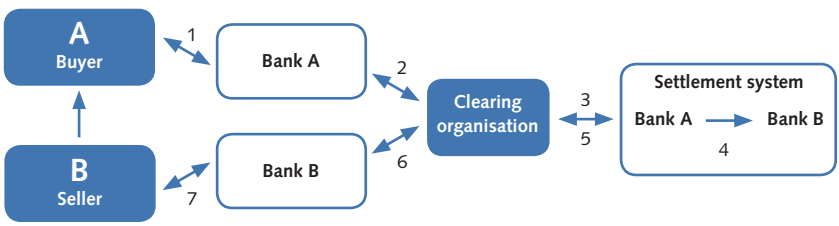
Figure 1:4. Example of payment using an intermediary



However, end users do not usually have accounts in the same account-operating institute. Payment intermediation then becomes more complicated since several players must be involved and additional financial infrastructure is needed to

communicate the information about the transaction between all of the engaged parties. In Figure 1:5, the buyer initiates the payment by instructing his bank to transfer an amount to the seller (1). Bank A now needs to transfer the money to bank B in some way. Information is usually exchanged between the banks through what is known as a *clearing institution*, which processes the information and communicates it between the banks. Accordingly, bank A sends the payment information to the clearing institution (2). This makes it easier for the banks since they communicate a large number of payments and would otherwise need to exchange information with many different players. Once the information has been processed, the instructions are sent to a settlement system in which both banks have accounts (3) to transfer the agreed amount from the buyer's bank to the seller's bank (4). Confirmation of the credit transfer is sent to the seller's bank via the clearing institution (5, 6), after which the seller's bank credits the seller's account and provides notification that the money has been received (7). This process generally results in a time lag with the seller not having the money in his account until, for example, the day after the payment was initiated. However, certain institutions have started offering *Payments in real time* (see Chapter 3) where the time lag is reduced to just a few seconds.

Figure 1:5. Example of payment using several intermediaries



THE PAYMENT PROCESS

The payment process, which is a general description of an account-based payment, comprises three distinct steps; initiation, clearing and settlement.

Initiation: Depending on the payment instrument used, an instruction is sent to the payer's or the payee's account-operating institute. Many types of payment instrument have standardised solutions that allow for this to take place automatically. The instruction is *verified* and *authorised.* This often takes place in connection with the actual payment and involves verifying the identities of the parties and checking that the instruction is valid. Usually the sender's account is also verified to ensure that it has sufficient funds, after which the account is debited and information is sent on to clearing and settlement.

Clearing: Instructions and information about the credit transfer are compiled. Clearing is performed by a clearing organisation. In the example shown in Figure 1:5, clearing involves a compilation of the transactions between two parties, A's and B's banks. If more accounts and payment intermediaries are involved, the compilation of transactions can be conducted for all the counterparties at the same time.[25] The payment is settled once the information has been compiled.

Settlement: Final settlement of claims between the account-operating institutes. The clearing institution or the payer institution instructs a settlement institution in which the account-operating institute has accounts to transfer a certain amount to the recipient institution's account. The institutions thereby settle their claims with each other. The recipient institution can now credit the payee's account. Central banks usually serve as a settlement institution.

The payment process requires standards being in place for the communication of payment information between account-operating institutes, clearing institutions and the settlement system.

Financial infrastructure for retail payments in Sweden

The Riksbank defines the financial infrastructure as the systems that manage financial positions or enable financial flows between different market players, the systems' legal framework and procedures and the participants' use of these systems. In more simple terms, the financial infrastructure comprises systems that perform payments and handle transactions involving financial instruments.[26] The financial infrastructure described below is the technological systems used to mediate retail payments. The legal framework is described in Chapter 4.

RIX – PAYMENT SYSTEM FOR LARGE-VALUE PAYMENTS

RIX is the Riksbank's payment system for *large-value payments* between banks, clearing institutions, the National Debt Office and the Riksbank.[27, 28] Participating institutions have accounts with the Riksbank between which funds are transferred in real time.[29] Transfers include payments directly between the banks as a result of their own financial transactions, and the final settlement of financial transactions and payment orders from bank customers that are usually cleared via clearing

25 See the box on bilateral and multilateral clearing.
26 See Sveriges Riksbank (2012b).
27 For the reasons as to why the Riksbank provides this service, see The Riksbank's role in Chapter 5.
28 *Large-value payments* is a term used to differentiate the payments exchanged between financial participants from the (retail) payments initiated by households, companies and authorities. Large-value payments are formally defined as *urgent payments of usually very large amounts exchanged between financial institutions*. "Urgent" means that these payments should be settled within a specific period of time on the same day.
29 This type of payment system is usually referred to as RTGS (Real-Time Gross Settlement).

institution.[30] RIX's role in the retail-payment market is to assist with the settlement of the bank's customers' payment orders.

In practice, what the clearing institutions do is to group together a large number of payments at certain times in order to calculate on behalf of the institutions concerned either a gross or a net position, which is then exchanged as payments in RIX. Consequently, RIX has fewer payments, about 14,500 per day, than the approximately 10 million daily account-based retail payments. Furthermore, most of the payments in RIX are not derived from retail payments and instead are direct payments between the banks for other purposes.[31] However, in exceptional cases, a bank can, at the request of a customer, send an individual payment through RIX.

BANKGIROT – SYSTEM FOR RETAIL PAYMENTS

In Sweden, Bankgirot (Bankgirocentralen BGC AB) is the central player for mediating retail payments between banks. Bankgirot is owned jointly by seven banks in Sweden and operates and develops Bankgirot's payment system.[32] Bankgirot's role in the market is to use several intermediaries in order to enhance the efficiency of the way payments are managed, in accordance with the principle outlined in Figure 1:5. Instead of the market players exchanging payment information between themselves, Bankgirot manages this centrally, which allows for far-reaching specialisation and standardisation that generates economies of scale and benefits of joint operation and network effects (see box on the retail-payment market's fundamental qualities at the end of this chapter). The sender and recipient bank only need communicate with one counterparty and in a standardised manner.

Bankgirot's payment system is an open system, which means that all payment intermediaries in Sweden that meet the participation criteria are eligible to join. In addition to these banks, the National Debt Office is a direct player in the bankgiro system. At the end of 2012, Bankgirot's payment system had 83 participants, of which 21 were direct members and 62 wholly or partly used one of the direct members as an agent.

Various types of payments are channelled via Bankgirot which follow pre-defined schedules and times that may differ depending on the type of transaction involved. In principle, Bankgirot's work begins when a sender bank or sender customer (push payment), recipient bank or recipient customer (pull payment) send a file with payment instructions to Bankgirot. Bankgirot performs the

30 The Riksbank and National Debt Office also use RIX within the framework of exercising their authority.

31 The value of the account-based payments is, however, slightly less than SEK 40 billion per day but the value of related payments in RIX is lower since the payments are cleared beforehand. Nevertheless, most of the turnover in RIX, just under SEK 450 billion per day, derives from financial transactions and direct payments between banks.

32 The owners are SEB, Swedbank, Handelsbanken, Nordea, Danske Bank, Länsförsäkringar and Skandiabanken.

checks specified for each payment, for example, ensuring that sufficient funds are available in the account, and compiles settlement documentation for RIX. A "bilateral gross amount" is calculated for the vast majority of payment products, although a multilateral net amount is still calculated for a few products (see box below). The settlement in RIX is then initiated by Bankgirot or the individual player depending on what has been agreed between these two parties. Once settlement has been performed, the recipient institution is instructed to credit the payee's account. In total, Bankgirot settles payments in RIX 24 times a day.[33] In 2012, an average of 3.2 million payment transactions were mediated every banking day at an average amount of almost SEK 35 billion via Bankgirot's payment system.

This process can be varied in different ways. For payments sent and received via bankgiro products, Bankgirot is responsible for authorisation, clearing, settlement documentation and payment information to the sender and recipient bank. However, the banks are responsible for authorising online banking payments and BancTec (see below) is responsible for authorising paper-based bankgiro products on behalf of the banks. The clearing and settlement of most payment products takes place bilaterally gross (see box). Examples of such payment products are giro payments, direct debit payments, supplier payments from companies, account deposits of salaries and tax payments. Clearing and settlement for remaining payment products take place multilaterally net through Bankgirot's account in RIX. Only payments in SEK can be settled in RIX. As regards payment orders in EUR, each paying bank receives settlement documentation from Bankgirot and subsequently forwards this data to the European Central Bank's settlement system Target 2[34]. Bankgirot also provides clearing and settlement services for additional payment products: credit transfers via Dataclearingen (see below), certain cash withdrawals and card payments.[35]

A new feature is that mobile payments can be cleared and settled one by one in real time with Bankgirot (see boxes on Payments in real time and Swish in Chapter 3).

33 Bankgirot also provides settlement data in EUR to the relevant banks who then enter this data as payments in the ECB's system for large-value payments, Target 2.

34 Target 2 is the ECB's RIX equivalent.

35 Read more about this in the section below on card infrastructure.

Bilateral and multilateral clearing

Clearing can take place bilaterally or multilaterally, and either net or gross. *Bilateral clearing* means that the amounts the institutes are to pay to and receive from each other (the payment positions) are calculated for each individual pair of institutes separately. For *multilateral clearing,* the payment positions are calculated simultaneously for all institutes. The payment positions are either *gross amounts*, meaning that the value of the payments an institute is to make has been added together, or a *net amount*, meaning that the payment position for an institution is calculated as the difference between the value of outgoing and incoming payments. Table 1:6 provides an example whereby banks A, B and C send a number of payments of SEK 5 each between each other.

The clearing methods used by Bankgirot are bilateral gross and multilateral net. The methods work in the following ways:

Bilateral gross: The payment positions of each individual pair of banks are calculated as the total of the payments that the banks send to each other. In the example, bank A is to pay 10 to bank B and 5 to bank C. Bank B is to pay 5 each to banks A and C. Bank C is to pay 15 to bank A and 10 to bank B.

Multilateral net: The payment position for each individual bank is calculated as the difference between incoming and outgoing payments. Bank A is to send a payment of a total of 15 and receive a payment of 20. Accordingly, the bank has a net claim of 5. Bank B is to send 10 and receive 20, whereas bank C is to send 25 and receive 10. B then has a net claim of 10 and C has a net liability of 15. When the multilateral net positions are to be settled, the banks know only how much they themselves are to pay or receive. Settlement must then take place through a central RIX account. The banks that have a net liability first pay in what they owe. The banks that have a net claim then receive the amount owed to them. Accordingly, bank C pays 15, after which banks A and B receive 5 and 10, respectively.

Each of the calculation methods described above has advantages and disadvantages. Multilateral netting means that payments are offset and the amounts that the banks need to exchange in RIX are lower than for bilateral gross where payments from one party to another are added to the total amount. In other words, multilateral netting entails that the use of liquidity is more efficient. On the other hand, bilateral gross has

another advantage. If a player were to be unable to carry out its payment in RIX, all other parties can still fulfil their obligations to each other by performing the payments as planned. However, for multilateral netting the entire calculation must be made again with the defaulting player being removed from the calculation.

Table 1:6. Example of bilateral and multilateral clearing.

		Receiving bank		
		A	B	C
Sending bank	A		5+5	5
	B	5		5
	C	5+5+5	5+5	

PLUSGIROT

Plusgirot is not a financial infrastructure in the traditional sense since it is designed to process payments between accounts in Nordea. This involves payments using an intermediary, based on the principle outlined in Figure 1:4. No communication between different banks or settlement in RIX is needed for payments between plusgiro accounts. Payments to plusgiro accounts from other banks are primarily cleared by the banks sending payment files containing information about these payments to Plusgirot. The banks then transfer the money, via RIX, to the accounts they have with Plusgirot. Plusgirot then performs the payments submitted by the banks by transferring money from the banks' accounts to the payees' accounts, that is, as an internal payment within Plusgirot. This applies for the payments initiated electronically with the banks. If instead bank customers send in paper forms, they are registered by Privatgirot which sends a payment file to Bankgirot where the payments are cleared. Payments from plusgiro accounts to other accounts are also cleared through Bankgirot since information needs to be conveyed between the banks and the payment settled in RIX. For end users, the services offered by Plusgirot and Bankgirot are similar.

CREDIT TRANSFERS VIA DATACLEARINGEN

Dataclearingen (DCL) is an infrastructure that is primarily used for credit transfers, money orders and cheques. Since it was founded in 1975, Bankgirot has assumed responsibility for operating and managing the system on behalf of the system owner, the Swedish Bankers' Association.

DCL comprises a set of regulations and format standards aimed at bringing about a rational, rapid and secure credit transfer system. The system handles crediting, salary transfers, telephone transfers, cheques, money orders and bank instructions and any corrections to these transactions. All players are required to be members of RIX or have an agreement with a bank that is a member of RIX and serves as an agent. However, a bank that participates in DCL does not need to be a participant of the bankgiro system.

Transactions for DCL are first processed with Bankgirot and then settled in RIX. Payments via DCL are settled on four occasions every day, which enables customers to make credit transfers in which the payee's account is credited the same day, despite having accounts in different banks. If the transfer takes place after the final settlement round, debiting and crediting take place on the following banking day instead. In 2012, an average of 0.5 million payment transactions was mediated every banking day at a value of almost SEK 12 billion.

FORM PAYMENTS VIA PRIVATGIROT

BancTec AB is a supplier of paper-based payment services and its main task is to scan, interpret and verify paper-based documents. Privatgirot is now a trademark owned by BancTec.

Privatgirot offers Sweden's bank customers the option of making payments by completing a form. The service is sold under a variety of names: Privatgiro, SEB Betalservice, Girobetalning, Skandiagiro or ICA Brevgiro. The bankgiro and plusgiro payments made at the cash counters of bank branches are then forwarded to BancTec. Individuals and companies send in most of the payment orders directly to BancTec AB. These bankgiro payments reach the payee on the same day that the order is processed. Plusgiro payments reach the payee on the following banking day.

Every year, Privatgirot produces and mediates about 95 million paper-based payments and 20 million electronic payments.

BancTec opens, scans and archives the incoming paper documents. The content is then interpreted, verified and saved. Payment data is subsequently sent to Bankgirot and Plusgirot in the form of data files. Bankgirot and Plusgirot then handle the clearing and produce the settlement documentation for these payment orders in the same way as for electronic payments.

CARD PAYMENTS (THREE-PARTY AND FOUR-PARTY SYSTEMS)

Card payments are based on two types of card schemes: three-party systems and four-party systems.

In a three-party system, both the payer and payee have accounts with the card company, which then sells its services to both parties. The card company serves as both the card issuer and card acquirer, and can therefore process a payment internally; as described in Figure 1:4. Examples of such schemes are American Express, Diners and also most of the cards issued by the retail sector in Sweden.

In a four-party system, which is the most common in Sweden, a card issuer and a card acquirer can be different companies. The selling company (merchant) has an agreement with the acquirer, whose task is to receive money from the buyer's bank and pay the money to the merchant.[36] The card acquirer guarantees that the merchant is paid for his sales via card purchases. The cardholder has a bank account with the card-issuing bank. Payment is channelled via clearing institution and then settled.

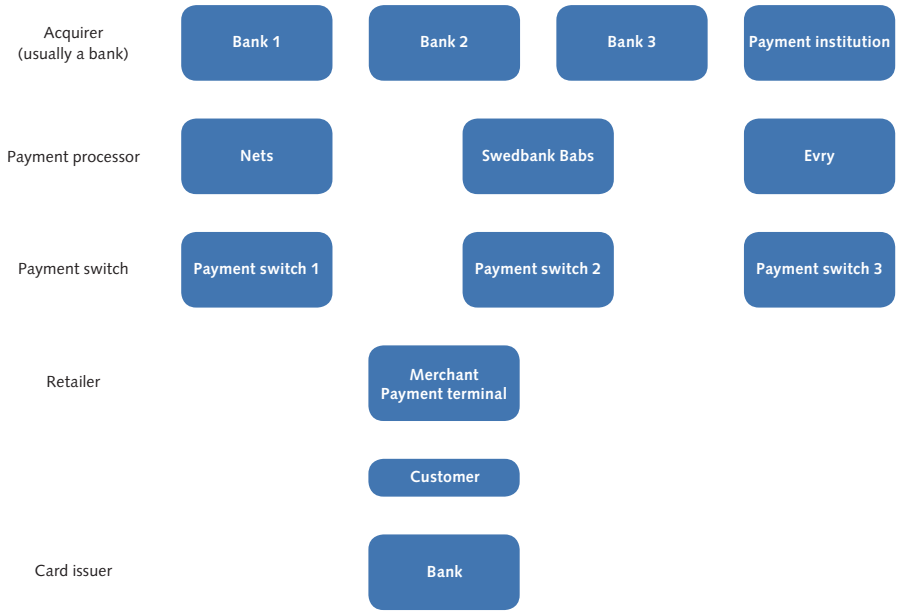
The situation is more complicated at a more detailed level. A card payment is a pull payment. It is thus the card acquirer who requests a payment from the card-issuing bank. The merchant pays a transaction fee to the card acquirer as

36 An acquirer is often, but does not necessarily have to be, a bank.

commission for mediating the card payment.[37] The card-issuing bank later receives compensation from the acquirer bank for its work on the basis of an *interchange fee*. The amount of this fee is regulated in Sweden mainly through bilateral agreements between banks. Cards that are linked to Visa and MasterCard in Sweden are examples of cards in a four-party system. These card payments are cleared by Visa's and MasterCard's international clearing organisations, after which the multilateral net positions are channelled into RIX via Bankgirot.

The flow of information between the parties involved is even more complicated than outlined above. For example, depending on the card used, an authorisation inquiry and a coverage check must be directed to the correct card-issuing bank. Figure 1:7 illustrates the complicated reality of card payments.

Figure 1:7. The Information chain for a card transaction (excluding clearing and settlement)



The flow of information is directed through what are known as payment switches that function in a similar way to standard telephone switch boards and direct information to the correct recipient. These payment switches can also "translate" communication to and from card-payment terminals into a technical "language" that the payment processors (see below) understand, and they often sell supplementary services for integrated cash systems, etc. Several companies now serve as payment switches in Sweden.

37 The size of the fee depends on the type of card. The fee for a credit-card payment is generally higher than for a debit-card payment.

The payment switches are, in turn, connected to *payment processors* whose systems authorise the card payment, meaning that the processor checks that the card exists and that it has not been blocked, etc. The acquirer bank determines the payment processors to be used for a specific transaction. An important difference compared with payment switches is that payment processors are members of Visa and MasterCard, which means that the processors have directly connected systems and it is through these systems that the payment instructions are forwarded for clearing with Visa and MasterCard. Another task that the payment processors perform is to test and approve the terminals available in the market. However, Visa and MasterCard impose the demand criteria for the tests and are ultimately responsible for approval. The payment processors currently operating in Sweden are Swedbank Babs, Evry and Nets.

CASH-HANDLING INFRASTRUCTURE

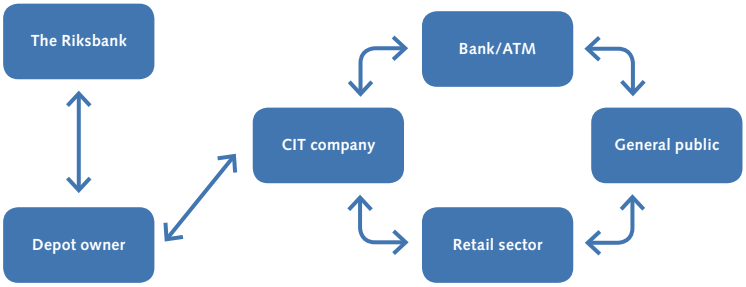
As opposed to account-based payments, cash requires a logical infrastructure that can handle the physical distribution of notes and coins. This infrastructure is based on various players having different roles in the handling of cash. By way of outline, the players include the Riksbank, the banks and their depot companies, CIT companies, the retail sector and the general public.

The role of *the Riksbank* is to supply new cash and to receive for destruction any cash that can no longer be used.

The *banks and bank-owned companies* can withdraw new cash and return cash that can no longer be used from/to the Riksbank. The five largest banks (Danske Bank, Handelsbanken, Nordea, SEB and Swedbank) have formed a joint company for this purpose – Bankernas Depå AB (BDB). BDB also stores cash that is not currently needed. BDB receives interest cost remuneration from the Riksbank for such storage services. BDB sells/buys cash to/from its customers. Customers comprise banks, Bankomat AB and CIT companies. There are 16 BDB depots in Sweden.

Transportation to and from BDB's warehouse is conducted by *CIT companies*, which also operate the depots. The CIT companies provide cash (petty cash) to bank branches, ATMs and the retail sector, and collect any cash surpluses. The CIT company sorts and reviews the quality of the notes and coins. It is then mainly through the retail sector and ATMs that the *general public* has access to cash. The general public and companies can also, to a certain extent, withdraw or deposit funds at cash counters in bank branches (see Figure 1:8).

Figure 1:8. Outline of the flow of cash in the Swedish economy



CASH WITHDRAWALS FROM ATMs

Most ATMs are still owned by the banks but Bankomat AB, a company founded in 2010 and owned by the banks, is successively taking over the operation of the ATMs.[38] The purpose of founding Bankomat was to create a new system and a joint infrastructure for the banks' ATMs and cash deposit machines.[39] Bankomat is expected to have taken over all of the owner banks' ATMs by the end of 2013. At the moment, withdrawal transactions are handled slightly differently depending on the bank that owns the ATM.

Once Bankomat AB has taken over the ATMs, the agreements that Bankomat has with the card issuers will determine the types of services offered by the ATMs. Bankomat has, in turn, an agreement with an IT-platform supplier to which the ATMs are connected. Withdrawal transactions can be settled in two different ways depending on the setup chosen by the card issuer. In the first setup, the IT-platform supplier sends clearing information directly to each card issuer and settlement documentation to Bankgirot. The net debt or net claim of each card issuer is then settled against the accounts in RIX. The second setup is that settlement and clearing of withdrawal transactions follow the ordinary clearing and settlement procedures for Visa or MasterCard transactions. The second setup type, with ordinary procedures for each card network, also applies when the card issuer does not have an agreement with Bankomat.

There are also ATMs that are not owned by the banks. Kontanten AB, which is a Swedish company that is not associated with banks or other financial institutions, operates a network of ATMs. Kontanten also conducts operations in Norway and Finland. Evry serves as the payment exchanger for cash withdrawals in all three countries. A company called Teller operates as acquirer in Sweden and Finland, with repayment taking place though BNP (Banque Nationale Paribas) in Norway.

38 The banks that own Bankomat AB are Danske Bank, Handelsbanken, Nordea, SEB and Swedbank with Sparbankerna.
39 There are also machines that are combined ATMs and cash deposit machines.

Transactions are cleared in Visa's and MasterCard's infrastructure in Finland and Sweden. In Norway, clearing takes place though the Norwegian Bank Axcept system.

Cross-border payments

The financial infrastructure for retail payments is to a great extent individually developed for different countries. There is a historic explanation for this. Firstly, most payments take place within a specific country. For example, households and companies often buy many goods and services, such as electricity, water, refuse collection, etc. locally since most employees live close to their place of work. Secondly, laws and regulations on payments have, to date, primarily been a national issue for the country in question. Thirdly, financial infrastructures are associated with significant investment costs and economies of scale.[40] The combination of these factors means that adjusting a financial infrastructure to new conditions is often a slow process with a certain time lag.

The banks have traditionally mediated cross-board payments on the basis of relations with correspondent banks. When banks in different countries have accounts with each other and when a customer of bank A wants to pay a customer in bank B, bank A asks bank B to transfer a certain amount from its account in bank B to the recipient. Alternatively, bank A can ask bank B to initiate a certain payment in the other country's retail-payment system. Using correspondent banks is a relatively inexpensive way of creating and administering a small number of payments but it is not well-suited for a large number of payments. Since the relationships between correspondent banks are bilateral, each individual bank may have to handle a large number of such relationships, which when accumulated can be expensive. The banks' deposits with each other, and the associated credit risk that this gives rise to, also entail risks for financial stability that are difficult to calculate.

Banks conducting cross-border operations, for example with subsidiaries or branches in other countries, can participate directly in the financial infrastructures of those countries and thus mediate payments to recipients in these countries. A potential problem with this is whether the standards for payment messages differ between the countries. Payment messages must then by translated in some way from one format to the other, which entails additional work and costs.

The third way in which a cross-border payment can be mediated is through a cross-border infrastructure. The international card schemes are examples of such an infrastructure. Another example is the pan-European automated clearing house STEP2. The participating banks can send payments to each other in the EU by

40 See box on fundamental qualities properties of the retail payment market.

utilising a common payment standard (see SEPA in Chapter 4). Payments in EUR are then settled in the ECB's system for large-value payments, Target 2.

Remittances can be used for cross-border payments in which the payee does not have access to a bank account or there are no established payment channels for some other reason. This method is often provided by specialist payment-service providers, such as Western Union, and is primarily used by immigrants from developing and emerging countries that want to send money to relatives and friends in their home country.

However, increased online shopping, commuting to different countries to work, and greater corporate internationalisation, etc. mean that cross-border payments are becoming increasingly common. Legislation in the EU is being harmonised to create a joint framework of regulations for payments. The aim is to generate an internal market for payment services, similar to the internal market for goods.

Fundamental properties of the retail-payment market

The retail-payment market's task is to provide the economy with appropriate and cost-efficient payment services. Accordingly, factors affecting the cost of producing the payment services and the end users' valuation of them are of central importance. The retail-payment market has, in this respect, three characteristic properties: (a) economies of scale, (b) economies of scope and (c) network externalities.[41]

ECONOMIES OF SCALE AND ECONOMIES OF SCOPE

Economies of scale arise when the average production cost for manufacturing a product falls as production volumes increase. The cost for producing another unit of the product, *the marginal cost*, is then lower than the average costs for the units produced. Economies of scale are often dependent on a production facility having high fixed costs. Similarly, production costs can, in certain cases, be reduced if production of the goods is conducted on the same premises, known as economies of scope. Modern account-based payments are based on processing of electronic information in large-scale IT systems with significant fixed costs but low marginal costs. When the IT systems have been built up, the cost of processing another payment is very small. In many cases, economies of scope can be achieved by processing several payment types, such as credit transfers, giro and direct debit payments, on the same IT platform. The higher the degree of automation in payment intermediation, the higher the economies of scale and scope usually are.[42]

Economies of scale and scope mean that the largest producer will have a cost advantage ahead of the small producers since its production volumes are larger. There are often only a few large producers in markets with such advantages. In certain cases, economies of scale may be so large that a specific market can only contain a single producer. This operation or market is then referred to as a *natural monopoly*.

NETWORK EXTERNALITIES

The fundamental network externality/effect means that it is more valuable for existing members to participate in

41 Literature on network effects and interchange fees are extensive, for example, see Rochet (2003), Rochet and Tirole (2003a), (2003b) and Evans and Schmalensee (2005) and (2010).

42 See Schmiedel et. al. (2012), which shows the connection between costs and production volume for the most common payment services in the EU.

a network when another player joins. The classic example is telephony. Being the first to have a telephone is of very little use, but as more and more people get a telephone it is also more valuable for the person who first got one. Each new node in the network gives rise to a positive externality in relation to the other nodes. In the same way, the value of being connected to a payment service increases in line with there being more people to send payments to and receive payments from. A specific example is Sweden's currency, the Swedish krona (SEK). Holders of SEK in Sweden have access to a large network since SEK is accepted as means of payment throughout Sweden, whereas those with the corresponding amount in a foreign currency will not find it as viable.

In certain payment networks, for example, for credit transfers, all players can send and receive payments. In other networks, such as card networks, certain players (consumers) can only send payments and others can only receive them (companies). The value of a network for a payment sender depends on how many potential payees are members of the network, and the value for a payee depends on how many potential payment senders are members. From the consumer standpoint, there is no point getting a debit card if no store actually accepts the card, and for a store there is no point in installing a card-payment terminal if no potential customers have a card. Markets in which participation on one side of the market affects the value of the other half participating are called *two-sided markets*.

It may be problematic to convince both sides of the market to participate when a payment intermediary wants to introduce a new payment service.[43] But this is necessary since a two-sided market requires a critical mass of players on each side to make it attractive for the other side to participate. A common solution is to let the less price-sensitive side of the market, usually companies as the payee, use fees to subsidise the more price-sensitive side of the market, which often comprises households. This normally takes place through transaction fees that the payment intermediaries on the different sides of the market pay to each other, known as *interchange fees*.

43 The problem is sometimes referred to as the chicken and the egg. Which came first; meaning, which side of the market will be the first to attract the other side?

2 International comparison

In most countries, the fundamental means of payment are cash, debit card, credit card, giro payments/credit transfers, direct debit and cheque. There are few exceptions. A number of broad international trends are noticeable. Generally speaking, it appears that the use of cash is declining, as is the use of cheques. To some extent, this is a mirror image of an increased use of credit transfers/ giro payments, direct debit and card payments. Innovative payment methods, such as mobile payments and contactless payments, have yet to make an impact, although there are exceptions. The purpose of this chapter is to outline the retail-payment market in a number of countries, as well as the broad trends that can be observed in Sweden's economic environment.

The appearance of the retail-payment market in other countries depends on the current demand for payment services, which is in turn dependent on consumption patterns, the structure of industry and commerce, the general public's access to bank accounts and so forth. In part, it depends on the current appearance of the financial infrastructure. The latter factor is due to the retail-payment market's inherent characteristics in the form of high investment costs in financial infrastructure, economies of scale, benefits of joint operation and network effects. It is usually less expensive to hold on to what you have and to make small improvements than to build up something completely new from scratch. This gives rise to inertia in the structure, due to which the situation in many countries is partly the same as it was 10-20 years ago.

Table 2:1 illustrates the current situation in various countries. For example, the amount of cash in relation to GDP varies from between nearly 2 per cent to nearly 20 per cent, the number of credit transfers and giro payments from between 0 to just under 200 per person per year and the number of card payments from between five to slightly more than 300 per person per year. Moreover, statistics are not available in many cases.

Table 2:1. Cash in circulation and the number of payments in a selected group of countries during 2011

	CASH IN CIRCULATION		TRANSACTIONS						
	RELATIVE GDP (%)	PER CAPITA (USD)	CREDIT TRANSFERS PER CAPITA NUMBER	DIRECT DEBIT PER CAPITA NUMBER	CHEQUES PER CAPITA NUMBER	DEBIT CARD PER CAPITA NUMBER	DELAYED DEBIT CARD PER CAPITA NUMBER	CREDIT CARD PER CAPITA NUMBER	TOTAL PER CAPITA NUMBER
Australia	4.05	2 710	71	31	11	116	0	74	191
Belgium	nap	nap	93	24	1	93	12	nav	105
Brazil	3.51	445	43	21	8	19	nav	20	39
China	nav	nav	1	nav	1	nav	nap	nav	nav
France	nap	nap	46	54	46	nav	nav	nav	nav
Germany	nap	nap	74	106	0	29	6	1	36
Hong Kong SAR	13.96	4 897	nav	nav	nav	15	nav	55	71
India	10.50	167	0	0	1	5	0	0	5
Italy	nap	nap	21	10	5	16	nav	10	26
Japan	19.46	8 947	nav	nav	nav	nav	nav	nav	nav
Korea	3.77	845	58	30	12	38	nap	130	168
Mexico	4.73	502	9	0	4	7	nap	5	11
Russia	11.53	1 499	19	1	0	11	nav	1	12
Saudi Arabia	6.25	1 313	0	0	0	51	nap	1	52
Singapore	8.13	4 063	7	11	15	43	nav	nav	43
South Africa	3.32	268	11	12	1	nav	nav	nav	nav
Turkey	3.79	394	nav	nav	nap	4	nav	29	33
United Kingdom	3.69	1 448	58	5	16	123	3	31	157
USA	7.14	3 452	25	38	68	157	nav	78	235
Denmark	**3.46**	**2 056**	**58**	**38**	**1**	**196**	**nav**	**9**	**205**
Finland	**nap**	**nap**	**187**	**15**	**0**	**203**	**18**	**nav**	**221**
Canada	**3.76**	**1 897**	**30**	**20**	**25**	**120**	**nap**	**90**	**210**
Netherlands	**nap**	**nap**	**101**	**80**	**nap**	**140**	**7**	**nap**	**146**
Norway	**2.35**	**1 771**	**101**	**15**	**0**	**259**	**4**	**15**	**278**
Sweden	**2.68**	**1 527**	**87**	**30**	**0**	**169**	**4**	**32**	**205**
Switzerland	**9.42**	**7 878**	**95**	**6**	**0**	**53**	**nav**	**24**	**77**

Sources: CPSS (2012b), Bank of Norway (2012) and the ECB Statistical Data Warehouse.
nap = not applicable
nav = not available

With which countries should Sweden be compared? From a Swedish perspective, it is most illuminating to compare Sweden with countries with similar payment needs. Accordingly, the group of countries on which we focus below comprises a number of small or midsize, open and developed economies in which a high proportion of households has access to bank accounts. The countries are Denmark, Finland, Canada, the Netherlands, Norway and Switzerland. These countries are marked in bold at the bottom of Table 2:1.

The retail-payment market in these countries is outlined below, divided between payments at the point of sale and remote payments.

Point-of-sale payments

How cash, cards and cheques are used in the particular retail-payment market is described here. Thereafter, a comparison is made between the selected countries and Sweden.

DENMARK

At the end of 2011, the value of cash in circulation corresponded to nearly 3.5 per cent of GDP. Although consumers generally use ATMs to withdraw cash, the number of ATMs was relatively low: 0.5 ATMs per 1,000 inhabitants. There are no statistics concerning the number of withdrawals per person. The proportion of cash payments at the point of sale was nearly 48 per cent in 2009 but has probably declined since then.[44]

Cheques are used to only a limited extent. During 2011, only one payment per person was made by cheque.

Denmark has a national debit card, Dankort, which dominates the Danish card market, but international card brands, such as Visa and MasterCard, are also available. In total, there were 1.09 debit cards per person and the number of transactions per person was 196. Dankort accounted for most of these. Credit cards are linked to the international card brands and were significantly fewer, 0.31 per person. The number of transactions was also much lower, nine per person. The number of card-payment terminals was at the same level as in the other selected countries, 22 per 1,000 inhabitants.

FINLAND

Finland is a member of the euro zone and there are no statistics over the amount of cash in circulation in Finland alone. Despite a relatively low number of ATMs per 1,000 inhabitants, 0.42 (only Sweden has fewer), the average number of withdrawals per person per year was relatively high, at 31. Although there is no relevant estimation of the proportion of cash payments at the point of sale, 39 per cent of the respondents in a survey conducted in 2007 answered that they usually paid in cash.[45] The proportion is probably lower today.

As in Sweden, cheques are not used to any major extent and in 2011 accounted for only one payment per 12 individuals. The debit card is the principal payment instrument for POS payments. International debit cards have essentially already replaced the national debit cards. The average Finn had 1.45 debit cards and made 203 debit card payments during 2011. Credit cards accounted for half as many, 0.67 per person, and the number of payments was 18 per person. The number

44 Based on information on the number of payments via the Danish National Bank (2012).
45 See Takala and Virén (2008).

of card-payment terminals was high, 38 per thousand inhabitants, which is the highest among the selected countries.

CANADA

At the end of 2011, the value of cash in circulation, excluding the holdings of the banking sector, corresponded to 3.8 per cent of GDP. ATMs are the principal source of cash for households and there were 1.7 ATMs per 1,000 inhabitants. Of these, slightly more than two thirds were not owned by banks. The average Canadian made 18 withdrawals per year. Studies in which consumers have made journal entries of their payments have shown that 45-50 per cent of POS payments are made in cash.[46]

Cheques are used widely and during 2011 each Canadian made an average of 25 cheque payments. However, cheque usage is likely to be dominated by businesses and at the point of sale cheque payments are being replaced gradually by card payments. Between 2007 and 2011, the number of cheque payments declined 19 per cent.

The use of debit and credit cards is widespread in Canada. Debit cards are issued by financial institutions and can be used for payment and ATM withdrawals.[47] The cards are PIN based and withdrawals occur in real time. In 2011 there were 0.68 debit cards per person and the number of payments per person was 120. The typical consumer has 2.29 credit cards and an average of 90 credit card payments were made per person per year. There are also multi-purpose prepaid cards that are reloadable, though use of such cards is not widespread, owing to high fees charged to card holders. The number of card payment terminals was 21 per 1,000 individuals, which is almost as many as in Sweden.

The Canadian banks have been issuing both debit and credit cards for contactless payments based on *Near Field Communication* (NFC) technology.[48] Mobile payment services have also started to emerge. Zoompass is a mobile payment service connected to a bank account or credit card that is currently owned by Paymobile, a provider of program-management services for prepaid and virtual card programs. A partnership between a major Canadian bank and a major mobile phone carrier has also introduced a mobile payment application allowing retail credit purchases on a smartphone.

46 See Arango et al. (2012).

47 Most debit card transactions are processed through the national system operated by Interac Association. Visa-branded debit cards are also available, though they are only used for purchases online, by mail, over the phone or internationally. Such transactions are processed over the Visa network.

48 See Chapter 3 for an explanation of NFC.

THE NETHERLANDS

Like Finland, the Netherlands is a member of the euro zone and there are no national statistics over the amount of cash in circulation. In 2010, approximately 65 per cent of POS payments were made in cash.[49] There were 0.47 ATMs per 1,000 inhabitants at the end of 2011 and the average annual number of withdrawals per person was 27.

Cheques are not used in the Netherlands, where banks decided not to convert the existing cheques into EUR-denominated cheques at the time of the EUR changeover in 2002, as the use of cheques had fallen to such a low level. Instead, cards are used to a great extent, especially debit cards which accounted for approximately one third of total POS payments. At the end of 2011, there were 1.46 debit cards per person and the average number of debit card payments per person was 140. The national debit card scheme PIN was discontinued in 2011 and replaced by international debit card schemes.[50] Credit cards were used in a modest scope, only 7 payments per person. There were 17 card terminals per 1,000 inhabitants, which is somewhat fewer than in the other studied countries.

Prepaid cards are also used to a limited extent. In 2010, the national prepaid card scheme Chipknip made up less than 2 per cent of total POS payments. Chipknip is a function with which all cards with a withdrawal function are equipped and there are approximately as many Chipknip cards as debit cards, 1.43 per person. The holder tops up the card at top-up stations close to ATMs and can then use the card for payments. Given its limited and ever declining use, at the beginning of 2013, it was decided that Chipknip will be phased out by the end of 2014. Another prepaid card is the OV-Chipkaart for public transport.

NORWAY

During recent years, the amount of cash in circulation has stabilised at around 2.35 per cent of GDP.[51] This is the lowest proportion among the selected countries. Cash accounts for less than 24 per cent of POS payments, which is also the lowest proportion among the selected countries.[52] ATMs are the main distribution channel for cash to the public. During 2011, there were 0.45 ATMs per 1,000 individuals and the average number of withdrawals was 19 per person.

Cheques are hardly used at all in Norway. Cards have become the predominant payment instrument for POS payments. Of the cards, debit cards are those used the most. Norway has a national debit card called BankAxept. The average Norwegian had 2.50 debit cards and made 259 payments with them during 2011.

49 See Jonker et al. (2012).
50 See DNB (2012) and CPSS (2012a).
51 GDP has been stated as mainland GDP, meaning total GDP excluding the gas and oil sector.
52 The figure of 24 per cent applies to 2007; see Gresvik and Haare (2009). The percentage is lower today but no exact data is available.

There were fewer credit cards but these still amounted to just over one credit card per person, with which 19 payments were made per person. The number of card-payment terminals was 26 per 1,000 inhabitants, which is not significantly more than in most of the other selected countries.

SWITZERLAND

The amount of cash in circulation corresponded to 9.42 per cent of GDP, which is the highest proportion among the selected countries. Since part of this cash is almost certainly kept outside Switzerland, the amount of cash throughout the country should be somewhat lower. There are two interoperable ATM networks, which essentially function as a single network. During 2011, there were 0.84 ATMs per 1,000 individuals and 16 withdrawals were made per person. Unfortunately, there is no estimation of the proportion POS payments made in cash.[53]

Cheques are used sparingly in the Swiss retail-payment market and their importance is continuing to decline, in part due to the fees charged by banks for cashing them in. Meanwhile, the Swiss consumer has used cards to a lesser extent than consumers in many other countries. The two most common debit cards are Maestro and a national card. In total, there were 1.08 debit cards per person in 2011 but the number of transactions, which was 53 per person, was the lowest among the selected countries. Credit cards are also used to a limited extent, 24 payments per person in 2011, and there were 0.69 cards per person. The predominant cards are Visa and MasterCard.

There is also a card for E-money. The card, called Cash, resembles the card that existed in Sweden up to 2004 under the name Cash Card (see box in Chapter 1). Like in Sweden, this card has never achieved a critical mass. The decision has been taken to withdraw Cash from the market by the end of 2013. During 2011, only slightly more than one such payment per person was made.

A COMPARISON BETWEEN THE COUNTRIES

The selected countries are fundamentally quite similar but there are differences. In Switzerland, cash is used to a great extent, but in Denmark, the Netherlands and Canada cash also accounts for 50 per cent or more of POS payments. Sweden, Finland and, in particular, Norway have a lower share of cash payments. In all countries apart from Switzerland, card payments are commonplace and Canada was the only country to use cheques to any significant extent. A summary of

53 Switzerland, like Germany, has few card payments and cheques are hardly used at all (see Table 2:1), thus indicating that the use of cash is similar to that of Germany. von Kalckreuth et al. (2009) found in Germany in 2008 that cash accounted for 82 per cent of POS payments and that these payments accounted for a full 58 per cent of the total value. Accordingly, there is reason to believe that the percentage of cash payments in Switzerland is also relatively high.

the countries is presented in Table 2:2. To take into account the varying sizes of the countries, the number of payments, cards, terminals and ATMs is presented per person or per 1,000 individuals. For the same reason, the value of cash in circulation is stated as a percentage of GDP and value per person in USD.

Table 2:2. Point-of-sale payments for the selected countries

	DENMARK	FINLAND	CANADA	NETHER-LANDS	NORWAY	SWEDEN	SWITZER-LAND
Cash							
Share of GDP (%)	3.46	nap	3.76	nap	2.35	2.68	9.42
Per capita (USD)	2 056	nap	1 897	nap	1 771	1 527	7 878
Number of cash transactions POS	48	39*	45-50	65	24	35-40	nav
ATMs							
number per 1000 inhabitants	0.50	0.42	1.74	0.47	0.45	0.38	0.84
number of withdrawals per capita/year	nav	31	18	27	19	24	16
Cards – total							
number of cards per capita	1.40	2.12	2.97	1.46	3.58	2.15	1.77
number of card payments per capita	205	221	210	146	278	205	77
Debit cards							
number of cards per capita	1.09	1.45	0.68	1.46	2.50	1.09	1.08
number of card payments per capita	196	203	120	140	259	169	53
Credit cards							
number of cards per capita	0.31	0.67	2.29	nap	1.08	1.06	0.69
number of card payments per capita	9	18	90	7	19	36	24
Payment terminals							
number per 1000 inhabitants	22	38	21	17	26	22	19
Cheques							
number of transactions per capita	1	0	25	nap	0	0	0

* Number of consumers that in 2007 stated that cash was their most common means of payment. Takala and Virén (2008).
Sources: CPSS (2012), ECB Statistical Warehouse, Norges Bank (2012), Jonker et al. (2012), Segendorf and Jansson (2012), Danmarks Nationalbank (2012). Arango et al. (2012), Gresvik and Haare (2009) and Danmarks Nationalbank (2012).

Cost of payments

In 2012, the Riksbank published a study of the cost of payments in Sweden in 2009.[54] It was part of an ECB-coordinated survey that clearly showed the existence of economies of scale and economies of scope.[55] Table 2:3 provides an overview of the results for a number of the participating countries and for Norway, which conducted a separate study for 2007.

Economic cost measures the value of the resources that on an aggregated basis are required to produce the payment services. The costs are measured as a percentage of GDP, thus permitting a comparison of the cost situation in countries of varying sizes. Note how the cost per payment (the unit cost) for cash payments is lower in Italy and Hungary, which use considerably more cash in relation to Sweden, Denmark and Norway, where the use of cards is extensive. Sweden, Denmark and Norway also have a lower unit cost for card payments than Italy and Hungary.

Table: 2:3 Economic costs for cash and cards

	2007	2009				ECB 2009		
	NORWAY	DENMARK	ITALY	SWEDEN	HUNGARY	LEAST	HIGHEST	AVERAGE
Cash								
Economic cost (SEK million)	4 248	8 260	83 900	8 592	7 911			
Share of GDP (%)	0.15	0.38	0.52	0.28	0.80			0.49
Economic unit cost (SEK million)	8.59	10.50	3.50	8.32	2.79	1.38	8.32	4.35
Cards, total*								
Economic cost (SEK million)	6 513	5 166	17 800	8 749	1 886			
Share of GDP (%)	0.23	0.24	0.11	0.28	0.19			0.21
Economic unit cost (SEK million)	7.21	5.89	12.59	5.55	10.78	2.34	85.70	14.23

*Includes POS card payments and remote with debit and credit card.
Sources: Banca d'Italia (2012), Danmarks nationalbank (2012), Gresvik and Haare (2009), Schmiedel et al. (2012),Segendorf and Jansson (2012) and Turján et al. (2011).

54 See Segendorf and Jansson (2012a) and (2012b).
55 See Schmiedel et al. (2012). Chart 2.

Remote payments

This section describes payments where the payer and payee do not meet. Examples of such payments are household bills, invoices and payments for online shopping. The following section contains an account of the key aspects of credit transfers, giro payments and direct debit, since cheques and cards were addressed in the preceding section. In international statistics, credit transfers and giro payments are addressed jointly and cannot be separated. Nor do available statistics enable any way of distinguishing between the use of cards and cheques in respect of remote payments, on the one hand, and POS payments on the other.

DENMARK

In Denmark, credit transfers and direct debit are used to a slightly lesser extent than in the other Nordic countries. On average, the Danish consumer made 58 credit transfers during 2011, of which 20 were paper-based. The rate of increase in the number of credit transfers was moderate, approximately 14 per cent between 2007 and 2011, and the total value was essentially unchanged. Paper-based credit transfers declined 7 per cent while the total value increased 9 per cent.

There are two direct debit services in Denmark: A payment service for households and LeverandørService for the corporate sector. In total, 38 direct debit payment per person were made during 2011. The increase between 2007 and 2011 was 14 per cent in terms of volume and 9 per cent in terms of total value.

FINLAND

Credit transfers/giro payments is the predominant way of performing remote payments in Finland, which has the most credit transfers per person among the selected countries, 187 during 2011, of which only two were initiated via paper forms. The number of credit transfers increased by 44 per cent between 2007 and 2011, and the value by 10 per cent. Transfers can be initiated in various ways. The overwhelming portion of credit transfers is initiated electronically. Since 1989, Finnish consumers have also been able to use special ATMs to make giro payments, although these have largely been replaced by PCs. The Finnish banks have developed a format for electronic invoices (Finvoice). There is also a special giro service for urgent payments, which reach the payee's account the same day (POPS; see below).

Direct debit is used more modestly. The average consumer made 15 direct debit payments during 2011. The number of direct debits increased 8 per cent between 2007 and 2011, and the value by 9 per cent.

In conjunction with the transition to SEPA-compatible payments (see box in Chapter 4), the significance of the former national infrastructure for clearing (PMJ) has diminished. All giro payments already go through the pan-European automatic clearing house, STEP2, and after the transition to SEPA has been completed, in January 2014, PMJ will be closed down. Another system, POPS, will continue for urgent payments until further notice.

CANADA

Canadian households can either initiate individual credit transfers or choose to have a standing payment order that regularly initiates a payment of a certain amount to a specified payee. Electronic Bill Presentment and Payment (EBPP) is commonly used for individual payments, while standing payments are more usual for monthly savings, the credit transfer of salary to another account and so forth. Payments can be initiated online, by means of telephone banking or via ATMs. During 2011, the average consumer conducted 30 credit transfers, all of which were electronic. The number of credit transfers is increasing steadily and, over the past five years, has grown by 21 per cent and the value by 42 per cent. During the same period, standing payments grew 33 per cent by number and 76 per cent in terms of value.

Direct debit is used primarily for regular payments such as mortgage repayments. The average consumer conducted 20 direct debit payments during 2011. The growth rate between 2007 and 2011 was somewhat lower than for conventional credit transfers.

THE NETHERLANDS

Almost all individual payments between the corporate sector and households are conducted in the form of credit transfers. Such payments are primarily electronically initiated. Payment via online banking is usual and for the past couple of years an Electronic Bill Presentment and Payment (EBPP) solution (FiNBOX) has been developed by a couple of banks in cooperation. Acceptgiro is a paper-based solution whereby the payer receives a pre-printed payment form from the payee, signs it and sends it to the bank. In total, 101 credit transfers were conducted per person during 2011. Direct debit is popular in the Netherlands and the banks have various direct debit products that focus on the different market segments. The average consumer conducted 80 direct debit payments, which was the highest number among the selected countries.

For online payments, various types of cards are used but also a product called iDEAL. When it is time to pay, the customer is linked to his/her online banking,

where he/she receives help in completing the payment as a credit transfer. In this way, credit transfers have started to compete with cards for online shopping customers.[56]

NORWAY

As in other countries, credit transfers and direct debit payments can be initiated online, via paper forms and over the counter at bank branches. In addition, certain companies have special terminals for this purpose. There are EBPP services that target payments from households to the corporate sector and others that target B2B payments.[57]

During 2011, the average consumer conducted 101 credit transfers, of which 97 were initiated online or via terminal and four by means of paper forms. For electronic credit transfers, this corresponded to a volume increase of 12 per cent since 2007. During the same period, the value increased by 22 per cent. The corresponding figures for paper-based credit transfers were minus 54 per cent and minus 33 per cent.

The use of direct debit is relatively limited; 15 payments per person during 2011. This corresponded to a volume increase of 43 per cent since 2007. The increase in value was lower, however, at 5 per cent.

SWITZERLAND

Credit transfer is the most prevalent way of paying bills and has turned out to be the most common payment method in Switzerland. Credit transfers can be conducted via the banks or PostFinance in paper form, by means of online banking or initiated by EBPP. During 2011, the average consumer conducted 95 credit transfers. This is a volume increase of 16 per cent and a value increase of 8 per cent since 2007. Unfortunately, no information is available on the proportion of paper-based credit transfers. Swiss banks have participated in the SEPA project since 2008.

In the same way as for credit transfers, the banks and PostFinance have separate direct debit products. The number of direct debits has increased 6 per cent since 2007, and the value by 17 per cent. The increase is lower than for credit transfers, which could be due to competition from EBPP. In total, six direct debit payments per person were made during 2011.

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56 Most payment products (PIN, Chipknip, Incasso, Acceptgiro and iDEAL) are owned by Currence, which was formed by the Dutch banks after a recommendation from the Wellink Commission to increase transparency and competition in the retail payment market.

57 The term direct debit refers to two direct debit solutions existing in Norway: Direct debit and Avtalegiro. The latter service is used most. There are also two solutions for the special terminals, Bedriftsterminalgiro and Nettbank bedrift. The former is in the process of being phased out.

A COMPARISON BETWEEN THE COUNTRIES

As in the case of POS payments, the selected countries display many similarities in terms of remote payments. With the exception of Canada, where cheques still play an important role, credit transfers and direct debit dominate the market. In total, Denmark, Norway, Switzerland and Sweden have fewer credit transfers and direct debit payments per person, while Finland and the Netherlands have significantly more. However, paper-based credit transfers are relatively more commonplace in Denmark than in the other countries and direct debit is a more important channel in the Netherlands than in the other countries. See Table 2:4, for the number of payments per person.

Table 2:4. Remote payments in the selected countries

	DENMARK	FINLAND	CANADA	NETHER-LANDS	NORWAY	SWEDEN	SWITZER-LAND
Credit transfers							
number of transactions per capita	58	187	30	101	101	87	95
– whereof paper-based	20	2	0	6	4	8	nav
– whereof electronic	38	185	30	95	97	80	nav
Direct debit							
number of transactions per capita	38	15	20	80	15	31	6

Sources: CPSS (2012), ECB Statistical Warehouse and Norges Bank (2012).

Current international trends in retail-payment markets

A number of similarities are discernible among the selected countries. Table 2:5 provides an overview. With the exception of Canada and Switzerland, the value of cash in circulation is declining in relation to GDP. However, Sweden is the only country to display a distinct decrease in the nominal value of cash in circulation. The reason for the decrease in the other countries is that the growth in cash in circulation is lower than GDP growth. Norway and Sweden are the countries that have the lowest proportion of cash, which tallies with the fact that Norway and Sweden have the lowest proportion of POS cash payments. The number of cash withdrawals per person is also declining in all countries apart from Switzerland. It is difficult to pinpoint the reason why the value of cash in circulation in relation to GDP is rising in Canada while the number of withdrawals is declining, despite the fact that the Canadian central bank estimates that the proportion of cash payments is falling.[58]

58 See Arango et al. (2012).

Table 2:5. Changes in the use of payment services in the selected countries

	DENMARK	FINLAND	CANADA	NETHER-LANDS	NORWAY	SWEDEN	SWITZER-LAND
Cash							
Share of GDP (%)	3.46	nap	3.76	nap	2.35	2.68	9.42
change since 2007 (%)	–7.7		3.9		–16.7	–26.8	8.8
ATMs							
number of withdrawals per capita/year	nav	31	18	27	19	24	16
change since 2007 (%)		–35	–13	–9	–7	–29	7
Cards – total							
number of card payments per capita	205	221	210	146	278	205	77
change since 2007 (%)	31	28	19	41	30	41	33
Debit cards							
number of card payments per capita	196	203	120	140	259	169	53
change since 2007 (%)	34	30	14	43	28	35	30
Credit cards							
number of card payments per capita	9	18	90	7	19	36	24
change since 2007 (%)	–14	6	25	30	83	76	41
Cheques							
number of transactions per capita	1	0	25	nap	0	0	0
change since 2007 (%)	–67	–38	–19		–62	–61	–76
Credit transfers							
number of transactions per capita	58	187	30	101	101	87	95
change since 2007 (%)	14	44	21	11	6	24	16
Direct debit							
number of transactions per capita	38	15	20	80	15	31	6
change since 2007 (%)	14	8	10	12	43	35	6

Sources: CPSS (2012), ECB Statistical Warehouse, Norges Bank (2012), Jonker et al. (2012), Segendorf and Jansson (2012), (2009), Danmarks Nationalbank (2012). Arango et al. (2012), Gresvik and Haare (2009) and Danmarks Nationalbank (2012).

The number of card payments is increasing in all the selected countries, regardless of the previous level. However, there is no correlation between the growth rate and the number of card payments per person. Nor is there any clear correlation between the growth rate in the number of debit and credit cards and the number of payments performed with these. The use of credit transfers/giro payments and direct debit is also increasing in all countries. In line with the increased use of cards, credit transfers and direct debit, the use of cheques is declining.

Innovative payment methods, such as mobile payments and contactless (NFC) payments, have yet to make an impact in the selected countries. These products have only recently been launched; pilot experiments are under way or are expected to be introduced in the near future. It is possible that a new comparison in five years' time will have a different appearance.

3 Innovations in the retail-payment market[59]

A number of new payment services have been introduced in the Swedish market. Some of them are based on new technology. Most mobile payment services belong here. Other innovations are based on changed processes in the management of payments or changes in the financial infrastructure. Certain e-shopping services belong here, as does the possibility of payments in real time. Banks have also been faced with increased competition from non-traditional market players such as telecom companies and payment institutes. This chapter describes the economic and technological driving forces underlying these developments.

The Swedish retail-payment market is a market in which payment services are demanded and provided. On the supply side, there are payment-service providers, which are profit-maximising companies, and on the demand side, consumers, companies and authorities choose payment services on the basis of function, security, price and so forth. Accordingly, whether a new payment service is introduced in the retail-payment market depends on whether the payment-service provider believes that a functioning business model can be built around the service, while the demand depends on whether the payment service can satisfy the needs of the end user. The section below addresses the economic driving forces of the payment-service providers and thereafter the factors that could enable innovation and new establishment and the factors that could constitute impediments. Finally, a couple of international trends are discussed.

Economic driving forces

A fundamental driver of the retail-payment market is that when considered as a whole it is a large market offering considerable revenue opportunities. The retail-payment market is also growing steadily, rather than like many other markets fluctuating in line with the economic cycle, and this makes it attractive. In addition to offering the actual payment service, the supplier has considerable opportunities to generate revenue through supplementary services. These can frequently provide more revenue than the actual payment intermediation.

59 This Chapter is based largely on a report from Deloitte on innovations in the retail payment market that the Riksbank ordered in autumn 2012.

Revenue from the actual payment service is mainly generated through fees. The payment-service provider usually applies two-tier pricing, comprising in part a fixed periodic fee and in part a transaction fee. The fixed periodic fee provides the customer with access to the actual payment service. For consumers (usually the payment sender), the fixed fee could be an annual fee for the debit or credit card or for online banking. It is, however, unusual in Sweden for the consumer to pay a fee per transaction, something that is much more prevalent in many other European countries.[60] An example of this is an ATM withdrawal, for which Swedish consumers rarely pay withdrawal fees.

However, it is common for companies and authorities to pay transaction fees. The fee could be a certain amount per payment, a percentage of the amount or a combination of both. The tradition in Sweden is for the payee in a payment transaction to account for transaction fees, while the consumer perceives that the payment is "free." This is important since it influences how consumers choose to pay and their willingness to pay for new types of payment services.[61]

Fees can also be charged in other ways; for example, by a payee buying or renting a card-payment terminal from the acquirer bank. Payment-service providers also charge each other fees. Interchange fees are an example of this, as are the fees banks and others charge for providing access to the financial infrastructure.

Float is another source of revenue directly related to the payment service and that arises because there may be a delay between the time when the payer's account is debited and the time when the payee's account is credited.[62] During this time, one or more payment intermediaries could earn interest on the money while it is on its way between the end users' accounts.

There are also sources of income that are indirectly related to payment service. In cases where the payment intermediaries provides accounts in which end users have standing funds, the payment intermediary may potentially profit from an interest-rate margin on these funds. Consequently, payment intermediaries invest, or lend in various ways, portions of the balances in end-user accounts. If the return from these funds exceeds the interest paid by the payment-service provider, the generated difference can profit the provider. In such cases, the liquidity of the accounts thus functions as a source of financing for the payment-service provider.

Another method for the payment-service provider to generate profit is to provide supplementary services, primarily to payees of electronic payments, if the payee is a company. This could involve an integration of payment services with the

60 For Sweden, see Guibourg and Segendorf (2007a).

61 See Segendorf and Jansson (2012a) discuss how the lack of price signals affects the use of cards and cash in Sweden. Segendorf and Jansson (2012b) also discuss other ways of influencing the choice of payment services.

62 See Finansinpektionen (2002a) and (2002b).

company's accounting system, thus enabling the company to, for example, easily reconcile payments with bookkeeping items. Another method of creating indirect income is to bundle payment services with other banking services. Examples of this include when card issuers bundle various insurance components with the payment. For instance, card payments for air travel frequently feature some form of cancellation insurance. It is also commonplace for credit-card usage to entail various forms of support for the retailer's loyalty programme, such as allowing for the consumer to collect bonus points for credit-card purchases at some chains of shops. For major payees, the payment service is frequently bundled with other unrelated banking services, such as loans for the financing of operations.

The manner in which payment-service providers generate income differs. The current retail-payment market comprises a diversity of market players and has varying driving forces. These players can generally be divided into two categories: existing players and challenging players. Their primary driving forces, as expounded on below, are summarised in Figure 3:1.

Figure 3:1. Market players and their driving forces

Category	Type of player	Exemples of players in Sweden	Primary driving forces
Existing players	Banks & national clearing organisations	Large and small banks, Bankgirot	Protection of existing market and sales, lowering of costs, protection of supplementary services
	Card company	MasterCard, Visa	Protection of existing market and sales, lowering of costs
Challenging players	Telecom operator	TeliaSonera, Telenor, 3, Tele2 and their joint company WyWallet	Find new revenue sources, widen service portfolio, establish market position
	Technology innovator	Seamless, iZettle, PayAir	Establish market position, gain niches, gain supplementary services, gain revenue sources
	Process innovator	Payer, Klarna, PaybyBill, Payson, Collector, Payex	Establish market position, gain niches, gain supplementary services, gain revenue sources

Existing market players

Bank accounts constitute the core of the banks' operations for consumers and small companies. The banking services offered to customers are frequently tied to a bank account in one way or another. From the perspective of the banks, payment is the key to the bank account. For the banks, it is a matter of ensuring that customers continue to use their bank account for payments; otherwise, they will lose many opportunities to profit from supplementary services with the potential to provide the banks with considerably higher margins than the actual payment. The two most distinct supplementary services are savings and borrowing/credit granting. Granting credit in conjunction with issuing credit cards

to individuals is a profitable operation for banks, and also entails fees that exceed those of debit cards.[63] The payment services thus represent a considerable portion of the income of banks and card companies. Certain payee segments, such as major companies, regard the actual payment to be a business operation with low margins for the banks, since it requires considerable transaction volumes to achieve solid profitability.

Bank accounts are also the least expensive and most stable source of financing for the banks' overall operations. In the past few years, the importance of deposits has also been increasing as a consequence of the regulatory framework created by the Basel Committee.

Electronic payment services, primarily cards, are replacing cash, and banks regard the handling of cash as costly. Accordingly, banks have an incentive to try to steer customers toward such payment services, which reduces the use of cash and thus the bank's overall expenses. Furthermore, from an international perspective, the efforts to increase automation of payment services and reduce the expenses associated with cash are strong driving forces for innovation.[64, 65]

The driving force for *card companies* is to maintain or increase transaction volumes through their infrastructure, because that is where their profits are generated. The exact manner in which payments are initiated – whether through traditional cards, NFC (see below) or new mobile-payment services based on underlying debit or credit cards – is of minor significance. The NFC solutions currently offered by card companies may be regarded as a means of maintaining or preferably increasing transaction volumes within the card's infrastructure.

In brief, the existing players have established and invested in a business model that revolves around their payment services. New competing payment services and players could fully or partly impact earnings opportunities within these business models and may thus be regarded as a threat.

Challenging market players

The driving forces among the challenging players are similar; refer to Figure 3:1. They hope to generate a profit by attracting many customers and large payment volumes. However, it is important to note a number of essential differences between the players.

Collectively, telecom operators reach a very large share of the population and they have been offering SMS payments to end users for some time. In general, telecom operators are keen to encourage their customers to use mobile phones for ever more

63 See Segendorf and Jansson (2012a).
64 See CPSS (2012c).
65 Previous attempts by many banks to reduce the use of cash have essentially failed, because individuals and their representatives believe that the withdrawal of their money should be free of charge; see Beijnen and Bolt (2009).

services and to boost the volume of data communications on their mobile networks, whereby offering payments is one method of accomplishing this. Reduced margins in the core operations of telecom operators, such as for voice calls, could also act as a driving force for them to find new, more profitable sources of income. In Sweden, telecom operators have created the payment service, WyWallet.

Technological innovators base their payment services on new technologies and thus create new payment services. Examples of technological innovators are iZettle and Seamless.

There are many players that primarily focus on the processes in the payment chain. Companies that modify such processes or create entirely new ones are referred to as *process innovators* and most of these have been operating in the retail-payment market for some time. None of these players could be said to offer any new payment services, because they continue to rely on already-existing services, but they engage in various rationalisations for their end users. As an important part of their services, several of the players offer invoicing solutions including debt-recovery services, which are two similar activities. Process innovators can broadly be divided into two categories:

1. Those who focus on e-commerce, take risks, offer services related to credit granting and engage in debt recovery.
2. Those who focus on the payee's needs, usually the rationalisation of the payee's invoicing and payment processes, and who offer system solutions.

Examples of the first category are Klarna, Payson, PayByBill and Collector (formerly known as PayPort). Examples of players under the latter category are PayEx and Payer.

Enablers and potential obstacles to the current market

Factors such as technological development, changes in consumer needs and behaviours, and changes in legal frameworks could create the conditions for new payment services. The factors are referred to below as *enablers*. Other factors could contribute to preventing or delaying the creation or introduction of new payment services, such as standards, patents, economies of scale and legal frameworks. Such hindrances are referred to as *barriers*. However, the reality is not always as black and white as may be suggested by the designations, "enabler" and "barrier." Depending on the particular situation, certain factors, such as the legal framework, could either enable or create barriers to new payment services.

In this section, the principal enablers are described first, followed by potential barriers in the Swedish retail-payment market. The enablers are partly of a technological nature (real-time technology, contactless technology, QR codes, smart phones and mobile broadband) and partly to do with consumer needs and behaviours.

TECHNOLOGICAL DEVELOPMENT

In the retail-payment market, technological development is an enabler in several regards. On the one hand, new technological solutions are developed to be used as new payment instruments and to improve the underlying infrastructure. In this regard, NFC technology could serve as an example (see below). On the other hand, general technological developments and the propagation of new technology are leading to faster acceptance of new payment services, their use in an increasing number of situations and with a greater impact than before. A clear example is mobile broadband and the proliferation of smartphones.

Real-time payments

Increased computing power and new technologies enable computers and systems to communicate with each other in real time. These technologies have been advancing solidly for many years and have now achieved sufficient maturity to be usable in payment contexts. Until recently, the entire electronic payment process would take at least a couple of hours and the payee would not normally have the funds in his/her account until the following day. Technological advances have now enabled the payment process to fully or partly be completed in real time, including confirmation of payment to end users.

In the Swedish market, there is also a newly developed system for real-time clearing and settlement (refer to the box about Payments in real time), which allows banks to develop real-time payment services that are connected to the new clearing and settlement system. Such payment services allow the payee to gain quick access to the funds – something that was previously only possible through cash payments. Similar payment services in other countries solely comprise real-time clearing, while settlement is implemented afterwards. One example of the last-mentioned type of service is Faster Payments in the UK.[66]

66 For more about Faster Payments, see http://www.fasterpayments.org.uk

Payments in real time

Bankgirot has developed Payments in real time (BiR, *Betalningar i Realtid*) for immediate clearing and settlement of payments. As a result of Payments in real time, conditions are created for a quick payment process allowing for funds to be directly transferred from one account to another. Payments in real time is a generic service in the sense that it is technically possible to link several different types of payment services to the Payments in real time. By allowing for both clearing and settlement in real time, banks are not required to take any credit risks, since crediting of the payee's account is only implemented upon settlement. This is essentially different from corresponding systems outside of Sweden, where the payee bank credits the payee's account before actually receiving the funds.

Payments in real time has enabled banks to launch the mobile application Swish (refer to box about mobile payment services), which enables individuals to transfer funds to each other in real time. Currently there are six Swedish banks that offer Swish but other banks are going to join later during the year.

Near Field Communication – NFC

NFC is a technology that supports contactless data communications across short distances by means of a weak radio signal. It enables the actual payment moment to be simplified. With NFC technology, the payer needs only brush against or be in the proximity of a NFC-equipped terminal to implement the actual payment. Units that can be equipped with NFC technology include cards, payment terminals and mobile phones. Cards with NFC technology have already been distributed in a number of countries. With an NFC-equipped card, the customer is not required to insert his/her card into the card-payment terminal and PIN codes are usually not required for minor purchases. Card payments involving lower values, such as for a daily lunch purchase, will thus be completed much faster than traditional card payments.

NFC technology is not only applicable to cards, but could, for example, also be used between two mobile phones to implement a payment between individuals, or between a mobile phone and a card-payment terminal for consumer payments at retailers.

In addition to being practical, the advantage of NFC technology is that consumers can easily learn to use it. The primary benefit for retailers is that payments can be performed faster and more practically than current card solutions and cash transactions, which will shorten queues and increase sales. One weakness with NFC technology is that it cannot be used for e-shopping, such as when a consumer is purchasing through the Internet.

Quick Response codes – QR

QR codes are two-dimensional codes that can be scanned with the use of mobile-phone apps or special QR readers. As with NFC technology, QR technology is a means of renewing and simplifying the payment process. QR codes can be used to identify the product or service that is being purchased, or the payer or the payee. For example, the product could feature a QR code that is scanned with a mobile phone. The consumer then receives a QR code on his/her mobile phone, thus providing the store with the consumer's identity and account details at the payment moment. Alternatively, a store may feature a QR code that enables the consumer to identify the store at the payment moment.

Figure 3:2. This QR code will take you to the Riksbank's website

Advocates of QR technology see the potential of developing mobile payments that are not necessarily tied to cash counters or other card-payment terminals. The main advantage of QR technology is that it enables consumers to be mobile in the course of payments and this particular advantage is realised when a purchase is implemented without any queuing at the checkout. This represents considerable efficiency gains and cost savings in a store. Another advantage of QR technology is that it also works for online purchases, because mobile phones can also scan the QR code displayed on a computer screen.

The disadvantage of the technology is that it is difficult to know where the code will lead to before it is scanned. Furthermore, if the QR code is used for scanning an item, the retailer will need some method of ensuring that the payer has the right item or items with them as they leave the store, meaning that the need for a checkout could remain in any case.

Examples of payment services that utilise QR codes

SEQR is a payment service for smartphones that is initially focusing on physical retailing, but also works for e-shopping and payments between individuals, etc. The payer uses an app and scans the QR code that is placed at the cash counter to identify the checkout where the payment is to be implemented. The checkout can also be identified through NFC technology. After verification and authorisation, payment is implemented in the form of an ordinary monetary transfer between accounts together with clearing and settlement through the usual financial infrastructure. The payment can either be withdrawn directly from the consumer's account or added to an invoice, somewhat similarly to a delayed-debit card. Consequently, the payment is not implemented through the card infrastructure.

Payair is a payment solution for smartphones that is also based on QR codes. The focus is on e-shopping. In this arena, goods are identified through QR-code scans, rather than through a cash terminal. Payair thus makes the purchase of individual items simple, but also offers solutions through which several items can be bought. In the latter scenario, a QR code is generated at the payment moment at the e-shopping store, which is then scanned by a mobile phone. Mobile-phone apps communicate with Payair's central solution through which the payer is identified. The actual payment is implemented as a card payment and thus passes through the usual card infrastructure.

Smartphones

Smartphones are telephones combined with a small handheld computer that is capable of connecting to the Internet through mobile or wireless broadband. The propagation of smartphones means that most of the population is quite accustomed to using a mobile phone and that it is possible to reach a large share of payers and payees with a payment app.[67] The widespread usage of smartphones is key to the development of the Swedish retail-payment market.

Accessories have also been created for smartphones that enable cards to be read directly with mobile phones and thus convert the mobile phones into a card-payment terminal (refer to box on mobile payment services). These developments have freed card payments from taking place at specific physical locations. The cost for terminals has thus also been lowered and new categories of retailers, such as market-stall holders or individuals, can receive payments by reading a card with their mobile phone.

Mobile broadband

The sharply increased capacity for data communications on mobile networks is providing the basis for a large number of smartphone applications and, similarly, is enabling retail payments through mobile broadband. Furthermore, mobile-network coverage in small cities and the countryside is also making payments less dependent on specific locations. A payment between individuals can be implemented anywhere outdoors or indoors, as long as both parties have mobile-network coverage.

67 At the end of 2012, there were approximately four million smartphones in Sweden, which has a population of 9.6 million.

Examples of mobile payment services

Swish is an app provided by six Swedish banks to their retail customers for payments between individuals and which utilises the shared infrastructure, Payments in real time, for real-time clearing and settlement. For Swish to work, both of the individuals must be connected to Swish with their respective bank accounts in one of the participating banks. The payee is identified when the payer indicates the payee's mobile-phone number. Authorisation of the payment is processed through the electronic ID service, Mobile BankID. Once the payer has approved the payment through the use of a PIN code, the payee will almost instantly receive the funds in his/her account. As with bankgiro products, individual participatory banks are free to formulate their own terms and conditions, which will be different for different banks. Other banks, in addition to the original six, will be linked later during the year.

iZettle is a technology innovator that, like *Square* in the US, has developed a small card-reading device for smartphones and tablet devices. An associated mobile-phone app has functions for implementing transactions. iZettle thus transforms mobile phones or tablet devices into card-payment terminals. Users register the particular account into which funds are to be transferred and may then check on its transaction history through the mobile-phone app. The mobile phone's capacity to act as a card-payment terminal allows for entirely new categories of payees, such as individuals and small companies, to begin receiving card payments.

CONSUMER NEEDS AND BEHAVIOURS

The consumers need for different forms of payments methods depends on the situations they encounter. The use of cash is on the decline and the average consumer probably has less cash in his/her wallet than previously, which increases the need for conducting cashless payments in situations where the consumer would previously have used cash, such as for the payment of daily lunches and evening papers. Increased online trade is leading to major demands for simple and secure remote payments. The increased usage of mobile phones in a variety of contexts is laying the foundation for transforming the mobile phone into a payment instrument, for both POS payments and remote payments.

Despite surveys indicating interest among individuals to utilise mobile phones as a means of payment, several players in the market believe that the demand is weak.[68] In somewhat simplified terms, it could be said that current payment services are practical from a consumer perspective and, consequently, many people are yet to see a reason for using new methods or payment. This means that the market's players need to employ various methods to convince consumers that it is worthwhile to use the new payment services.

Nevertheless, the new payment services, however, require that the consumers change their behaviour, which is usually difficult, because it is normally easiest for the consumer to continue doing what he/she has always done. Players in the retail-payment market agree that technology needs to be user-friendly, meaning quick, secure and simple, if a behavioural change is to succeed. The security solution should be sufficiently sophisticated to be perceived as safe, while it should not make payments too complicated. The security solution should also be able to verify that the transactions and purchases charged to the consumer were actually implemented and to minimise the risk of funds disappearing if, for example, the mobile phone were to be lost or stolen.

Generational differences may influence the development of the retail-payment market and the market's players assert that age differences will be critical in determining who will use the new payment services. In Sweden, there are more than 2.4 million people (2012) between the age of 15 and 34, and from an early age, these young adults have been acclimatised to the Internet and mobile telephony, as well as to the high-speed flow of news and new technologies. Consequently, the younger adult generation has more confidence in and is more accustomed to using technology in all types of contexts. Furthermore, this generation is knowledgeable in technology and strives for the convenience, mobility and simplicity of new technologies. This generation is highly attractive to

68 Based on interviews with various market players.

the market players and most of the new payment services are expected to have the fastest and greatest penetration among young adults.[69]

BARRIERS IN THE RETAIL-PAYMENT MARKET

There are a number of factors, referred to as barriers in this document that could individually or collectively hinder or delay the establishment of new payment services. A number of these barriers of particular significance are discussed below. These are, in order of appearance: economies of scale and network effects, internal competition, supplementary services, access to bank accounts, standards and patent, laws and regulations and uncertainty concerning new technology and services.

Economies of scale and network effects

Economies of scale and network effects among already-established payment services could form powerful barriers. Major volumes lead to low average costs and the established players thus have considerable opportunities to compete through low prices. Major networks of end users could create an immobilising effect by their sheer size and end users would be less inclined to make or receive payments with a new service unless it is or is expected to become as broadly accepted as the existing payment service. A new payment service must thus generate substantially extra value for end users to be able to establish itself in the market.

For already established players, however, economies of scope could reduce the cost of an innovative payment service, and thus facilitate its introduction, if its production can be coordinated with an already existing payment service.

Internal competition

An established payment-service provider frequently has competing payment services. If external competitive pressure is weak, a bank, for example, may have no incentive to market a new payment service that attracts customers from an existing service. From the perspective of the payment-service provider, the new service would cannibalise the old. The loss of revenues in the old service could render the new service unprofitable.

69 A study conducted by SBAB concerning attitudes to mobile payments indicates that the younger generation is generally more positive than the older generation in respect of paying by mobile phone; refer to SBAB (2012). In addition, there is a demonstrable difference in the usage of cards and cash between older and younger consumers, where the older generation tends to use cash to a greater extent. This is also thought to be influenced by educational level, residential location and gender; see Segendorf and Jansson (2012a).

Supplementary services

Established supplementary services constitute an additional barrier. For many payees, a payment service is inseparably intertwined with supplementary services. For a player to compete with a new payment service, providing a payment service alone will not suffice; supplementary services must also be offered. Developing a corresponding system of services could entail investments that are far too demanding in terms of amounts and effort. In relation to the payment services of entrants, this barrier is particularly noticeable when it concerns payees that generate a large volume of invoices, such as telecom operators or energy companies. In addition to the costs and efforts required for developing and implementing systems, players need to be a bank to efficiently and securely provide certain supplementary services. Such payees are also quite demanding and have considerable bargaining power, and the payment service could thus occasionally be unprofitable for the banks. The ability of players to offer supplementary services is thus requisite to the profitability of the entire package.

Bank accounts

A related barrier for new players that are not banks is that they do not have access to bank accounts. Currently, payers frequently deposit their money in a bank account. The bank provides the payer with certain specific methods of access to the funds in the bank account, such as by debit card, online banking, giro forms and over-the-counter cash withdrawals. In general, individuals rarely switch the primary bank that handles their checking accounts, savings and loans.

Consequently, new players that offer payment services to payers frequently need a method of gaining access to the funds in the bank account on behalf of "their" payer. The new player is then referred to the specific method offered by the banks, which usually require the actual payer to undertake an action of some kind, (for example, assign the bank to perform a credit transfer). The point of making a payment through another player's payment services is then partly lost, because the payer is nevertheless required to implement the payment at the bank. Naturally, this is a barrier to or a competitive disadvantage for new players wishing to succeed in the retail-payment market.[70]

Standards and patents

It is evident that technology is being developed in a considerable number of areas. One challenge for the market as a whole, is the lack of standards in many cases.

70 The access of payment-service providers to their customers' bank accounts is a complex issue and only a part of this issue is addressed in the text above. In addition to the abovementioned competition aspects, there is also a strong consumer-protection aspect and the rights of banks to defend their business models.

These deficiencies are causing players that use certain technologies to solely use their particular variation of the technology, thus decelerating or preventing broader usage, because other players become unsure of which variation they should invest in. The different standards thus compete with each other. NFC technology is one such example. Another example is card-payment terminals, where the payment exchangers sometimes function as "translators" between the different "languages" spoken by the systems of the various players. There is also no standardisation body or equivalent available to rule on standardisation issues; the prevailing practice is more akin to major players having to invest in one of the variations. Before then, it will be difficult to realise any economies of scale and network effects. Some players are thus holding off investments in specific technologies until such standards are established.

A number of players in the Swedish market believe that there is a risk of protracted patent disputes, even internationally, arising between certain players because these players claim that they have protected certain procedures or technologies, and intend to challenge other parties with similar technologies. A number of mobile-phone manufacturers are attempting to protect their business models through patent disputes and a similar trend could emerge in parts of the retail-payment market, which could in turn slow down development.

Legal barriers

Another potential barrier to innovations in the financial sector is regulatory frameworks, licensing obligations and the subsequent supervision by authorities, meaning that compliance with the regulations could be perceived as costly.[71]

Uncertainty about which party is ultimately liable for unauthorised transactions with payment instruments could, for example, mean that consumers will not risk using it. Similarly, uncertainty about the financial soundness of payment-service providers and perhaps about their control and supervision by authorities, is causing consumers to opt out of using them.

Inappropriately drafted laws could also counteract innovation. One example of this is the former E-money Directive that proceeded from a specific technological solution in its definition of e-money.[72] It posed a potential obstacle to the launch of e-money services based on different technologies. The problem was brought to the attention of the legislator and a revision of the former directive adopted a technology-neutral definition.

71 However, it is worth noting that none of the players who were interviewed have cited regulations or supervisory requirements as critical barriers, although they were mentioned as an aspect to be taken into account when aiming to provide payment services.

72 For more about this case, see CPSS (2012c).

At the same time, legal frameworks may occasionally function as an enabler. One example is the Payment Service Act (refer to Chapter 4), which, by introducing new categories of payment-service providers, also creates a framework for their supervision. Many payment-service providers are eager to be placed under supervision, because they believe that in the general public's eye, this is a stamp of approval by the authorities and thus indicates that payments can be securely implemented through them.

Uncertainty concerning new technologies and new services

By definition, innovative payment services are untested in the market. Consequently, security issues and the risk of fraud are elements that could reduce the general public's acceptance of new payment services. History teaches us that fraudsters are creative and that they will employ various means to seek and exploit security gaps in the new payment services. If there are gaps in security and they become public knowledge, it will be a substantial setback for the player or players who are providing the payment service.

Security risks and the risk of fraud do not actually need to be problems for them to be perceived as problems by end users. The brand of the party or parties behind a payment service is of significance in this regard, and the plausible assumption is that major players with well-known brands, such as banks or telecom operators, will be favoured, while minor players can be assumed to meet with disfavour.

Conversely, if the level of security is perceived as being high and the player or players who guarantee the security are perceived as being trustworthy, this could act as a driving force for accelerating the acceptance of a payment service. This is one reason why many payment-service providers prefer to be under supervision.

Understanding and mastering new technologies and new payment services requires that end users invest their time and energy, while companies also invest financially. Consequently, there is a risk that end users may choose to continue using their old payment service, for no other reason than that it is most convenient to do so.

International trends concerning new payment services

The image that has been outlined above about Sweden is also fairly representative on a global level. According to the analysis of a group of central banks and statistics from the World Bank, development is primarily taking place within the area of card payments, mobile payments and through new solutions within the financial infrastructure.[73] The various drivers of these trends are partly the same and partly different from the ones seen in Sweden.

73 See CPSS (2012c) and the World Bank (2012).

One driving force shared by Sweden and other countries is the need for faster payments – preferably in real time. Similarly, most new payment services have a domestic-market focus, meaning that they are not aimed at being used in other countries or to function in a cross-border context. Another similarity is the interest in offering payment services among non-banks. The entry of non-banks into the retail-payment market is exemplified by the interest in payment services being shown by major Internet companies such as Google and Facebook. Since these companies have major customer bases in several countries, they also have a platform for offering both domestic and cross-border payment services – which could provide them with a competitive advantage in e-shopping, for example.

Although in many cases the driving forces behind the development are similar in nature, there are differences as well. For example, the need for developing payment services for public transport have been strong driving forces in certain countries, but not yet in Sweden. This has often taken the form of prepaid cards or electronic money. [74] Another example is when the authorities, usually in developing nations, have been striving to increase financial inclusion, in other words, to provide a larger percentage of the population with access to bank accounts and financial services. The authorities would then either create payment services or facilitate the creation of a market for payment services. One example is India, where the investment in creating secure online identification for all its citizens will facilitate access to accounts and other financial services.[75] In other cases, private players have discovered methods of increasing financial inclusion. In this regard, the mobile-payment service M-Pesa is a prime example. In many cases, mobile-network operators have begun to use *airtime* as an instrument of payment.

74 Octopus Card in Hong Kong, SmarTrip in Washington, Suica in Tokyo, EZ-link in Singapore, Oyster Card in London, T-Money in Seul and OV-Chipkaart in Rotterdam are examples of this.

75 The system is called Aadhaar and the project is managed by Unique Identification Authority of India (UIDAI).

M-Pesa

M-Pesa is a mobile-payment service that was launched in 2007 in Kenya, through a joint venture between the mobile-network operators, Safaricom and Vodafone. M-Pesa also operates in Tanzania, Afghanistan, Fiji, South Africa and Uganda. The user opens an account with the mobile-network operator and uses the account to transfer funds. Connections, withdrawals and deposits are implemented through a network of agents – usually stores – to which the user can turn. In December 2011, M-Pesa and similar solutions had approximately 19 million users and 35,000 agents in Kenya alone.[76] In addition to deposits and withdrawals, M-Pesa can be utilised for payments between individuals and to companies.

At the time when M-Pesa was launched, only a minor percentage of Kenya's population had access to bank accounts and associated payment services. On the other hand, nearly the entire population had mobile phones, was English speaking and literate. Safaricom was also the dominant mobile-network operator. The conditions were thus positive when M-Pesa was launched and it quickly became a success. A major percentage of the population soon had easy access to accounts that could be used for payment transactions, something that previously almost exclusively involved cash. The number of payment services within the M-Pesa framework has also gradually increased. Safaricom recently entered into a partnership with a commercial bank to launch a banking service called M-Shwari, which enables savings and lending through mobile phones.[77]

76 See Communication Commission of Kenya (2011).
77 See The Economist (2013b).

SERVICES THAT SIMPLIFY PAYMENTS

There is an international trend involving services that simplify online-banking payment transactions, such as e-shopping. A consumer can be linked to his/her online-banking service for a presentation of the payment information. The consumer then logs in to his/her online-banking service to confirm the payment.

The service category that has progressed furthest with the concept is *Overlay Services,* which entails the consumer providing the process innovator with access to his/her online-banking service by sharing log-in and account information. When a purchase is made at an online store, it is the process innovator who logs in and initiates the payment on behalf of the payer. The process innovators provide an Internet-interfacing service, which could be referred to as a digital intermediary, between the online store and the payer. One problem with Overlay Services is that the payer is in most cases relinquishing his/her agreement with the bank by sharing sensitive information with the process innovator. In respect of incorrect payment or fraud, the consumer's liability has been increased.[78] The existence of Overlay Services is not widespread in Sweden, but there are relatively commonplace in the Netherlands and Germany.[79]

VIRTUAL CURRENCY

Virtual currencies have also emerged in addition to the average, more traditional payment services related to e-shopping. A virtual currency is a digital currency that is primarily used for Internet-based payments. Virtual currencies are not issued by any central bank, but are usually issued and verified by their developer, which can be a company or other private organisation. A common feature of these currencies is that they are generally not subject to the same regulations as domestic payment services because they are usually issued under a different jurisdiction.[80]

Some of these currencies are limited to usage in, for example, a certain online game, and may not be used in any other context or exchanged for different currency. World of Warcraft Gold is one example of such a currency. There are also virtual currencies that can be purchased for real currencies and which are intended for use within a specific environment. Amazon Coins appears to be such a virtual currency.[81] Some virtual currencies are usable in other online environments, such as the Linden dollar in the game, SecondLife.[82] A third category of virtual currency is usable for various types of payments, such as between individuals. Bitcoin is

78 Refer to Chapter 5 regarding liabilities for unauthorised transactions.
79 Sofort Bank is a European process innovator that offers Overlay Services in several countries, such as Germany and the Netherlands, and has more than 22,000 affiliated online stores in Europe.
80 See ECB, (2012).
81 The launch of Amazon Coins was planned for May 2013, see press release from Amazon, 5 February 2013. Amazon Coins had not yet been launched as this report went to print.
82 Lindendollars can be exchanged for euros, for example, at several independent online marketplaces.

one such virtual currency. Two other examples are Litecoin and Ripple, both of which are competitors to Bitcoin.[83] The extent and duration of a virtual currency's acceptance is determined by the users of the currency. Consequently, their value is not guaranteed, in distinction to national currencies that carry the status of a legal tender and which can always be used for tax payments, etc. For this reason, virtual currencies are not to be regarded as alternatives to national currencies.

83 Also the launch of Ripple was planned to May 2013 but had not occurred as this report went to print.

Bitcoin

Bitcoin is a virtual currency that is used for online payments between individuals and at certain online stores that accept the currency. The currency does not have a single issuer but is directly generated by the user through a special algorithm and the computing power which the user contributes to the network. In other words, its issue is governed by a set of rules. Bitcoin's design allows for the anonymous ownership and transfer of values within the network of users who have Bitcoin addresses.[84] Each user's Bitcoins are saved in a special file together with an arbitrary number of Bitcoin addresses. The wallet file can be saved on the user's computer or with a third party offering such a service. The impression garnered from interviews with various payment service providers is that this is currently a very small form of payment in Sweden.[85]

84 Anonymity has contributed to suspicions that it is being used as a means of payment in the "black market." See the Economist (2012). In Sweden, institutions that offer consumers the purchase and sale of virtual currency are considered a financial institution and are obliged to register themselves with Finansinspektionen. In the US, the Financial Crimes Enforcement Network (FinCEN, a government authority operating under the US Department of the Treasury) has also introduced compulsory registration for certain institutions that trade with virtual currency. See FinCEN (2013). The regulation of virtual currencies could contribute to their legitimisation.

85 It is somewhat ironic that there are paper based "wallets" for Bitcoins, meaning that there is software available for printing information that enable the secure storage of Bitcoins in paper form. Reference to: The New Yorker (2013).

4 The legal framework for retail payments

For the retail-payment market to function correctly, trust is needed between the various market players. Confidence can be eroded for a number of different reasons: lack of clarity concerning the responsibility of the payment intermediary, insufficient protection for amounts in accounts, lack of clarity concerning the legal status of the payment, insufficient protection of privacy and so forth. Laws and regulations are in place to increase confidence in the retail-payment market by clarifying the rights and obligations of all parties, stipulating minimum requirements for financial solvency, demanding transparency from the payment intermediaries and clearly defining when the payment has been legally executed. In this way, the laws and regulations contribute to building a structure around payments. The purpose of this chapter is to describe relevant Swedish legislation, primarily from a user perspective, and justify this on the basis of the problems that the legislator is endeavouring to resolve. This chapter also describes the special regulations that have been introduced to strengthen the consumer's position in this area.

For a certain payment service to be used, the user of the service must first view it as being safe and effective. Secondly, the user must have confidence in the payment-service provider's financial position and ability to manage the payment. Thirdly, the user must have confidence in the other parties, usually various providers of financial infrastructure, who are involved in the various steps of the payment process.

A common denominator for these three points is that the user wants to avoid the risk that the payment will not arrive because, in some way or another, it has been lost or because the user becomes subject to fraud. The structure created by the legal framework contributes to reducing the uncertainty. What is discussed below is, firstly, the type of things that could undermine the confidence of the user, and in many cases also the payee and, secondly, to describe relevant aspects of Swedish legislation from a user perspective.[86]

86 In addition to the regulatory framework that focuses directly on payment operations, there are several other regulations that to various extents are applicable to payment-service providers and payment services, such as the Banking and Financing Business Act and the Consumer Credit Act, which are not discussed in detail here.

Payments must be secure and reliable

Confidence in a *payment instrument* and the *channel* through which the user sends the payment instruction can be undermined in a number of different ways. The user's concern about the payment instrument is usually based primarily on fear of theft or fraud. Accordingly, there is a perceived risk of theft not only of cash and cards but also of mobile phones or code generators for online banking. Similarly, many people experience a risk of fraud not only when they use cards but also when they use cash and PCs, through spyware that can provide external parties with information about accounts. There is no legislation about the technical security of payment instruments and this is completely up to the issuer. Theft and fraud are not regulated specifically in laws concerning payments. However, payment legislation is important for specifying the division of responsibilities in the event of theft and fraud.

Account-based payments require that households, companies and authorities in one way or another entrust their money to their *payment-service provider* where the accounts between which the payments occur are usually found. The things that could erode the confidence of the users in a payment-service provider usually relate to the possibility that amounts in the accounts will be lost in full or in part if the payment-service provider enters into bankruptcy or is subject to embezzlement or any other criminal act. In this context, legislation plays an important role by stipulating minimum requirements in respect of financial solvency, the permits required for conducting payment intermediation and the players who are under supervision. Another factor that could undermine confidence in the payment-service provider is if the user perceives that the protection of his or her privacy is insufficient.

It is more difficult to make statements regarding the consumers' concern about the financial infrastructure because the underlying infrastructure is generally relatively unknown among consumers. However, it is definitely important that this is clarified when a payment is legally executed. Technical stoppages could undermine confidence because people then become uncertain about whether it will be possible to execute a payment and, if it is possible, when.

Money and entitlement to the account

What is completely fundamental for a payment system to function properly is that it is clearly stated what is regarded as legal tender that can be used to execute a valid payment and thus settle a debt. Both the payer, usually a consumer, and the

payee want, for example, to be sure that a payment will not be questioned after the fact.[87]

In Sweden, it is stipulated in Chapter 9, Section 14 of the Instrument of Government that coins and banknotes may only be issued by the Riksbank. Accordingly, Swedish banknotes and coins represent a receivable from the Riksbank. It is stipulated in the Sveriges Riksbank Act (the Riksbank Act) that banknotes and coins issued by the Riksbank are legal tender and that the monetary unit in Sweden is the krona (SEK). In other words, it is the SEK that is the means of payment that is generally accepted in Sweden. Anyone with a debt to somebody else can thus normally free him/herself from the debt by transferring a corresponding amount in SEK. Anyone who accepts SEK can be sure that it has a certain value and can be used at the next level to perform payments. In Sweden, however, the method of payment is subject to freedom of contract, whereby the fact that banknotes and coins are legal tender does not entail, for example, that a shop is obligated to accept cash payment.[88] Nor is there any absolute obligation for contractual parties to use SEK to settle payments and debts; instead the parties may agree that the debt is to be settled in another currency or through some other property.

The Riksbank is responsible for Sweden's supply of banknotes and coins. This means that the Riksbank has a responsibility to supply the amount of cash that is demanded in society and to ensure that banknotes and coins are designed in a secure manner. This is described in greater detail in Chapter 5 under the role of the Riksbank.[89]

87 Here a consumer is defined as a individual who takes action primarily for purposes that are not part of business operations. See Chapter 1, Section 4, pt. 16 of the Payment Service Act.

88 This way of defining legal tender differs from how payments are made in certain other countries.

89 Concerning the legal framework, it is worth mentioning that the Riksbank is entitled to issue, and has issued, regulations that govern in greater detail the operations that are connected to the Riksbank's cash-supply assignment (see, inter alia, 2005:1, the Riksbank's regulations concerning interest expense for cash that has been separated and stored in a special manner, 2009:1 the Riksbank's regulations on the redemption of banknotes and coins and 2011:1 the Riksbank's regulations on cash supply). However, the right to issue regulations does not encompass anything that is not directly connected to delivery and collection of banknotes and coins by the Riksbank. For example, the Riksbank is not entitled to issue regulations concerning the banks' handling of cash in other respects or the operations of CIT companies.

Legislative power

In Sweden, the Riksdag (the parliament) enacts new laws. However, the content of the Swedish regulatory framework for retail payments is governed largely by regulations and directives decided at EU level, as are the rules for the entire financial market. Through its EU membership, Sweden has an obligation to incorporate EU directives into Swedish law. It is the European Commission that drafts new regulations and directives. The Government Offices represent Sweden when the regulations or directives are negotiated in the EU. Usually, but not necessarily, the Swedish Ministry of Finance represents Sweden in respect of legislation that affects the retail-payment market.

EU directives may be more or less detailed and permit varying degrees of flexibility in national legislation. They can be minimum harmonisation or maximum harmonisation directives, or a combination of both. If it is a matter of minimum harmonisation directives, the directive specifies the lowest common standard of regulation, with a possibility for the Member States – on the basis of national interests and specific characteristics – to propose more stringent rules. However, if it is a matter of maximum harmonisation directives, the intention is that the rules should be the same in all Member States. Although the purpose of a directive is to harmonise rules in one area throughout the EU, in practice, the end results are quite different in the various countries. In the EU, what are known as EU regulations can also be enacted. An EU regulation is binding and directly applicable in Sweden and thus needs not be incorporated into Swedish law. An EU regulation ensures that the rules become uniform in the EU in the area covered by the regulation.

When the Riksdag enacts a new law, for example when an EU directive is to be implemented, it is often entered into the law that the government is entitled to issue more detailed regulations in the area. The rules that the government, supported by this authorisation, enact are called ordinances. In certain areas, the government is also entitled to issue ordinances without any special authorisation. In other words, ordinances contain rules that complement laws. The government is frequently also entitled to delegate the issuance of binding rules to an authority. In the financial area, it is usually Finansinspektionen (the Swedish Financial Supervisory Authority) that is empowered to issue binding regulations and general guidelines.

Pursuant to the Riksbank Act, the Riksbank is entitled to issue regulations for operations associated with the Riksbank's payment system RIX or with the cash-supply assignment.

ENTITLEMENT TO ACCOUNT AND PAYMENT SERVICES

In Sweden, it is difficult today to accept and make payments without a bank account. Accordingly, the fact that individuals and companies are entitled to open a bank account is of vital importance to the proper functioning of the retail-payment market and it is thus in the interest of society to ensure that as many people as possible have access to an account. It is apparent from the Deposit Insurance Act that institutions that offer to accept deposits are obligated to accept such deposits from *every single individual*, unless there are special reasons for not doing so.[90] Accordingly, everyone is entitled to have an account in a bank unless the bank can present special reasons for refusing an account. Special reasons to refuse someone an account could, for example, be that the customer had previously been dishonest towards the bank, that there are suspicions of money laundering or that the bank risks promoting criminal activities by opening an account. However, a single record of payment default is not a sufficient reason for a bank to refuse someone an account.[91] Nevertheless, the bank is obligated under the Money Laundering and Terrorist Financing (Prevention) Act to perform certain checks of people who want to open an account, for example of their identity, which in practice constitutes an impediment for certain people to open an account. In order to be able to efficiently withdraw cash, make credit transfers and pay bills, the account holder should also have supplementary services linked to the account, according to Finansinspektionen's general guidelines. A supplementary service could be a card, a giro service or online banking.

IT MUST BE CLEAR WHEN A DEBT HAS BEEN SETTLED

A payment is fundamentally a transfer of a monetary amount from one person to another, often in order to settle a debt. The Promissory Notes Act (1936:81) contains regulations on settling the debt relationship between creditors and debtors when nothing else has been agreed. The Promissory Notes Act contains rules concerning how and when a payment is to be performed and the rules governing interest on the debt. The Promissory Notes Act also regulates when and how a liberating payment can be made, meaning how the debtor can free him/herself from debt. Such rules are important for determining who is entitled to receive payment and to counter a situation whereby a debtor is required to pay the same debt several times.

90 See Section 11 b of the Deposit Insurance Act (1995:1571).

91 See, Finansinspektionen's general guidelines on deposit accounts and associated banking services, FFFS 2001:8.

Payment services

For the user of a payment service, it is essential to be able to trust that a payment will arrive at the intended payee regardless of who mediated the payment or of the payment instrument with which the payment was made. In this respect, the Payment Service Act (2010:751), which implements large parts of the EU's Payment Services Directive, is of vital importance. Firstly, the Payment Service Act clarifies what is to be considered a payment service according to law. Secondly, the act specifies requirements concerning the information that the parties are to provide and the rights and obligations of the end user and the payment-service provider. Thirdly, the act contains operational requirements for the players who conduct payment services and rules concerning market access for new payment-service providers.

Through the EU's Payment Services Directive, the legislator wants to achieve harmonised regulations with the same game rules for all retail-payment markets throughout the EU. As a result of this legal framework, the users' freedom of action is to be maintained and they are to have access to cheaper, safer and more efficient payment services. Although the purpose of the Payment Services Directive is to harmonise regulations in the EU, there is scope for special national solutions and, in practice, there are considerable differences in how the directive is implemented in the national legislation of the various Member States.

Parallel with the Payment Services Directive, a project initiated by the market and the EU institutions called SEPA (Single Euro Payments Area) has also been under way since 2002 in order to harmonise the European retail-payment market. Somewhat simplistically, it could be said that the Payment Services Directive aims to harmonise consumer protection regulations and the conditions under business law for conducting payment service activities, while the purpose of SEPA is to harmonise infrastructure and technical standards in the retail-payment market (see box SEPA).

SEPA

Single Euro Payments Area, SEPA, is a comprehensive project that has been in progress since 2002. The aim is to strengthen European integration and Europe's international competitiveness by means of a uniform payment structure for retail payments. By adapting to SEPA standards, it is to be possible to send and receive EUR-denominated payments, both nationally and across borders, in the same way and subject to the same terms and conditions as in the home country. Efforts to create a joint payment area have primarily focused on developing SEPA's payment instruments. This means that the banks are adapting their account, payment and card services.

Work on SEPA was initially based on self-regulation of the market and, in order to coordinate the work on the SEPA project, the European banking sector has formed a European Payments Council (EPC), which manages and operates SEPA. The ECB has an important role as an overseer of the payment system and a catalyst for new development, and has also participated as an observer in most EPC task forces. Coordination also presupposes a joint time schedule. Through an EU regulation, the SEPA End-date Regulation (260/2012), an end date is being introduced for when all EUR-denominated payments in SEPA are to be adapted. The regulation entails that all EU Member States will migrate to SEPA no later than 1 February 2014. Non-euro countries are subject to a longer transition period, until 31 October 2016.

SEPA will mainly consist of three parts: SEPA Credit Transfer, SEPA Direct Debits and SEPA card payment.

SEPA Credit Transfer pertains to EUR-denominated credit transfers. With the new SEPA services, it is to be equally simple to pay EUR-denominated invoices to another country in Europe as in the home country.

SEPA Direct Debit entails that the payer may authorise companies in other countries in Europe to debit their account in the home country. All EUR-denominated direct debit services are to be adapted to SEPA Direct Debit. Direct debit services in other currencies are not affected.

The SEPA Cards Framework entails increased security in connection with card payments but is not subject to the end date. Cards issued in the EU and that are designed to be used for EUR-denominated payments will contain a special chip (EMV), and an associated PIN code for secure identification. Retail terminals and ATMs are also to be adapted to enable their use together with the new chip technology.

WHAT PAYMENT SERVICES ARE COVERED BY THE PAYMENT SERVICE ACT?

The Payment Service Act is applicable to a number of payment services, but not all. The law states that *payment services* are deposits or withdrawals of cash from a debit account as well as the transactions required for managing the account. Payment services are also payment transactions performed through direct debit, payment instruments or account-based payments. The issuance of payment instruments (for example cards), the payment of amounts when payment instruments are used and transfer of money are also defined as payment services. Payment transactions to a system operator that functions solely as an intermediary and for which the payer approves the transaction using some form of equipment for telecommunication, digital technology or information are also classed as payment services.

The Payment Service Act is only applicable for the payment services provided in Sweden and performed in the European Economic Area (EEA). The act is also only applicable if the payment service in question is performed in EUR or in another of the national currencies of the EEA.[92]

A number of different operations are exempted from the Payment Service Act application area. The act is not applicable to CIT operations or to the possibility of withdrawing cash in conjunction with the purchasing of products or services or the exchange of currency in return for cash. Nor is the act to be applied for services provided by suppliers of technical services, such as card-payment terminals or software if this never comes into the possession of the money or of the payment instrument, which can only be used in a limited network (for example, gift vouchers). The withdrawal of cash from ATMs is also exempted if the party providing the ATM is acting on behalf of one or more card issuers and is not a party to an agreement with those who withdraw money from an account (such as Kontanten). Nor is the act applicable to payment transactions that occur with paper-based instruments such as cheques, money orders or coupons, or to transactions that occur exclusively in cash. However, paper-based giro payments are encompassed by the act. BTL is not to be applied to transactions implemented between players in settlement systems or between payment-service providers.

WHAT IS A PAYMENT INSTRUMENT?

Pursuant to the Payment Service Act, a payment instrument is a debit card or another personal instrument or personal routine used to initiate a payment order, such as a code generator for online banking. Cash and paper-based instruments, with the exception of giro forms, are not encompassed by the definition

92 Examples of such currencies are SEK, NOK, DKK and GBP. CHF is also encompassed because the EEA country Lichtenstein, which has the CHF as its national currency, has implemented the Payment Services Directive.

of payment instruments in the act. Accordingly, the definition of payment instruments in the act is narrower than how the concept is used in this report, which entails that certain payment instruments that are addressed in the report are not encompassed by the act's regulations.

REGULATIONS CONCERNING PAYMENTS PROTECT THE USERS

In order, inter alia, to protect the users of payment services from unfair terms and conditions, the Payment Service Act contains detailed regulations concerning the type of information that payment-service providers must provide to their customers, how quickly a payment transaction is to be performed and the fees that may be charged to the end user for various payment services. Such regulations contribute to creating confidence in the payment-service providers and their services, while offering extra protection to the party (the consumer) who is usually in a weaker position in the legal relationship. The consumer is protected because the Payment Service Act does not permit a payment-service provider to reach agreement with a consumer that, in several respects, would lead to less favourable protection than what is offered by the act. These regulations apply to all forms of payment-service providers, including those that do not need permission under law and those that have been exempted by Finansinspektionen (registered payment-service providers).

The main rule is that electronic payments in SEK or EUR must reach the payee no later than the day after the payment was initiated. If the payment is initiated with a written instruction, payment may be delayed one additional day. Prior to payment, a payment-service provider must provide information about, inter alia, the type of information needed for implementing the payment, how long the payment will take and what fee will be charged. In connection with payment, the payment-service provider must provide the user with information that enables the user, after the fact, to identify, inter alia, the payment, amount and currency, as well as the date when the payment was initiated. The payee is to essentially receive the same information. A payment-service provider is not entitled, for example, to charge the end user for providing information that is mandatory according to the act. It is also apparent from the rules that a payee is not entitled to charge the payer for using a payment instrument, such as in connection with card payments.[93] However, it is permissible to offer a discount.[94]

93 There are no corresponding bans in connection with payment in cash or by means of other payment instruments that are not encompassed by the Payment Service Act, which entails that it is permissible to charge fees for payment when such payment instruments are used.

94 See Bill 2009/2010:122, page 203.

The Payment Service Act also contains regulations enabling payment-service providers and payment systems to process personal data and maintain registers when this is necessary to prevent, investigate and uncover payment fraud.

Finally, the Payment Service Act also includes regulations concerning the right of access to payment systems. The purpose of these regulations is to ensure equal treatment of and competition between various categories of payment-service providers. Accordingly, these regulations are targeted at those with responsibility for a payment system and on ensuring that the rules governing the right of access to the payment system are objective, non-discriminatory and proportionate. Nor may the rules discriminate against payment-service providers due to the legal format in which their operations are conducted. Access may not be prevented to a greater extent than is necessary to protect the payment system's financial and operational stability.

RESPONSIBILITY FOR UNAUTHORISED TRANSACTIONS USING PAYMENT INSTRUMENTS

Regardless of how secure a payment instrument is, it is never possible to exclude the possibility that an unauthorised party by means of a criminal act will exploit the instrument in order to perform transactions without the consent of the account holder (*unauthorised transactions*).[95] If it is not possible to arrest the criminal and hold him/her responsible for their actions, an innocent party will have to account for the loss caused by the unauthorised transaction. This loss could be incurred by either the party (consumer or firm) whose account has been debited or by the party who issued the payment instrument used to perform the unauthorised transaction. The Act on Unauthorised Transactions with Payment Instruments (2010:738) regulates the responsibilities of an account holder for amounts debited from an account when an unauthorised party has used a payment instrument. The act implements parts of the Payment Services Directive[96] and is applicable to all parties but is only binding in relation to consumers. This entails that contractual conditions that are disadvantageous for a consumer are not valid.

In the act, it is established that the account holder has an obligation to protect the personal code to a payment instrument that he/she has obtained. The account holder is also obligated to report to his/her payment-service provider as soon as possible if the payment instrument has been mislaid or has been used in an unauthorised manner by someone. The account holder is also obligated to comply with the other terms and conditions that apply under the account agreement.

95 In the Act on Unauthorised Transactions, payment instruments are defined somewhat differently to in the Payment Service Act but this has no practical significance.

96 Accordingly, Sweden has chosen to implement the rules contained in the Payment Services Directive by means of two acts, the Payment Service Act and the Act on Unauthorised Transactions with Payment Instruments.

The account holder's behaviour affects liability for unauthorised transactions

If an account holder disregards his/her obligations to protect a code or report that an unauthorised transaction has been performed, or in any other way disregards the terms and conditions of the account agreement, the account holder risks being held liable for all or parts of the amount that has been debited against the account due to the unauthorised transaction.

The manner in which the account holder has acted and managed his/her code, whether the account holder is a consumer or not, is of significance when calculating the size of the loss that the account holder or the payment-service provider has to account for. If the account holder has not protected a personal code, he/she is responsible for the amount that has been debited against the account up to SEK 1,200. If the account holder, by means of gross negligence, is found in breach of his/her obligations, he/she is responsible for the entire amount that has been debited by an unauthorised party, although the limit for consumers is SEK 12,000. To determine whether the account holder has caused the transaction through gross negligence, an overall assessment must be made on the basis of the environment and the situation that the account holder was in, and of the account holder's possibility to protect himself/herself against an unauthorised transaction. For example, an account holder who has stored a notation of the code together with his/her debit card is regarded as having been grossly negligent if he/she lost the card and notation in a public environment.[97]

If the matter of gross negligence is particularly reprehensible, the account holder will be liable to pay the entire amount that was debited in an unauthorised manner, even if the account holder is a consumer. The term particularly reprehensible behaviour is defined as a qualified form of gross negligence. This could involve cases in which the account holder, through his/her actions, may be regarded as being indifferent to the risk of unauthorised transactions. It could, for example, entail a situation in which the account holder has left a debit card easily accessible and unattended for a long time on a crowded beach, in a changing room or in a cloakroom at a restaurant.[98] Another example would be if the account holder left his card at a night club for the charging of refreshments/entertainment over a long period.

The account holder has a responsibility to block the payment instrument and report the matter in time.

Regardless of his/her behaviour, the account holder will not be held responsible for amounts charged against his/her account after he/she has reported that the

97 See Bill 2009/2010:122, page 28.
98 See Bill 2009/2010:122, page 29.

payment instrument should be blocked. Whether the account holder, through gross negligence/particularly reprehensible behaviour, has contravened an obligation pursuant to the act lacks significance in this respect. If a transaction has been implemented after an account holder has reported that the payment instrument should be blocked, the account holder will not be held liable for such a transaction.

In order to not become liable for the entire amount, the account holder must inform the payment-service provider without any unnecessary delay after becoming aware of the unauthorised transaction. In other words, the amount limits that would otherwise have been applied do not apply if the matter is reported late, regardless of whether or not the account holder has been negligent. The right to refer to amount limits is also lost when 13 months have elapsed since the unauthorised transaction.

CROSS-BORDER PAYMENTS

In order to further integrate the internal market and create uniform conditions for end users in the EU, there is the EU regulation No. 924/2009 on cross-border payments in the Community. According to this regulation, the fees in the Community for, inter alia, cross-border payments of up to EUR 50,000 are to be the same as for payments in the same currency in a Member State. The regulation applies to payments in EUR or national currencies in the Member States that have announced their decision to apply this regulation for their own national currency, which Sweden has done.

WHO MAY PROVIDE PAYMENT SERVICES?

By controlling which particular companies are entitled to conduct payment-service activities, society has the opportunity to impose requirements on the players and to monitor them. The opportunity to issue sanctions against companies that are under supervision contributes to exerting pressure on the companies to comply with the regulations and to counteracting unsound activities. As a general rule, the provision of payment services in Sweden is thus subject to permission from Finansinspektionen. Permits are granted solely to Swedish limited-liability companies and financial associations.[99] A company that is granted such a permit is referred to as a *payment institute*. For a planned business to receive a permit, there has to be reason to assume the activity will be lawfully conducted based

99 Cross-border activities may also occur, but these are based on the foreign institute being granted a permit from the authorities of its native country. The fundamental rule is that a country's government authorities are responsible for concessions and the supervision of the participants that are registered in their country.

on sufficient forms of governance and control. The company's management and owners are also required to be suitable for conducting payment service activities.

Finansinspektionen monitors payment institutes to ensure compliance with the requirements imposed on them under the Payment Service Act. Should a payment institute neglect its duties, Finansinspektionen may issue an injunction that the institute's activities be limited in some regard, that the risks be reduced or that some other actions be taken. Finansinspektionen may also issue a reprimand or, in the event of serious violations, a warning. Reprimands and warnings may be combined with a fine. In cases of especially serious violation, Finansinspektionen may revoke the permit.

Requirements concerning financial capacity

If a payment-service provider has financial problems, there is a risk of the general public's confidence in service providers being undermined and, consequently, that they will decide not to use them for payment transactions. Should a payment-service provider be declared bankrupt, users and customers would risk losing their money and there would be a risk of the financial crisis spreading to other financial players. In common with the situation for banks, it is thus in the interest of society to try to ensure that payment-service providers are financially robust. For these reasons, the Payment Service Act imposes requirements on the start-up capital and operating capital base of payment institutes. When launching an operation, a payment institute is to have a minimum start-up capital corresponding to between EUR 20,000 and EUR 125,000. The amount of start-up capital varies depending on the category of payment services that are to be provided. At a minimum, the capital base is to correspond to the start-up capital or a capital requirement calculated based on the Capital Adequacy and Large Exposures Act.

Not all players require permits

Certain companies that provide payment services are exempt from the permit requirement under the Payment Service Act. Exemption is justifiable either by the company having received a permit under a different legislation and thus already being under supervision, or by the anticipation that the operations will be of such a limited scope that it would be unnecessary to impose a similar level of requirements on the players. For example, banks, credit-market companies and e-money institutions are granted permits under a different legislation and are thus already under the supervision of Finansinspektionen. However, they are required to abide by the code of conduct stipulated in the Payment Service Act.

However, natural persons and legal entities that are not encompassed by any exemption clauses and that would thus be required under the general rule to obtain a permit to act as a payment institute under the Payment Service

Act, may apply to Finansinspektionen and request exemption from the permit obligation. Such exemptions may be granted if the average volume of all payment transactions in the past 12 months does not exceed EUR 3 million per month. Another prerequisite for an exemption to be granted is that the company's management does not include any individuals who have been convicted of economic crime and that the management team is otherwise deemed to be suitable for conducting such operations. In addition, the company's owners are required to be suitable and there should otherwise be reasons to assume that the planned activities will be lawfully conducted. Finansinspektionen is required to register any granted exemptions from the permit requirement. The natural persons or legal entities thus become *registered payment-service providers*. As distinct from payment institutes, registered payment-service providers are not required to have any specific start-up capital or capital base.

Finansinspektionen exercises supervision of registered payment-service providers to ensure their compliance with the requirements of the Payment Service Act concerning how the operations are to be conducted. In other words, the supervision is of a more limited scope than that which payment institutes are subjected to.

OTHER OPERATIONS AND PROTECTION FOR AMOUNTS IN THE ACCOUNTS

To further generate confidence in payment-service providers, there are rules that elucidate on what the players may and may not do. In addition to providing payment services, payment institutes and registered payment-service providers are also to provide supplementary services and conduct other operations. Examples of supplementary services are providing operational and related ancillary services such as currency exchange or the operation of a payment system. Other activities may include trading in convenience goods or telecommunications operations. However, Finansinspektionen may prohibit an institution or a service provider from pursuing other activities is such operations weaken or potentially weaken the player's financial soundness or Finansinspektionen's supervision opportunities.

The Deposit Insurance Act encompasses bank accounts but not funds in accounts maintained by payment institutes and registered payment-service providers.[100] Payment institutes and registered payment-service providers are thus prohibited from receiving deposits from the public. Neither are they permitted to offer any accounts other than debit accounts used exclusively for payment transactions. The Payment Service Act contains specific regulations applicable to payment-service providers in order to protect these funds. Payment-service providers are obligated to separate any funds received for payment transactions

100 Deposit insurance is described in Chapter 5, in the section on the Swedish National Debt Office.

or to procure insurance or guarantees covering them.[101] This obligation applies to funds exceeding EUR 300. Payment institutes and registered-payment-service providers have specific opportunities for granting credit for certain categories of payment services. However, credit may only be granted if it is utilised in connection with a payment transaction, if it is not granted from funds reserved for implementing payment transactions and if the payment institute has a sufficient capital base.

All employees of a payment institute or registered payment-service provider are subject to an obligation of secrecy and the operations are encompassed by the Money Laundering and Terrorist Financing (Prevention) Act (see below). If a particular task or several operational functions are outsourced to another player, such assignment agreements are to be reported to Finansinspektionen and may not entail any deterioration in terms of security or quality.

Electronic money

Electronic money (e-money) is currently being used to a very minor extent in the Swedish market but may become more commonplace in the future. E-money is regulated by the Electronic Money Act (2011:755), which incorporates the e-money directive into Swedish law. The aim of the directive is to eliminate obstacles to market entry and to simplify the start-up and operation of business activities for issuing electronic money and to ensure equal terms and conditions for all payment-service providers. The Electronic Money Act comprises regulations governing the issue of e-money, electronic money institutions and registered issuers.

WHAT IS ELECTRONIC MONEY?

E-money is an electronically stored monetary value that represents a receivable from the issuer. E-money is paid in exchange for funds with the aim of implementing payment transactions and is accepted as a means of payment by parties other than the issuer. It can be compared with "ordinary" money, which represents a receivable at the Riksbank. However, by legal definition, e-money is not the same as a virtual currency.[102]

There are thus reasons to ensure that not just any party may issue e-money

101 The Funds Accounting Act (1944:181) stipulates that funds received for third parties with accounting liability and separated from the payee's own funds are protected from the payee's creditors in the event of bankruptcy.

102 Some virtual currencies lack issuers and/or are accepted as a means of payment solely by the issuer. Consequently, they do not meet all the criteria for being rated as e-money in the eyes of the law. Naturally, in cases where a virtual currency corresponds to the legally defined e-money currencies, the issuer is required to satisfy the stipulations of the law. Refer to Chapter 3, for an explanation of virtual currencies.

and, in Sweden, the general rule is to require a permit from Finansinspektionen. However, permits are not required by banks or if the planned operation will be limited. Finansinspektionen is required to assess whether the parties seeking permits are suitable for conducting e-money operations, and whether they have the sufficient minimum start-up capital and operating capital base. The reason for requiring start-up capital and capital base is to protect the issuer of e-money against bankruptcy. Issuers with permits are referred to as e-money institutions.

The Electronic Money Act also comprises detailed regulations governing what e-money issuers may and may not do. E-money issuers may, for example, not receive deposits or other repayable funds from the general public or offer any accounts other than debit accounts for use exclusively for payment transactions. They may also only grant credit if the credit is to be used solely in connection with a payment transaction, if the credit is not granted from funds reserved for a payment transaction or funds received in exchange for e-money and if the institution's capital base is sufficient.

E-money issuers are also required to protect the funds received in exchange for e-money. Such funds are to be separated from the issuer's own assets and from funds held on behalf of another party. Alternatively, the issuer may be covered by an insurance policy or guarantee that provides the same protection for the bearer of the e-money as if the funds had been separated.

A shared feature of these regulations is that they are aimed at protecting e-money users from loss and, ultimately, at enabling the financial system to deal with crises. Finansinspektionen monitors e-money institutions to ensure compliance with the requirements imposed on them under the Electronic Money Act and may issue sanctions against them in case of noncompliance.

Money laundering and the funding of terrorist activities

The international phenomenon of money laundering and the funding of terrorist activities does not recognise any national boundaries. Parties wishing to hide funds resulting from criminal activities or funds that are to be used in support of criminal activities may frequently attempt to exploit banks and other payment-service providers in order to launder money. To counteract such activities, laws are required to regulate the manner in which payment-service providers and others are to conduct themselves in order to expose and prevent money laundering and the funding of terrorism.

The Money Laundering and Terrorist Financing (Prevention) Act (2009:62) (Money Laundering Act) enacts the EU's third money-laundering directive and is aimed at preventing financial operations and other business activities from being exploited for money laundering or the funding of terrorist activities. *Money*

laundering refers to actions in respect of property acquired through crime that could entail concealing the asset's connection with the crime, allowing the criminal to avoid legal consequences or obstructing the recovery of the asset. Money laundering also refers to actions that involve the disposal and acquisition, possession or use of such assets. *Funding of terrorist activities* refers to the collection, supply or receipt of assets with the intention of using them for or with the knowledge that they are intended to be used for committing particularly serious crime.

Money laundering has a broad field of application and, in addition to involving banks and securities companies, also involves operations that issue electronic money and operations that provide payment services. Legal statutes are also applied to the financial institutions that fall under the Obligation to Notify Certain Financial Operations Act (1996:1006).[103] The Money Laundering Act imposes extensive requirements for measures that must be adopted by an operator to prevent money laundering. For instance, the company is to use reliable methods for identifying its customers. The company is also required to ask about the purpose of the business connections that the customer wishes to establish and the services, such as payments, with which the customer wishes to have assistance. The operator is also required to scrutinize transactions in order to identify activities that are suspected of constituting a link in a money-laundering operation or the funding of terrorist activities. Should the operator suspect such an activity, it is to be reported to the National Police Board. Operators are also obliged to abstain from performing transactions that are suspected of constituting a link in a money-laundering operation or the funding of terrorist activities.

FINANCIAL ACTION TASK FORCE

Money laundering and the funding of terrorist activities is usually a cross-border activity and efficient counteraction requires that nations cooperate across national boundaries. The Financial Action Task Force (FATF) is an international body that works to counteract money laundering and the funding of terrorist activities. The FATF's assignments include the preparation of recommendations on measures to be adopted by Member States to counteract money laundering and the funding of terrorist activities. These recommendations are politically binding and several of the recommendations have been incorporated into Swedish law, inter alia through EU directives and regulations. The FATF uses periodical assessments to ensure that Member States are abiding by these recommendations.

103 The Obligation to Notify Certain Financial Operations Act defines financial institutions as entities that conduct currency exchange or other financial operations. The concept, "other financial operations," comprises a wide range of manifestations, including currency trading, lending activities and the provision of safety deposit boxes. The provision of virtual currencies may also be subject to reporting obligations under this act. These currencies are detailed in Chapter 3.

Both the FATF and EU also issue financial sanctions against countries or individuals suspected of involvement in terrorist activities or for collaboration with terrorists. Such sanctions entail, for example, the obligation of financial companies and a considerable number of companies and professionals, including those operating outside of the financial sector, to freeze accounts and funds belonging to individuals or countries targeted by the sanctions. The US Office for Foreign Assets Control (OFAC) also issues orders that in practice are complied with across the board, even if these orders are not formally binding.

TRACEABLE ACCOUNT-BASED PAYMENTS FACILITATE THE DETECTION OF MONEY LAUNDERING

Traceable remittance of funds can be a key tool in terms of preventing, investigating and identifying money-laundering activities or the funding of terrorist activities. To ensure that information about a payer is transmitted through the entire payment chain, Regulation (EC) No. 1781/2006 was enacted by the EU, obliging payment-service providers to ensure that account-based payments are accompanied by genuine information about the payer. The regulation, which incorporates one of the FATF's recommendations, complements the Money Laundering Act and entails that payment-service providers are obligated to demand certain information from the payer and to forward it to the payee's payment-service provider.

Paper-based payment instruments

The rules of the Payment Service Act, the EU regulation on cross-board payments and the Act on Unauthorised Transactions are not applicable to paper-based payment instruments. Instead, cheques are regulated by the Cheques Act (1932:131) and money orders by the Bills of Exchange Act (1932:130).

The Bills of Exchange Act and the Cheques Act regulate the specific information that must be available for a document to qualify as a money order and a cheque. A cheque is a written payment order, through which the issuer assigns his/her bank to pay out a specific amount from his/her account. For the bearer of a cheque (the payee) to obtain payment from the bank, the issuer of the cheque is required to have the available funds in his/her account. The bearer thus assumes a credit risk from the issuer.

Regulation of financial infrastructure

As a general rule, a company that administrates a settlement system for payments needs to be granted a permit as a clearing institution, under the Securities

Market Act. Permits are granted by Finansinspektionen, which is also the body that exercises the supervision of clearing institutions. The Securities Market Act comprises regulations governing the particular requirements imposed on the company in order for permits to be granted, as well as regulations on how clearing operations are to be conducted. The act also regulates who is eligible to participate in clearing operations and the particular demands placed on the players. Other legal entities, such as key securities custodians with permits to operate banking or financing activities, may also be granted a permit to administrate a settlement system.[104]

For the stability and proper function of the financial system, it is vital that payments in a settlement system are permanent and unassailable by a liquidator, should a player in the system be declared bankrupt. Consequently, the Settlement Systems Act comprises regulations aimed at averting or minimising the risks attached to insolvency among the operators of a settlement system.[105] The regulations are solely applicable to systems known as *registered settlement systems* and this means that even if insolvency proceedings were to be initiated against an operator of such a system, an account transfer order is unassailable by third parties if it is registered in the system prior to notification of insolvency proceedings. Furthermore, an account transfer order may not be recalled by an operator using a registered settlement system or by a third party after the point of time indicated by the regulations governing the system.

The act also regulates who is eligible to administrate a registered settlement system and who is eligible to be an operator. In Sweden, there are two registered settlement systems that manage the settlement of retail payments: The Riksbank's RIX payment system and Bankgirot's system Payments in real time (Betalningar i Realtid).

THE INFRASTRUCTURE'S OWN RULES AND REGULATIONS

In addition to the regulations based on public-sector rules and regulations, the infrastructure system has its own rules governing those who wish to operate within these systems. These "rules" are thus formal agreements that regulate the private-law relationship between parties operating within the infrastructure. Since the parties who provide the infrastructure usually have a dominant position in the market, those who wish to operate within it have little or no opportunities to influence the content of the agreements. Consequently, both Visa and MasterCard have their own sets of regulations that influence card-transaction procedures. One example is Payment Card Industry, PCI, which is a regulatory framework

104 See the Settlement Systems Act, Section 4 (1999:1309) for information concerning systems for the settlement of liabilities in the financial market.

105 The Settlement Systems Act corresponds to the EU's Settlement Finality Directive.

aimed at improving security in card processing and which stipulates, inter alia, the security solutions that are to be present in the transaction. Similarly, the Riksbank and Bankgirot have regulations on procedures for players operating within their payment systems, just as there are regulations for participating in private payment systems such as Dataclearingen.

5 The roles of authorities

The purpose of laws and regulations is to inspire trust in the retail-payment market by establishing a sound division of responsibilities and sound and transparent procedures for payments. The role of authorities is to ensure compliance with the regulations and, if necessary, amend or propose regulatory changes. The Riksdag and the Swedish government have assigned a number of authorities mandates within the areas of financial stability, price stability, supervision, consumer protection and so forth to ensure an effective retail payment market. This chapter describes the roles of various authorities in the retail-payment market.

The effectiveness of the retail-payment market has economic significance. Chapter 4 describes how the legal framework inspires the trust that must exist between various market players to enable an efficient retail-payment market. The authorities satisfy three roles in this respect.

The first role is to ensure regulatory compliance. Finansinspektionen's (the Swedish Financial Supervisory Authority) supervision of banks and registered payment-service providers is one such example.

Secondly, the authorities can issue regulations that market players are obligated to follow. Allowing legislation to become too detailed is not always appropriate, since this can lead to a lack of flexibility. As a result, the legislator usually delegates the task of issuing detailed regulations to various authorities. One such example is Finansinspektionen's regulations concerning capital requirements for payment institutions.

Thirdly, authorities can propose legislative amendments or propose an enquiry into the need for a certain legislative amendment. One example of this is the Riksbank's communication to the Riksdag concerning amendments to the legislation regulating the operations of cash-in-transit companies.[106]

The work of government authorities is primarily controlled by legislation, which usually specifies an authority's accountability and the tools that are available. Most authorities are accountable to the government, which makes annual decisions concerning appropriation directions that specify the authorities' appropriation and the government's prioritisations for the coming year. This is how the government can influence the retail-payment market. The appropriation directions are prepared and distributed to the authorities by the ministries. However, the authorities have a

106 See Sveriges Riksbank (2012c).

great deal of freedom to control their operations and make independent decisions. The authorities have their own ministries as the principal. The Ministry of Finance, for example, is the principal for Finansinspektionen and the Swedish National Debt Office.

The roles held by Finansinspektionen, the Riksbank, the Swedish Competition Authority, the Swedish National Debt Office, the Swedish Post and Telecom Authority, County Administrative Boards and the Swedish Consumer Agency in relation to the retail-payment market are outlined below. Some of the authorities not included are the Swedish Police Service, the Swedish Courts and the Swedish National Board for Consumer Disputes. Their work to investigate potential crime and the application of laws affects the environment in which players in the retail-payment market operate, but their exercise of authority is not directly linked to the retail-payment market.

Finansinspektionen[107]

Finansinspektionen's assignment is to "… ensure that the financial system is stable and characterised by high confidence and effective markets that meet the needs of households and companies for financial services, and to ensure effective consumer protection."[108] Specific tasks are assigned to Finansinspektionen by the government's annual appropriation directions.[109] The main tools at the disposal of Finansinspektionen are to issue permits, prepare regulations, conduct supervision and issue sanctions.

PERMITS

For the reasons discussed in Chapter 4, individuals and companies operating in the financial sector must be subject to stringent regulation. As a result, companies offering financial services to the public require permits issued by Finansinspektionen. When considering applications, Finansinspektionen reviews the company's capital situation, operational plan, owners and corporate management.

The types of authorisation that entitle the holder to offer payment services are permits for banking operations, financing operations, payment service activities and institutions that issue electronic money. Operations to conduct or settle payment transactions require clearing authorisation.

107 Information about Finansinspektionen is available at www.fi.se
108 See Section 2 The Ordinance (2009:93) with Instruction for Finansinspektionen.
109 See, for example, Finansdepartementet (2012).

REGULATORY FORMULATION

The basic regulatory framework comprises laws enacted by the Riksdag or the EU. However, this legislation is usually more general in nature and much of the detailed regulatory formulation is delegated to national and EU authorities.[110] Finansinspektionen has two types of regulatory codes: *regulations* and *general guidelines*. The regulations are legally binding, while general guidelines are considered more as guidance. In terms of the latter, companies can choose to adopt the general guidelines or explain why they have chosen not to do so.

Finansinspektionen circulates proposals for regulations and general guidelines to market players and other stakeholders for consultation. One example of Finansinspektionen's regulatory codes is *Finansinspektionen's regulations and general guidelines (FFFS 2010:3) regarding payment institutions and registered payment-service providers*.[111] These rules stipulate the information that must be provided by payment institutions and registered payment-service providers in permit applications and disclosures. The regulations also include rules for the protection of payment service users' funds. For payment institutions, there are also separate organisational requirements and rules for calculating capital requirements.

SUPERVISION

The purpose of Finansinspektionen's supervision is to ensure compliance with existing regulations. Accordingly, Finansinspektionen's supervision covers a broad spectrum of issues in various parts of the financial sector. A large number of companies are supervised. As a result, Finansinspektionen prioritises initiatives on the basis of an assessment of risk in various financial operations and the potential degree of negative impact on other companies, consumers and taxpayers if the risks were to be realised. The basis for this assessment is derived from several different parts of Finansinspektionen's activities: firstly, the ongoing disclosures that all companies under Finansinspektionen's supervision are obligated to report and, secondly, various surveys conducted by Finansinspektionen. The results of Finansinspektionen's supervision of a company are communicated bilaterally with the company and a summary of all supervisory activities is published in Finansinspektionen's *Supervision Report*.[112]

110 For a comparison between EU legislation and Swedish legislation, see Chapter 4. Regarding EU authorities, there are three supervisory authorities, one for each sector of the financial market, with responsibility for the supervision of cross-border businesses, the application of EU regulations in all Member States and expanded cooperation between national supervisory authorities. There are also a number of organisations working at global level to formulate a harmonised, international regulatory and supervisory standard.

111 See Finansinspektionen (2010) and (2011).

112 See Finansinspektionen (2012)

SANCTIONING

Finansinspektionen intervenes if a company that it supervises, or that is obligated to register with Finansinspektionen, breaches the applicable regulations for its activities. Breaches result in a reprimand or a warning, or a decision to impose an administrative fine or injunction. Finansinspektionen may also revoke the company's authorisation.

SecuRe Pay

The European Forum on the Security of Retail Payments (SecuRe Pay) is a voluntary cooperative initiative between EU/EEA authorities.[113] SecuRe Pay primarily comprises central banks and supervisory authorities that oversee and supervise payment-service providers. The forum aims to raise awareness in relation to security and electronic retail payments. Issues span the entire payment chain, regardless of the payment channel, but exclude cheques and cash. More specifically, the initiative aims to highlight the risks and weaknesses in these areas and, if necessary, produce recommendations for payment-service providers.[114]
The overall objective is to promote a harmonised regulatory framework and minimum requirements for the level of security in the EU/EEA.

113 European Economic Area
114 The first recommendations for the security of Internet payments were published in January 2013, see ECB (2013).

The Riksbank

The Riksbank is an authority under the Riksdag and has been tasked with a number of assignments that are significant for the retail-payment market: to issue banknotes and coins, provide a settlement system, maintain price stability and promote financial stability.

NOTES AND COINS

According to the Riksbank Act, the Riksbank is responsible for providing Sweden with banknotes and coins and has the exclusive right to issue them.[115] The Act also stipulates the denominations of banknotes and coins that the Riksbank can issue.

However, the Riksbank Act is open to interpretation regarding the exact nature of the assignment. The Riksbank's interpretation is that the Riksbank should be responsible for activities in which it is difficult to achieve a high level of social efficiency without government intervention.[116] Specifically, this means that for the purpose of handling the distribution of cash in society, the Riksbank considers that the market is more suited for this than the Riksbank, since market players know their customers better and understand their needs. The role of the Riksbank is thus to supply new cash to banks and replace any cash that can no longer be used. In turn, the banks supply cash to companies and the general public. This clear division of responsibilities between the Riksbank and the banks fosters a cost-efficient distribution of banknotes and coins, which is in line with the Riksbank's task of promoting a safe and efficient payment system.[117, 118]

The Riksbank's aim is that banknotes and coins will be safe and efficient for all parties involved. The new series of banknotes and coins to be introduced in 2015 should be seen in the same light. The new banknotes will be more secure, and the denominations, size and weight of the banknotes and coins will be changed making them easier to use and simpler and cheaper to handle.

115 See Instrument of Government, Chapter 9, Section 14, and the Sveriges Riksbank Act (1988:1385), Chapter 5.

116 See Sveriges Riksbank (2004) and (2010c).

117 See Instrument of Government, Chapter 9, Section 13, and the Sveriges Riksbank Act (1988:1385), Chapter 1, Section 2.

118 Banks or bank-owned companies that are permitted to withdraw cash are known as "depository owners." At present, BDB Bankernas Depå AB is the only depository owner. In accordance with the Riksbank Act, the Riksbank has issued special regulations for depository owners when collecting and returning cash to the Riksbank (RBFS 2011:1).

New notes and coins

The current banknotes were designed about 30 years ago and require modernisation to maintain effective protection against counterfeits. The coins will be lighter and smaller, which reduces handling costs and the environmental impact.

The new series of banknotes and coins will acquire two new denominations – a two kronor coin and a 200-krona banknote. These two denominations are expected to replace a large amount of one krona coins and 100-krona notes. The number of banknotes and coins in circulation is thus expected to decrease. The gradual replacement of notes and coins will commence in October 2015 and is expected to be fully implemented by June 2017.

The design of the new banknotes and coins has accounted for three aspects: security, efficiency and the environment.

Security: To inspire trust in banknotes and coins, the public must feel certain that the cash they receive is genuine. The design of notes and coins must make them difficult to counterfeit. It is also desirable that the note denominations be such that not solely one denomination will be used.

Efficiency and the environment: The costs entailed by banknotes and coins are primarily three-fold: The Riksbank's purchasing costs, the Riksbank's handling costs and the cash market's handling costs. The objective is that total costs will be as low as possible. The choice of denominations will reduce the volume of banknotes and coins that are required to maintain an effective cash system. Fewer banknotes and coins and cheaper cash handling will also reduce the environmental impact.

SETTLEMENT SYSTEM

Payment intermediation entails that payment intermediaries undertake to transfer money from one account to another, which thus creates a need to transfer money between payment intermediaries. This can be carried out in several ways. One method is for payment intermediaries to have accounts with each other. The disadvantage is that they would then be exposed to a credit risk in relation to each other, since the proceeds in such an account can be partially or totally lost if the institution that holds the account goes bankrupt. Insolvency can thus spread from one institution to another, and they would risk falling like a row of dominoes. The same type of credit risk would also arise if the intermediaries had their accounts with a third commercial party. However, no such credit risk would arise if the third institution was a central bank, since a central bank will not become insolvent. This is referred to as settlement in central bank money and is desirable from a financial stability perspective whenever amounts are large. This is one of the reasons why the Riksbank, under the Riksbank Act, is permitted to provide a payment settlement system.[119] The RIX payment system is also vital for implementation of the monetary policy and for potential emergency liquidity assistance.

OTHER ASSIGNMENTS

According to the Riksbank Act, the objective of the monetary policy is to "maintain price stability."[120, 121] The arguments for an inflation target are usually macroeconomic, but it is less well-known that there are also good arguments for an inflation target from a payment system perspective. When inflation is high, money is less effective as a means of payment, store of value, unit of account and generally accepted payment standard.[122] Inflation reduces the purchasing power of money, making it less attractive as a store of value and means of payment and also, therefore, as a generally accepted payment standard. The same factors that undermine the will to hold cash in one currency also undermine the will to hold the currency in an account and thus the usefulness of account-based payments in that currency.[123] By inspiring confidence in the value of money, the Riksbank contributes to an efficient retail-payment market.

119 See Sveriges Riksbank Act (1988:1385), Chapter 6, Section 7.

120 See The Instrument of Government, Chapter 9, Section 13 and the Sveriges Riksbank Act (1988:1385), Chapter 1, Section 2.

121 For a description of the monetary policy objectives, see Sveriges Riksbank (2010a).

122 The four functions of money; see Edvinsson (2010).

123 If the domestic currency were to be unable to fulfil its function due to hyperinflation, payment could take the form of barter or be carried out in a foreign currency that invokes confidence. The government could also create a new national currency. This happened in Germany in the 1920s, in Hungary between 1945-1946, in Yugoslavia between 1993-1994 and in Zimbabwe a few years ago. In Germany, Reichsmark 1,000,000,000,000 were replaced by Rentenmark 1. Hungary transferred from the pengő to the forint and in Yugoslavia, the dinar was replaced by the Deutsche Mark in many places and later by the euro. Zimbabwe removed ten zeros from its dollar notes in August 2008, and another 12 zeros less than six months later.

Account-based payments rely on the willingness of households, companies and authorities to have money in their accounts. This also presupposes their confidence in the account-operating institutes that, in most cases, are banks. In the *Financial Stability Report*, which is published twice annually, the Riksbank summarises its view of the banks' resilience to potential disruptions and the risks that exist.[124] In certain cases, the Riksbank recommends specific measures to counteract risks. These recommendations may be directed towards both banks and other market players as well as legislators and other authorities. This is how the Riksbank contributes to maintaining public confidence in the account-operating institutes.

Payments are reliant on a financial infrastructure and here, the Riksbank also contributes to raising the level of security and mitigating risks. Bankgirot and RIX comprise the Swedish infrastructure for the retail-payment market. The Riksbank expects the critical financial infrastructure systems to meet the international principles issued by the CPSS-IOSCO and continuously oversees compliance with them.[125, 126, 127] The Riksbank publishes its assessment of the financial infrastructure in the annual *Financial Infrastructure Report*.[128]

The Riksbank also produces statistics for the retail-payment market, which are published in *The Swedish Financial Market* report and by Statistics Sweden. The Riksbank also participates in the formulation of regulatory frameworks and analysis by taking part in international working groups, cooperating with other Swedish authorities and providing consultation responses.[129] The Riksbank can also serve as a *catalyst* in the retail-payment market by participating in dialogue between market players and thus contributing to problem solving. Finally, if warranted, the Riksbank is open to modifying its IT systems to facilitate the development of the retail-payment market. The changes introduced by the Riksbank in RIX and associated agreements to enable "Payments in real time" is one example of this.

124 For an assessment of financial stability, see Sveriges Riksbank (2012d). The Riksbank describes its assignment to promote financial stability in Sveriges Riksbank (2010b).

125 The Committee on Payment and Settlement Systems (CPSS) is an international committee under the Bank for International Settlement (BIS). The CPSS serves as a forum for central banks to monitor and analyse developments in clearing and settlement systems. Briefly, the BIS functions as a think tank for central banks.

126 The International Organization of Securities Commissions (IOSCO) is an association of organisations that regulate the world's securities and futures markets.

127 For more information about the CPSS-IOSCO (2012) standards, see www.bis.org and www.riksbank.se.

128 See Sveriges Riksbank (2013b). The Riksbank describes its assignment to promote financial stability in The Riksbank (2012b).

129 See Sveriges Riksbank (2008) for the response to the consultation on the implementation of the Payment Services Directive.

Swedish Competition Authority[130]

Competition issues are highly significant for the Swedish retail-payment market, which is dominated by a few major players that both collaborate and compete. The Swedish Competition Authority's mission is to promote efficient competition in the private and public sectors and efficient public procurement. The authority carries out its assignment by applying legislation, supervision, proposing competition-enhancing measures, knowledge building, research, international work and cooperation with other authorities.[131]

The Swedish Competition Authority applies the Swedish Competition Act and the equivalent articles, 101 and 102, of the Treaty of the Functioning of the European Union (TFEU) and the Swedish Trading Prohibition Act in conjunction with cartel infringements. The Swedish Competition Act prohibits anti-competitive collaboration between companies, the abuse of a dominant position and anti-competitive sales activities by public entities. The Act also contains regulations empowering a court of law, on behalf of the Swedish Competition Authority, to prohibit a concentration between undertakings where this would significantly impede efficient competition.

The sanctions that may be imposed for infringements of prohibited undertakings are known as administrative fines.[132] The maximum fine is 10 per cent of a company's sales. In the event that an infringement is ongoing, the Swedish Competition Authority may order the company to cease the infringement. This is known as an order imposing obligation. Agreements that violate the competition regulations become automatically void.[133]

Swedish National Debt Office[134]

The Swedish National Debt Office is an authority under the Ministry of Finance. The Swedish National Debt Office's mission is to provide banking services for the central government, raise loans and manage central government debt, provide state guarantees and loans and promote consumer protection and ensure the stability of the financial system. The latter assignment entails that the Swedish

130 For information about the Swedish Competition Authority, see www.kkv.se

131 One example of disseminating knowledge relevant to the retail payment market is The Swedish Competition Authority (1999) and (2006).

132 The Stockholm City Court decides on whether an administrative fine should be imposed, following a request from the Swedish Competition Authority. If the company admits to violating the competition regulations, the Swedish Competition Authority may impose an administrative fine without referring the case to the City Court. An order for a fine that has been accepted is regarded as a legally binding judgment.

133 Previously, companies could apply for negative clearance in the event of, for example, cooperation or joint ventures. One example is the negative clearance issued to the banks, entailing approval of their joint ownership of Bankgirot. The negative clearance system was phased out in 2004.

134 For information about the Swedish National Debt Office, see www.riksgalden.se

National Debt Office be responsible for the Swedish *deposit insurance and investor protection* schemes. The National Debt Office can also intervene on behalf of the Swedish Government if a financial institution should encounter such grave financial difficulties that there is a risk of serious disruption to the financial system. The National Debt Office is generally described as a *supporting authority*. The support measures available to the National Debt Office (in many cases following a decision by the government) include *liquidity assistance* through guarantees and *capital infusion*. Financial stability promotes a well-functioning retail-payment market, since the transactional accounts are in the financial institutions.

The deposit insurance is a state-provided guarantee for deposits in Swedish credit institutions, such as banks and credit market companies (see the box). The objective is to protect consumers and to counteract bank runs, which could threaten the survival of the institution and indirectly impact financial stability.

Deposit insurance

The Swedish deposit insurance was introduced in 1996 and is based on an EU directive. The guarantee applies to deposits in all types of accounts, except for Individual Pension Savings accounts. When several people have a joint account (joint account holders), each person is entitled to the maximum amount of compensation. If the account is at a Swedish branch of a foreign institution, the Swedish deposit insurance will only be effective following a decision by a competent authority in the institution's home country. The Swedish government will subsequently account for the difference between the deposit insurance in the home country's guarantee and the Swedish level. The National Debt Office contacts those people with savings in an institution that has entered into bankruptcy. Account holders do not need to make their own applications.

The compensation is paid as soon as possible, although not later than 20 working days after the date the guarantee became effective. The guarantee compensates deposits plus accrued interest up to a maximum amount, corresponding to EUR 100,000 per person and institution.

The institutions covered by the deposit insurance pay a fee to the National Debt Office, which is paid into the deposit insurance fund. On March 2013, the fund balance amounted to approx. SEK 28.2 billion. If the funds should prove insufficient at a time when compensation is required, the Swedish National Debt Office can offer unlimited credit.

Emergency liquidity assistance could mean that the government intervenes and guarantees certain securities issued by an institution to finance its activities. Accordingly, lenders receive a guarantee that their loans will be repaid which, in turn, should improve the institution's liquidity situation.[135]

Capital infusion could entail that the government steps in as a part owner of the institution.[136] Shares subscribed for by the government should carry enhanced voting rights to ensure substantial government influence. Another alternative is to guarantee a scheduled issue of new shares.

The National Debt Office also administrates the *Stability Fund*, which was initiated by the Riksdag. The aim of the fund is to finance government measures to support the financial system during crises. Any calls to honour guarantees or other support for credit institutions will be charged to the fund. Similarly, any support recovered will be paid back to the fund. Since the fund is financed by fees paid by institutions, a financing system is created whereby costs are covered by financing institutions rather than taxpayers. Fees for bank guarantees issued also accrue to the Stability Fund.[137]

Swedish Post and Telecom Authority and County Administrative Boards

The Swedish Post and Telecom Authority (PTS) and the County Administrative Boards have a joint responsibility for securing access to basic payment services in the localities and rural areas where needs were considered unmet by the market. Until 2001, access to these services was provided by the government-owned Sweden Post's post offices and rural postal services. Starting in 2002, these services were provided through Sweden Post's subsidiary Svensk Kassaservice AB. In 2008, when Svensk Kassaservice was closed down, the Swedish Post and Telecom Authority was assigned to procure basic payment services in areas where the market was considered unable to meet requirements. These services were provided until 31 August 2012. The PTS's assessment was that nationwide procurement would no longer be the most effective method for securing the government's policy objective of providing basic payment services. The

135 One example of this type of assistance is the bank guarantee programme, whose purpose was to facilitate borrowing by banks and mortgage institutions and reduce their borrowing costs during the financial crisis that broke out in 2008. The guarantee programme was a short-term measure and only applied until 30 June 2011. The government extended the programme five times. The total financial limit for the programme was initially SEK 1,500 billion and, at most, the debt securities issued under the programme totalled SEK 354 billion.

136 The capitalisation programme was applied during the years 2009-2011. The aim was to increase the amount of capital in banks in an effort to counteract the risk of a severe credit crunch. The programme was subject to a limit of SEK 50 billion, but it was only utilised to a minor extent.

137 The annual fee to the stability fund is 0.036 per cent of a reference base derived from the institution's balance sheet. The aim is that the fund will amount to 2.5 per cent of GDP by 2023. For more information about the fund, see Borg and Segendorf (2010).

government's responsibility should instead be regionalised so that the counties, on the basis of their knowledge of regional needs and conditions for service, could provide access to these services through regional support and development initiatives.[138]

The County Administrative Boards have responded positively to opportunities to design and implement regional support and development initiatives. The County Administrative Boards had already been assigned the task of monitoring the existence of basic payment services that match the needs of society. As of 2013, they have also been assigned to ensure that regional support and development initiatives are implemented, when required, to provide access to basic payment services in the locations and rural areas where needs are not met by the market. The County Administrative Board in Dalarna coordinates the County Administrative Boards' monitoring assignment and also has a specific mission, in partnership with the PTS, the Swedish Agency for Economic and Regional Growth and the Swedish Agency for Growth Policy Analysis, to support the County Administrative Boards in their efforts to design and implement regional support and development initiatives.[139] The County Administrative Boards can apply for funding from PTS to finance their efforts to provide basic payment services.

The County Administrative Boards are also significant for cash distribution, since they supervise security companies that perform CIT operations.

Swedish Consumer Agency[140]

The Swedish Consumer Agency is responsible for safeguarding consumer interests in all areas, including payments. Consumers can contact the Consumer Agency for information and to lodge complaints. The main role of this authority in the retail-payment market is to produce and negotiate guidelines with card issuers. The authority's website also provides consumer rights information, such as choosing an online payment method.[141] Much of this information is also provided by *Konsumenternas Bank- och Finansbyrå,* an independent advisory service that provides free financial guidance to individuals.[142] The principals behind Konsumenternas Bank- och Finansbyrå are the Swedish Consumer Agency, Finansinspektionen, the Swedish Bankers' Association, the Swedish Investment Fund Association and the Swedish Securities Dealers Association.

138 For a more detailed description, see Post- och telestyrelsen (2012).
139 See Länsstyrelsen Dalarnas län (2009) and (2012).
140 For more information about the Swedish Consumer Agency, see www.konsumentverket.se.
141 See http://www.konsumentverket.se/Tema_ehandel/Fore-kop/Hur-ska-jag-betala/
142 See http://www.konsumenternas.se/

6 The Riksbank's view of the future Swedish retail-payment market

The retail-payment market is undergoing rapid development. New payment services are being launched and new players are entering the market. The legal framework for payments is being harmonised within the EU. Consumer and company needs for payment solutions are also changing. These trends are fundamentally positive for both the efficiency and the safety of the retail-payment market. But they also entail that there are risks that the retail-payment market need to manage.

In order for the retail-payment market to be efficient, collaboration and competition must be carefully balanced. Collaboration enables players to capitalise on economies of scale and scope and network effects, while competition promotes innovation and provides end users with access to inexpensive and appropriate payment services. Many new payment services have been or are being launched in Sweden and new players are entering the market. It is clear that the options for end users will expand over the next few years.

A central issue going forward is what impact new payment services will have and what that will subsequently mean for the structure of the retail-payment market. Some of the answers can be found in the factors that enable or present barriers to new payment services and market players. The Riksbank outlines its view of future trends in the first section of this chapter. Another issue that is closely linked to the Riksbank's mandate of promoting a safe and efficient payment system is the consequences that certain trends will have on the efficiency and safety of the retail-payment market. A discussion on this subject is provided in the second section of this chapter. In the final section, the Riksbank highlights a number of areas that it believes will be of particular importance to authorities and market players in the retail-payment market for the future.

What will the future retail-payment market be like?[143]

A variety of forces impact the retail-payment market in different ways, but two general groups of forces are clearly discernible. The first group comprises forces that are driving the retail-payment market towards increased fragmentation, while the second group drives the market towards greater concentration. A

143 The discussion surrounding the structure of the future retail payment market is based on a report from Deloitte ordered by the Riksbank.

fragmented market is defined here as a market in which no single market player is dominant enough to influence a market independently. A *concentrated market* is the opposite, meaning a market that is dominated by a single player or a small homogeneous group of players that can change the modus operandi of the market by itself. Concentration and fragmentation are, of course, extremes and between them is a scale of greater or lesser concentration and fragmentation.

According to this mode of thinking, the modern-day retail-payment market is more at the concentrated end of the scale. Today, mainly a few banks and card companies provide the dominant payment services: various forms of cards, cash and giro payments. There are indeed other forms of payments and other players, such as SMS payments offered by telecoms companies, but these forms currently account for only a small part of the retail-payment market and do not lessen the image of a relatively concentrated retail-payment market.

Fragmentation and concentration can arise at various stages of the payment process. For example, the range of payment services to end users may be fragmented but, if most of these services use the same underlying infrastructure, the infrastructure-service market will be concentrated. Today, much of the financial infrastructure is concentrated to card companies and Bankgirot, although other infrastructures do exist.

The direction of the future retail-payment market depends on the balance between the forces promoting fragmentation and those promoting concentration. The balance, in turn, depends on the inflows of new, innovative payment services and new market players.

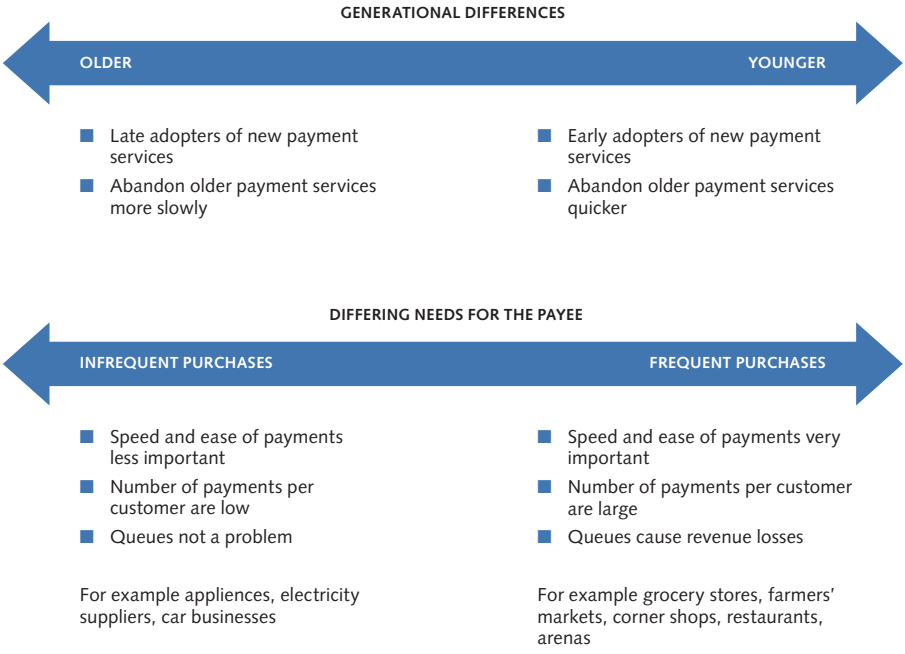
FORCES PROMOTING FRAGMENTATION

Several factors suggest that a fragmentation of the retail-payment market can be expected in the future. Firstly, many players – both existing and new challengers – are launching new payment services.

Secondly, different users may have different attitudes to the new payment services. One example is that it is reasonable to think that younger generations will adopt new payment services quicker than the older generation, on the analogy of how younger people have been quicker to accept such social medias as Facebook, for example. People of different ages preferring different payment services could, in this way, contribute to the fragmentation of the market.

Thirdly, payees may have widely differing needs, which could also contribute to the fragmentation of their demands for payment services.

Figure 6:1. Fragmentation dimensions of demand in the retail-payment market



In situations where speed and ease of payment are of great importance to sales, there may be higher acceptance of payment forms that accelerate the processes, or even entirely eliminate the need for individual payments on each purchasing occasion, compared with other purchase situations.

Arenas, for example, have a specific need for fast payment since all purchases of refreshments or food have to take place in a very short space of time and for a very large number of people. Turnover can rise sharply if payments can be made quickly and easily and queues can be shortened. There are examples of market players in both Sweden and Europe that are testing their own solutions for this specific type of situation.[144] Similar problems occur in corner shops, kiosks, lunch restaurants and local public transport in Sweden.

Fragmentation arises if these quick payment services are not usable in other environments. For example, they could be less secure than slower payment services and thus less suitable for larger amounts. Superstores, electronics retailers, furniture stores and others may then prefer other payment services.

Another type of need among payees has to do with customer loyalty. Several players in Sweden and abroad are striving to identify solutions that will enable

144 One of the interviewed market players in Sweden said that it was testing its payment service specifically in arenas. Some players have introduced their own "arena currencies" that can be seen as a type of prepaid service, but have been less driven by the queuing problems – just as often the purpose has been to make a profit on the arena currency sold but that was never used by the consumers.

a retailer, for example, to offer a bonus or discount via mobile phone or tablet device.[145] In this context, large chain stores may choose different and incompatible solutions. This would contribute to fragmentation since the consumer requires access to a number of different payment services to make different purchases.

The various technical solutions for identifying payers and payees could also result in fragmentation. QR codes and NFC technology are examples of such solutions. In other cases, it may be a text message or a telephone number, combined with a PIN code, for example. In yet more cases, consumers could identify themselves by answering a number of questions on the mobile phone or online, or by providing their mobile number.

One of these types of technology or solutions could dominate a certain niche; in other words, the payment situation. For NFC technology, for example, it could reasonably be imagined that this technology serves physical stores best, whereas QR codes are better for online stores. For this reason, it is easy to see that in a few years' time a consumer will make use of several different types of technology with accompanying mobile applications and various payment services in different situations. This breadth of payment services could then force payees to give their support to a number of different types of technology and interfaces, such as WyWallet, SEQR and NFC card.

Few forces within the financial infrastructure indicate fragmentation and it is highly unusual to have several infrastructures of the same type at national level. It is possible that indirect competition could arise with different types of infrastructures competing with each other. An example found in Germany but that does not exist in Sweden is when the infrastructure for direct debit payments competes with the infrastructures of international card schemes. Instead of making card payments in the normal way through the card infrastructure, the payment is converted into a direct debit payment and mediated through the direct debit infrastructure. Card-issuing banks thus use direct debit to sidestep the card companies' infrastructure since it is deemed to be a less costly solution.[146] In Sweden, SEQR utilises account transfers via Dataclearingen as a way around the card infrastructure in order to be able to compete with cards. Another example is when players use aggregation whereby many transactions to the same payee are combined to a single transaction that is then cleared in the infrastructure. Finally, there is also potential competition from pan-European infrastructure in certain areas. Such an infrastructure is the Step 2 clearing house.

145 Several of the interviewed players said that this is something they are considering and have solutions for.
146 There are also disadvantages with such solutions. For example, a payer is able to cancel a payment long after it was made, thus increasing the risk for the payee. In Germany, the parties involved believe that the advantages outweigh the disadvantages.

FORCES PROMOTING CONCENTRATION

The major, established market players that currently provide payment services or the underlying financial infrastructure for these services can capitalise greatly on economies of scale and scope. This is perhaps the strongest argument for having a concentrated retail-payment market. The established players have lower expenses, giving them a high level of competitiveness in relation to smaller players or potential competitors. The existence of network effects also speaks in favour of a concentration. If an end user can reach many other end users through a certain payment service, it will be perceived to be a risk or a cost to exit this network and join a newly established payment service that, at least initially, has a smaller network of end users. Such a situation can arise if a couple of large chain stores choose the same payment service. For other stores, it would then be natural to choose the same payment service since most customers will have access to it. The range of payment services will subsequently be concentrated to a small number of players with high volumes. Those players that are already large today have an advantage under this line of thinking.

Existing players also often have the advantage of being able to offer supplementary services. It is not unusual for companies with more than one product or service to cross-subsidise between different products to better meet the competition. A bank can, for example, have high margins on loans to individuals yet at the same time choose to make a loss on the actual payment.[147] The bank continues to earn money on its entire range of products and services, whereas a player that only conducts payments will experience major competition in its line of business – the payment. It is, however, unlikely that this tactic – prices of payments being set lower than the production cost for all types of payments – would characterise the entire retail-payment market. But it could well happen for certain forms of payments or in certain niches, and result in heightened concentration.

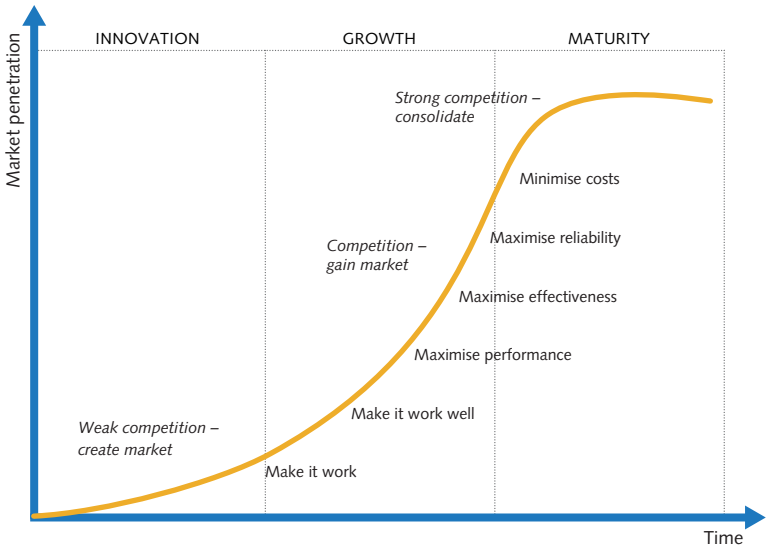
The forces moving in the direction of concentration are particularly strong in the financial infrastructure. Most new payment services in Sweden and abroad use the existing infrastructures, meaning the card infrastructure or the Swedish infrastructure for giro payments or credit transfers between banks and clearing institutions. If "Payments in real time" is viewed as a new infrastructure, it could, as a "new" system, certainly be said to represent lower concentration. Nevertheless, because it is the existing banks and Bankgirot that own and operate the system, it does not represent fragmentation among the players.

147 Common examples from other industries are cameras and printers. The manufacturer can choose to sell these products at a price below cost price. Once the customer owns a camera or printer, he/she will regularly need to buy film, ink cartridges, and toner that the manufacturer can sell at a high profit margin. Accessories or consumables will, in this way, subsidise the main product.

LIFECYCLE OF PAYMENT SERVICES

The classic model of how innovations are developed, the S curve, is a good tool for discussions about the future. As seen in Figure 6:2, innovations typically go through three main phases: innovation, growth and maturity.

Figure 6:2. Various phases of products when introduced onto a market



The new payment services are currently in the innovation phase where players are striving to ensure that their solutions function and to create a market for their services. It is clear that one of the primary tasks is to create a need among payers. Of course, it is not certain that competition in the overall market will be weak, as the model states, although competition may be weak in various niches. An example of a niche with limited competition is the one in which iZettle operates.

In the growth phase, the new payment services become increasingly accepted among end users and the competition is a matter of conquering new niches and gaining more end users. During this phase, we can expect to see the first market players being eliminated from the market as certain companies encounter difficulties in becoming profitable and capturing and retaining end users. Among the established payment services, card payments have entered the growth phase or are possibly at the start of the maturity phase. Card payments are growing and capturing market share from certain other payment services, primarily cash.

The maturity phase involves consolidation, meaning that the market is gradually concentrated. The maturity phase can be shaped in many different ways. Consolidation could mean that certain payment services completely disappear, or that one or several players, by means of acquisitions, group together payment

services to a few players, or that partnerships are created that make the services compatible with each other. Cash is at the end of the maturity phase.[148] Cheques and giro forms are beyond the maturity phase in the phase-out stage (not illustrated above), with cheques having practically disappeared and giro form payments gradually declining.

Consolidation could also mean that separate players acting as "aggregators" enter the market. These are players who enable either the payee or payer to make use of the individual payment services through the aggregator who simplifies the payment. This player could, for example, offer applications on mobile phones or online that group together customers' bonus and loyalty programmes, discount offers, tickets and payment applications and where, in a variety of ways, the aggregator simplifies the choice of bonus programme or payment service for the payer.[149] Many examples of aggregators can be seen in other areas of financial services, such as Lendo for loans and Insplanet for insurance.

THE RIKSBANK'S ASSESSMENT OF TRENDS

In this section, the Riksbank presents an account of its assessment of trends in the future retail-payment market as regards payment services, infrastructure and the use of cash.

Fragmentation of payment services followed by concentration

The Riksbank's overall assessment is that a part of the payment services that has recently been or will be introduced within a few years will be successful in the next few years, which will lead to greater fragmentation of the retail-payment market, and that this will then be followed by a period of consolidation and increased concentration. Thus, the Riksbank believes that as a result of the balance of factors promoting fragmentation vis-à-vis concentration, that fragmentation will have the upper hand in the short to medium term, after which concentration will gradually become increasingly dominant. The Riksbank is also of the opinion that card payments will continue to rise and that certain mobile payment services and NFC technology will be established within a couple of years, at least in parts of the retail-payment market.

Although the payment services compete with each other, it is rather seldom that existing payment services are quickly replaced by new services. Cards and cash have existed in parallel for a long time, as have giro forms and online banking. This suggests that the retail-payment market in the short and medium term will shift

148 Note the similarity between the S curve in Figure 6:2 and the nominal value of cash in circulation in Diagram 1:2.

149 MasterCard's PayPass Wallet and Google Wallet are examples of players that offer this type of aggregator service.

towards greater fragmentation (lower concentration) in the supply and demand for payment services.

The Riksbank believes that economies of scale and scope and network effects are very powerful forces that promote consolidation. The key issue is whether there will be a continuous flow of new players and payment services to counteract this pressure on consolidation.

The Riksbank believes that today's inflows of new players and payment services will diminish. Currently inflows are largely the result of enablers, primarily the mobile Internet, smartphones and, in the near future, probably also NFC technology. In the long term, however, it is not likely that these inflows will create the conditions for new niches in the market and new business models in the same way as we have seen to date.

Firstly, the sluggishness of consumer habits tends to slow developments. Secondly, a number of investments are being made to launch the new payment services by both service providers and the various types of companies that integrate payment services in their cash and accounting systems. The appetite for further investments in equipment will then probably decline unless very rapid technological advances reduce costs or can generate added value that end users are prepared to pay for. Thirdly, new technology usually needs to mature before it is utilised for payment services.[150] For example, smartphones had existed for a couple of years before they started to be used for payment services on a broad front. Similarly, NFC technology had been available for a number of years before it started being widely used for payments. There are currently no equivalent technological achievements that can create the next technological leap. Accordingly, the Riksbank is of the opinion that the forces promoting a consolidation should take over once the inflow of new payment services and payment providers diminishes.

Continued high concentration in the financial infrastructure

The Riksbank believes that during the foreseeable future the market for infrastructure services will be relatively concentrated in terms of both the number of systems and number of players. Firstly, many new payment services, but not all, make use of the existing financial infrastructure, such as the card infrastructure. The reason being that it is often more advantageous to build on a payment service that is already well known to customers. This reduces uncertainty for the party purchasing the payment services and a number of supplementary services are often available.

150 See The Economist (2013a).

Secondly, economies of scale and scope are particularly strong in the infrastructure. It is often less expensive to utilise an existing infrastructure than to construct a completely new one. The fact is that it is difficult to quickly build up a competitive volume of payments in a new infrastructure.

Thirdly, it is relatively difficult to recover the value invested in existing infrastructure if it were to be dismantled. Those owning the existing infrastructure have, therefore, a strong incentive to continue. A new infrastructure can thus expect to face stiff resistance and generate low profit, or even losses, for an extended period. Only the players with the strongest business models would therefore consider investing in a new infrastructure. Although few new infrastructures are likely to be established, one factor suggests increased fragmentation, albeit temporarily.

This relates to the fact that the ultimate purpose of the harmonisation taking place at EU level is to create an internal market for payments whereby the infrastructures of different countries can compete with one another. From a Swedish perspective, it is possible that the number of infrastructures offering their services in the Swedish market could increase as a result of this. However, the Riksbank believes that this process will be relatively slow compared with developments on the payment service side. In the medium term, it is possible that direct or indirect competition could arise between infrastructures, but this will probably arise gradually and at different points in time in different segments of the infrastructure market. It is also possible that the most intense conversion pressure caused by harmonisation will be found in the Eurozone and that the pressure on Sweden will be slightly lower. Overall, the Riksbank believes that concentration will remain high in the financial infrastructure.

Cash losing its significance

The Riksbank is of the opinion that it is probable that cash will become less significant in the future as a means of payment. This will happen regardless of whether the future retail-payment market becomes concentrated or fragmented.

Firstly, the use of cash for POS payments will continue to decline. This is a natural consequence of the Riksbank's assessment that fragmentation of the supply and demand for payment services will rise. POS payments will be made to a greater extent by card, card-based new payment services or other new payment services. Even for situations where the payee is a retailer and past practice has been to use cash, such as market trading, there are now mobile card-payment terminals or new payment services such as iZettle where the retailer uses a mobile phone as a card terminal.

Secondly, it is highly likely that cash will also decline in importance for payments between individuals. To date, there have been few alternatives to cash. But the

solutions for cash payments that several market players already offer, or will offer shortly, such as the banks' Swish service, telecom operators' WyWallet or iZettle, are competing with cash in this area. It should also be possible to use NFC technology for such payments, which would further simplify the process. All of the options for making payments are likely to contribute to the use of cash diminishing.

As previously discussed, payees and banks would like to reduce the amount of cash. It is then possible that it could be difficult to acquire or use cash in the future, and this will probably contribute to the decline in cash use. But the advantages of cash, primarily smaller amount and payments between individuals, means that cash is deemed to remain as a means of payment in certain situations. Neither is it a matter of course that consumers will perceive a need for paying using their mobile phone, for example, instead of using cash. Habit, perceived ease and control are factors that can take a long time to change. So although consumers are willing to adopt new payment services, their behaviour is a major restrictive factor. It may also not be financially rational for certain payees to invest in technical equipment if they handle only a few payments.

Overall, the use of cash is expected to decline, but is expected to continue to be a means of payment for the foreseeable future. A research report on the cash-less society states that the retail sector and banks believe that cash will exist until at least 2030.[151] The Riksbank estimates that the value of notes and coins in circulation in real terms will decline by 25-50 per cent by 2020.[152] However, the uncertainty is great. One reason is that it is very unclear what governs demand for cash. Almost 50-60 per cent of the value of cash in circulation cannot be attributed to retail sales or buffers held by banks or companies, which means that the rest must be attributable to, for example, private cash savings or sales on the black market.[153] It is possible that demand for cash for these purposes will not decline at the same rate as demand for cash for POS payments and that the use of cash as a whole will decrease more slowly than expected.

Risk in the future retail-payment market

Having new payment services, market players and regulations can increase safety and efficiency in the retail-payment market. At the same time, changes may entail risks that need to be managed in some way. The Riksbank has identified a number of risks that could obstruct greater safety and efficiency in the Swedish retail-payment market in the future. The risks can be divided into three Groups:

151 See Arvidsson (2013).
152 See Sveriges Riksbank (2013).
153 See Guibourg and Segendorf (2007b).

those primarily affecting and arising in the *financial infrastructure*, in *supply and demand* for payment services or with *authorities including legislation*.

RISKS IN THE FUTURE FINANCIAL INFRASTRUCTURE

The financial infrastructure encompasses the systems in which payment instructions are processed and mediated. This is where the delicate balance between competition and collaboration is put to the test since it is here that economies of scale and scope and network effects are at their strongest. The Riksbank has identified three risks that could arise in the financial infrastructure.

Firstly, shortcomings in the harmonisation of standards and interoperability between payment services could reduce efficiency. Secondly, complicated chains of functions, sub-systems and suppliers in the payment process could reduce both safety and efficiency. Thirdly, a high concentration may arise somewhere in the payment process that causes vulnerability and monopoly situations.

Too little standardisation and interoperability reduces efficiency

Interoperability allows the end users of various payment-service providers to make payments to each other and use each other's networks. Examples of interoperability are when bank customers can use other banks' ATMs and when different branded cards, such as Visa and MasterCard, are accepted in the same card-payment terminals. Interoperability is generally positive for end users: the consumer can pay at more points of sale and a store can more easily accept payment services from different payment-service providers. Common standards and interoperability make it possible to leverage network effects and economies of scale that promote efficiency in the retail-payment market. Consequently, efficiency diminishes if there is too little interoperability.

However, interoperability requires that the market players can use the same technology, which in the long run means that common standards for communication and message format must be in place. Some form of technical standard for payment instruments may also be necessary; the EMV chip on cards is an example here. However, agreeing on interoperability and creating the necessary standards is not an easy task since the interests of the various parties must be weighed against each other and there are many pitfalls that can bring down a partnership. For example, all of the parties involved have an incentive to recommend a standard that is close to the solution that they have already chosen since it is already integrated into their business models and thus reduces their own adaptation costs. Nor does this have to be the best standard to adopt from

a technical standpoint.[154] Certain players may choose to protect their own market and oppose or not adopt a standard. Patents can be used for this purpose.[155] There is also a risk that collaboration concerning standards and interoperability is used in a way that impedes competition, for example, that the market players also discuss pricing.

Commons standards and interoperability between payment services are probably more easy to create in a concentrated retail-payment market than in a fragmented market since the number of players who need to agree is fewer. Another reason is that gains in terms of larger networks and higher volumes are more tangible when large players collaborate. On the other hand, the desire to protect one's own market may be stronger in a concentrated market. Accordingly, there is a risk of initially investing too little in interoperability when the market is fragmented and that competition issues make interoperability impossible, delayed or weakened during the following concentration phase.

The most important cornerstones of future interoperability are already in place. One of these is ISO 20022, the universal financial industry message scheme that is being increasingly used for payments. It is also the messaging standard used for SEPA payments. SEPA is, in turn, another cornerstone, although it is primarily designed for payments in EUR and will thus not be automatically implemented in the Swedish retail payment market for payments in SEK.[156]

154 The prime example is video players that had two different standards, VHS and Betamax. The latter was generally deemed to be the better technical solution but VHS won the battle.

155 See the discussion on barriers in Chapter 4.

156 The Swedish Bankers' Association (2009) writes that the Swedish financial infrastructure will not fully adapt to SEPA in the foreseeable future. Nonetheless, it is natural to consider SEPA when changes are made in the existing financial infrastructure. There is, however, no guarantee of full transition to SEPA.

ISO 20022[157]

ISO 20022 is a universal financial industry messaging scheme. It was developed by the financial sector in order to create a standardised messaging format for all business processes within the industry. ISO 20022 is used or will be used in a number of retail-payment markets, such as in Australia, in the SEPA-area and for credit transfers in Japan and Singapore. A vast number of market players in the Nordic countries already use ISO 20022, thus making this standard very important to a potential future joint Nordic retail-payment market.

157 See CPSS (2012c).

Complex payment chains diminish safety and efficiency

Today, a payment instruction can pass through many different players before the payment is executed. A clear example is the account provided in Chapter 1 on the underlying infrastructure for card payments. Services that simplify payments, such as online purchases, are another example of the chain of players processing the payment becoming longer. It is quite possible that the same technology and process trends that bring added value to end users are also contributing to an increasingly complex payment chain. Several stages of the payment chain can go wrong, while the actual payment process as a whole becomes more complex. It is then difficult to evaluate the risks and it could prove difficult to clearly determine who is responsible for what and thus to assign accountability in the event that something goes wrong.

The lack of transparency in the payment chain is probably primarily a problem for companies and for the players involved in the payment process. Consumers are generally protected by the Payment Service Act but it does not apply to companies. In interviews, certain stores have said that the lack of transparency is a genuine problem. Such perceived or genuine uncertainty could make it difficult to introduce new, more efficient payment services. End users simply stick to simpler and less efficient, yet well-tested payment services. But the behaviour of payment-service providers could also be affected. The incentive for an individual player to minimise operational risks in its operations diminishes if the division of responsibilities is unclear. This is because the payment-service provider does not expect to have to pay for the entire cost of the operational disruption. Since this logic can be applied to the entire payment chain, there is the risk that too little is invested in operational reliability in most areas, thus eroding the safety and efficiency of the retail-payment market.

The lack of transparency that can arise on the basis of complicated chains of market players in the payment process is not directly associated with whether or not the future retail-payment market will be fragmented. Instead, it is a possible result of technological advances in and product development of payment services and thus presents a risk to both a fragmented and a concentrated market.

Concentration in the payment chain creates vulnerability and monopoly

Economies of scale and scope and network effects in the retail-payment market are moving in the direction of increased concentration in the infrastructure. Such concentration already exists for certain payment services in clearing (Bankgirot) and settlement (RIX) but in such cases only following approval by the authorities

or with the authorities as direct owners of the system.[158] Concentration could also arise in other parts of the payment process and for other payment services, such as the payment switch function for card payments. This could result from competition, collaboration or from the payment-service providers deciding to outsource certain operations to the same sub-supplier, without being aware of the other sub-suppliers' decisions. While concentration could lower costs and boost network effects, it is also associated with certain risks. Furthermore, an oligopoly or monopoly situation could arise. This could reduce competition, which generally results in more expensive payment services and possibly also less innovation if it then becomes more difficult for new products to enter the market. Safety is also at risk since stages in the payment process are created that are completely dependent on a single market player (*single point of failure*).

The risks associated with concentration are most relevant to a concentrated retail-payment market but can also arise in a fragmented market since many new payment services make use of the same infrastructure as existing payment services. These risks could also manifest themselves if different infrastructures happen to use the same sub-supplier, for example, in the context of outsourcing.[159]

Risks of distorting supply and demand for payment services

The risks of distorting supply and demand in the retail-payment market refer to factors associated with the interaction between end users and payment-service providers. In theory, a balance is reached in the market, with the payment services meeting the needs of end users at a low cost. The retail-payment market thus works efficiently.

The Riksbank has identified two risks that if they were to materialise would lead to an inefficient situation whereby the payment services become more expensive than necessary or less secure than consumers would like them to be. It could also be the case that a certain payment service is not offered despite the end users' willingness to pay for the service exceeding the providers' cost of supplying it. The first risk is that the inability to charge consumers for the payment services could distort supply and demand. The second risk is connected with integrity aspects.

Lack of ability to charge fees distorts supply and demand

Periodic fees for payment services, such as annual fees for a debit card, are common but consumers are seldom charged transaction fees in Sweden. One reason could be that no market player wants to be the first to charge such fees since it may result in customers fleeing to the competitors. Another reason

158 Bankgirot is under the supervision of Finansinspektionen and the banks' ownership of Bankgirot has been examined by the Swedish Competition Authority. RIX is owned by the Riksbank.

159 This potential development was discussed at the roundtable discussions arranged by the Riksbank.

is that the payment service is used as a loss-leader and costs are covered by selling supplementary services or cross-subsidisation between various customer groupings, etc.

The inability to charge consumer's fees is problematic because, in an effective market, price conveys information about the cost of providing a product or service. The consumer then makes a choice based on price in relation to how he/she values the product and the alternatives available. It is usually the consumer in the retail-payment market that chooses how a payment is to be made, for example, by card or in cash, and the lack of fees (prices) risks resulting in the consumer not selecting the most cost-effective way of paying. More cost-intensive payment services could then be overused and the cost of payments could become excessively high.[160] As a result, the retail-payment market will not be as efficient as it could have been. The Riksbank has already highlighted this problem.[161]

The range of payment services is also affected by whether providers experience problems when charging fees to customers. Firstly, it becomes more difficult for new and perhaps more cost-efficient payment services to compete with older and more expensive services if the latter is perceived by consumers to be free of charge. The ability to charge transaction fees then acts as a barrier hindering innovation and new payment services.

Secondly, payment-service providers could want to reduce their costs by rationing or not offering certain payment services. It could then become more difficult to gain access to such services, even though the consumers' appreciation of the payment services surpasses the production cost. The consequence will be inefficiency in the market and certain groupings of consumers could possibly encounter difficulty with accessing basic payment services. The current debate on the difficulties of the retail sector and the general public to obtain, use and deposit cash is an example of this problem. It is not inconceivable to envisage similar debates on, for example, paper-based giro service or even plastic debit and credit cards that we take for granted today.

Examples of groupings of consumers that could find it difficult to gain access to basic payment services are the elderly, people with impaired vision and young people, and others who do not have access to an account for some reason. It is also possible that small and medium-sized stores, sports associations, etc. will experience the same problems.

160 See Segendorf and Jansson (2012a) and (2012b) show that debit cards are economically less expensive than cash for payments of more than about SEK 20. The average cash purchase is about SEK 250, suggesting that cash is used to a greater extent than the level that would minimise the economic costs for POS payments.

161 See Segendorf and Jansson (2012a), Guibourg and Segendorf (2007a), Nyberg (2005) and (2008) and Sveriges Riksbank (2008).

The problems discussed above could arise regardless of whether the retail-payment market is fragmented or concentrated. The reason for them occurring is not to do with the structure of the market or the level of competition. It is, quite simply, rational for each payment-service provider to charge hidden fees and no one wants to be the first to start charging "visible" transaction fees.

Aspects regarding integrity and safety that could distort supply and demand

The end users' choice of payment service is not only contingent on the fees that they have to pay but also their perception of the payment service. New technology may be perceived as unsafe, either because it actually is unsafe or because the end users are unable to assess the risks correctly. The latter could, for instance, be due to a lack of transparency regarding the payment services or the technology behind it. The fact that electronic payments are registered in accounts and that the payment-service providers are obligated to check their payment traffic and their customers to ensure that no money laundering occurs could lead to consumers feeling that their personal integrity is being threatened. There is also an economic incentive among payment-service providers to sell or in another way use data extracted from payment traffic for behavioural advertising, etc, which also risks generating uncertainty regarding integrity.

Uncertainty may make it more difficult to introduce new technologies and new services. The consequence of this could be that demand and supply are concentrated to payment services that are older and better proven but more expensive to produce or are unable to satisfy the end users' needs in the same way as the new services could. The significance of integrity aspects for consumers may be exemplified by the debate that arose when certain text message payments were transferred to WyWallet.[162]

The risks that the Riksbank sees in respect of integrity aspects and that could affect the future retail-payment market are not linked to fragmentation or concentration. Instead, they involve the transparency surrounding the payment services, legislation, opportunities for generating income via fees instead of selling payment information and so forth.

162 Text message payments could previously be made through consumers' normal mobile-network operators without the need for any extra agreements to be signed. When mobile-network operators transferred to text message payments to WyWallet, many consumers were hesitant to sign the user agreement with WyWallet. Another example is the attention that has been directed to Facebook's utilisation of its users "likes" to analyse users.

THE RISK THAT THE ROLES PLAYED BY REGULATIONS AND AUTHORITIES WILL NOT PROMOTE EFFICIENCY AND SAFETY

A well-established legal framework promotes a safe and efficient retail-payment market. The task of authorities is to ensure compliance with these regulations and, if necessary, propose regulatory changes. Accordingly, shortcomings in the legal framework or in the authorities' missions could have an adverse impact on the retail-payment market. The Riksbank has identified three risks. The first is that the legal framework is not appropriately designed. Secondly, that there are gaps or overlaps between the mandates of the various authorities. Thirdly, that problems arise concerning the role of cash as legal tender or that cash cannot fully function as a means of payment in an emergency situation. The Riksbank has opted to address the risk related to cash separately from the other two risks since it originates from the lower use of cash predicted by the Riksbank.

Shortcomings in the legal framework could erode efficiency and safety

The aim of legislation is to reduce uncertainty for end users and payment intermediaries in various ways. This includes clarifying the circumstances under which payments are valid, clarifying the division of responsibilities, ensuring transparency and consumer protection, etc. Legislation must also be flexible and not unjustifiably hinder innovation or restrict new establishments in the retail-payment market. It should also be in proportion with the risks and problems that it intends to mitigate or resolve.

Shortcomings in the legal framework could arise for a variety of reasons. One reason is that legislators and authorities are generally reactionary rather than proactive. Meaning that due to a lack of information they are more likely to react after something has happened in the market than before it happens. The reason is that it is costly for the authorities to track events in the retail-payment market in detail. Accordingly, the risk exists that a certain course of events will take place undetected for some time before suddenly appearing. Another reason is that it is usually expensive and time-consuming to create and change regulations, thus making it rational not to review or change regulations more often than necessary, and it is usually only necessary when something has happened in the market. Yet another reason is that it is difficult to predict all of the consequences that a certain regulatory framework could have. Legislation may also need to strike a balance between differing objectives.

A specific example of how hard it can be to strike a balance between different targets is the set of rules on money laundering. Stopping money laundering is, of course, important to society. Consequently, small payment-service providers are also required to check their payment traffic and have extensive knowledge of their customers. This could be relatively resource-intensive for both the payment-

service providers and for Finansinspektionen which is mandated to monitor them. Consumers may also have concerns about their integrity. There is a risk that the regulations against money laundering could make it difficult for small payment-service providers to establish themselves and that it could impede the launch of new payment services.

Overall, the risk of shortcomings in legislation should be greater in a fragmented market than in a concentrated market since it is more difficult and expensive to obtain information in a fragmented market. In addition, it is probably more difficult to predict the effects of changes in regulations when complexity is greater.

Examples of problems in legislation

Example 1: The former e-money directive introduced in 2000 was based on a technology-based definition of e-money and is generally considered to have presented a barrier to innovation. A new, technology-neutral definition of e-money was introduced when the directive was reviewed in 2009.

Example 2: Over the years, CIT (cash in transit) companies have acquired an expanded role in the distribution of cash and currently perform a number of assignments, in addition to cash transportation, such as processing of banknotes and coins, as well as quality assurance. However, the law regulating their operations and the supervision to which they are subject is from the mid-1970s and has not anticipated the increased importance of CIT companies. The circumstances surrounding the bankruptcy of Panaxia in 2012 can be partly viewed in this light.[163]

Example 3: The Payment Service Act expressly forbids payees, such as stores, from charging a fee to the payer (surcharging). This reduces the merchant's ability to influence its customers' choice of payment service and contributes to consumers' perception that payments are free of charge. It could lead to the overuse of payment services that are expensive to provide.[164] Legislation in this area also varies among the different EU countries.

163 See Sveriges Riksbank (2012c).

164 See Segendorf and Jansson (2012a) and (2012b) found that consumers' incentives, based on their private finances, to use cash and credit cards is higher than can be justified from a social economic perspective. It entails that cash and credit cards risk being used to excessively and, at least for cash, this already appears to be the case.

Gaps in the mission of authorities and lack of coordination could erode efficiency

The missions performed by the authorities are governed by applicable legislation and, where appropriate, appropriation directives. In a changing world, there is a risk that legislation or the governance of authorities will not sufficiently rapidly adapt to changed circumstances. For example, a certain operation may be conducted without supervision or control from any authority. Other areas could instead receive more attention than justified from an economic perspective. Too little, too much or incorrectly structured activity by authorities could prevent changes in the retail-payment market, lead to higher administrative expenses than necessary or to greater uncertainty or costs for end users. In the final analysis, efficiency and safety in the retail-payment market will be negatively affected.

Authorities themselves are involved in specifying their missions. The problem of authorities often being forced to be reactionary rather than proactive also risks resulting in their missions, and how they choose to carry them out, not keeping abreast of market developments. This is where gaps in the exercise of authority can occur, despite regular communication between the authorities. It may also be the case that an authority believes that a certain issue does not fall under its responsibility if its mission leaves room for interpretation. This problem remains, and can be more difficult to detect, when several authorities have overlapping missions and responsibilities. Neither can it be excluded that the missions and actions of different authorities may, to a certain extent, counteract each other or that the work of market players may be duplicated.

The Riksbank is of the opinion that the risk of gaps in the authorities' missions and of shortcomings in coordination is greatest in a fragmented market. The reason for this is that it is most likely more difficult to gain access to information in a fragmented and complex market compared with a concentrated market.

Lack of cash could undermine the function of cash

The Riksbank believes that the use of cash will continue to decline and possibly be far lower than it is today. This is the result of an increasingly large percentage of payments being made electronically, which is indeed positive since it facilitates greater efficiency in the retail-payment market. At the same time, this trend risks causing problems in the future, one of which is that cash will essentially no longer function as *legal tender;* in other words, it will no longer be generally accepted as payment.[165] It may even be the case that no payment service is generally accepted if the future retail-payment market is too fragmented. This could lead to

165 Generally, no legal obligation exists to accept cash as payment. Instead there is contractual freedom concerning how a payment can be made; see Chapter 4.

considerable problems for consumers if they do not know in advance how they are to pay for a purchase.

Another problem is that the transition from cash to various forms of electronic payments makes the retail-payment market increasingly dependent on technology. Power failures and disruptions to telecommunications or Internet traffic could make it difficult or impossible to carry out payments. Cash has been viewed as the obvious back-up solution in such situations. The problem is that the capacity of the infrastructure for the distribution of cash may have shrunk considerably since cash is no longer used as frequently. Consequently, the risk is that the market players will not be able to sufficiently quickly or in sufficiently large quantities distribute cash in the event of a rapid increase in demand, even though the Riksbank has a sufficient amount of banknotes and coins in storage.

ATMs and the banks' cash systems can also not work without electricity and functioning communication, which would then cut off the distribution of cash to the general public despite cash having been distributed to the banks. Furthermore, stores are becoming increasingly dependent on technology. For instance, the checkout systems must be operational in order to register payments. Closed checkout systems where personnel do not have access to cash are also becoming increasingly common, and are also reliant on electricity to function. Thus it is quite possible that stores will be unable to accept cash payments in an emergency. Despite cash being available, there is the risk that cash is not sufficiently satisfactory as a backup solution.

These risks are already relevant today and will become greater over time. Accordingly, authorities and legislators need to take a standpoint in relation to these risks, both today and in the future retail-payment market.

The Riksbank's conclusions

Today, Sweden has one of the most efficient retail-payment markets in the world, which is largely due to market players utilising new technology and regulations supporting a healthy balance between competition and collaboration without closing the market to new players. From an international context, the percentage of electronic payments is high and the use of cheques is very low. Cards are often used and cash relatively infrequently. The economic cost of payments is low compared with most countries.[166]

The Riksbank believes that the number of players in the retail-payment market and the range of payment services will rise in the short to medium term, primarily as a result of rapid technological advances. This trend will make the retail-payment

166 See Chapter 3, Schmiedel et al. and Segendorf och Jansson (2012a) and (2012b). Sweden is also a frontrunner in terms of innovation in the field of retail payments.

market more fragmented than it is today. However, the financial infrastructure will probably remain concentrated even though the infrastructures in different countries will compete with each other to a greater extent. In the longer term, the forces promoting greater concentration in the retail-payment market (economies of scale and scope and network effects) will gain the upper hand and the number of players and payment services will then reduce. The Riksbank is of the opinion that the use of cash will continue to decline steadily over time.

The Riksbank believes that new payment services, players and regulations have a great potential to increase the safety and efficiency in the Swedish retail payment market.

Despite this, changes will also entail risks that will need to be managed. The Riksbank has identified a number of risks that could make the retail-payment market less safe and efficient. These risks could arise in three areas.

The first area is the *technological systems* through which payments are mediated and processed and where the risks arise due to shortcomings in interoperability and standards, complicated chains of players and a high concentration in parts of the payment chain.

The second area is the *supply and demand* for payment services, which risk being distorted by the inability of players to charge transaction fees to consumers and by consumer concerns regarding their integrity.

The third area involves the *authorities' missions and legislation* where shortcomings can arise when the authorities and legislators are not fully aware of everything that happens in the market and therefore are forced to act in retrospect.

In addition, the role played by cash as generally accepted legal tender could end up being undermined, as could its role as an alternative means of payment in crisis situations.

Against this background, the Riksbank believes that there are four primary areas that should be focused on by market players and authorities in the future. These areas are: *the function of cash, competition issues, technology and EU harmonisation.*

THE FUNCTION OF CASH

Trends in the retail-payment market are undermining the function of cash in two respects. Firstly, the risk exists that in practice cash will no longer be able to serve as legal tender. Secondly, there is the risk that cash will no longer be able to serve as an alternative means of payment in a crisis situation.

These risks arise entirely or partly through the use of cash gradually declining, whereby usage could reach a critically low level in the future. However, it is difficult to determine exactly when such a level will be reached and the structural

changes that the retail-payment market is currently undergoing make this even more complicated. Firstly, no one knows today what the distribution channels for cash will look like in the future. Certain market players are currently reducing their involvement in the cash market, while others are increasing their participation and can see new business opportunities. Secondly, many new payment services are being introduced that are entirely or partly competing with cash. The extent to which these services will replace cash remains to be seen.

The Riksbank believes that most risks already exist today and that they will rise, in part because the use of cash is expected to decline. Legislators should take a standpoint vis-à-vis these risks and consider the role that cash should play in the future. If cash is to retain its role in the long term, legislators and authorities should analyse the different ways of ensuring that cash can continue to be used as legal tender and that adequate capacity exists for the distribution of cash. Market players should consider how they are to manage elevated demand for cash from the general public who are their customers, and how they can tackle any problems that the retail sector has in accepting cash payments from customers in various situations.

COMPETITION

The nature of the balance between competition and cooperation is vital to the payment-service providers' ability to charge transaction fees, and for the degree of concentration in parts of the payment chain. It also dictates opportunities for identifying forms of partnership concerning, for instance, interoperability and standards. In this context, it is essential that collaboration and payment systems are open so that other market players can join under competition-neutral forms. Fast-moving developments in the retail-payment market with new payment services and new players being established impose rigorous demands on the authorities to monitor trends and react if competition were to be threatened in any way. Accordingly, the authorities should ensure that they maintain regular contact with market players and with each other to identify and analyse various courses of events at an early stage.

TECHNOLOGY

Technological advances are one of the most powerful drivers fuelling the ongoing structural change in the Swedish retail-payment market. They also contribute to making payment chains more complex whereby vulnerability and risks more difficult to detect and assess. The Riksbank believes that the market players themselves should also identify their technical dependencies, endeavour to reduce risks in their own systems and promote increased transparency. The authorities

should also monitor developments in the market and, in dialogue with market players, identify weaknesses in the payment system and possible measures for reducing vulnerability.

EU HARMONISATION

Much of the regulatory framework that will govern the future retail-payment market will be entirely or partly prepared in Brussels. This could create or counteract the shortcomings in Swedish legislation and influence the work of the authorities. Legislation is also important for competition issues and could help reduce vulnerability.[167, 168]

It is becoming increasingly important to fully participate in producing new regulations at EU level since such rules will have a major impact on the Swedish retail-payment market. This imposes increasingly rigorous demands on the priorities made and the resources used by the Swedish authorities and the market players. The need for dialogue between the authorities and market players will also rise. A forward-looking Swedish position regarding the work at EU level should be based on extensive analyses in the areas of competition and technology.

WHAT CAN THE RIKSBANK DO?

Firstly, the Riksbank intends to actively continue to monitor developments in the retail-payment market. The Riksbank's conclusions highlight a number of complex issues for which there are no simple or quick answers. However, it is clear that the fast pace of activity in the retail-payment market requires an overview of the market and increased dialogue among all players in the market. The aim is to more quickly and more diversely identify potential problems and find solutions. One purpose of this report has been to create the conditions for such a dialogue to be conducted. For its part, the Riksbank intends, within its mandate to continue its work in this direction.

167 Competition will be affected by, for example, regulations concerning interchange fees, third-party access to the consumers' bank accounts and the right for payees to charge fees (surcharging).

168 Vulnerability in the payment chain could be affected by, for example, work in SecuRe Pay (see box in Chapter 5).

Bibliography

Arango, C., Huynh, K., Fung, B. and Stuber, G. (2012), "The Changing Landscape for Retail Payments in Canada and the Implications for the Demand for Cash", *Bank of Canada Review*, Autumn 2012.

Ardizzi G. (2013), "The impact of microchips on payment card fraud", *The Journal of Financial Market Infrastructures*, volume 1, no. 2.

Arvidsson, N. (2013), *The Cashless Society – a research-project report*, the Royal Swedish Institute of Technology, 15 January 2013.

Banca d'Italia (2012), "Il costo sociale degli strumenti di pagamento in Italia", Tematiche Istituzionali, November 2012.

Beijnen, C. and Bolt, W. (2009), "Size matters: Economies of scale in euro payment process" *Journal of Banking & Finance*, 2009, vol. 33, no. 2.

Borg, A. & Segendorf, B. (2010), "The Swedish Stability Fund and Stability Fee", *IFC Review*, May 2010.

Communication Commission of Kenya (2011), *Quarterly Sector Statistics Report*, 2nd Quarter October–December 2011/2012.

CPSS (1980), *Payment Systems in Eleven Developed Countries*, Bank for International Settlement, Basel.

CPSS (1985), *Payment Systems in Eleven Developed Countries*, Bank for International Settlement, Basel.

CPSS (1990), *Statistics on Payment Systems in Eleven Developed Countries* – figures for 1989, Bank for International Settlement, Basel.

CPSS (2011), *Payment, Clearing and Settlement Systems in the CPSS Countries*, vol. 1, Bank for International Settlement, Basel.

CPSS (2012a), *Payment, Clearing and Settlement Systems in the CPSS Countries*, vol. 2, Bank for International Settlement, Basel.

CPSS (2012b), *Statistics on Payment, Clearing and Settlement Systems in the CPSS Countries – figures for 2011*, Bank for International Settlement, Basel.

CPSS (2012c), *Innovations in Retail Payments*, Bank for International Settlement, Basel.

CPSS-IOSCO (2012), *CPSS-IOSCO Principles for Financial Market Infrastructures,* Basel.

Danish National Bank (2012), *Costs of payments in Denmark.*

DNB (2012), *Oversight of Payment and Settlement Systems 2011.*

ECB (2012), *Virtual Currency Scheme*, October 2012.

ECB (2013), *Recommendations for the Security of Internet Payments*, January 2013.

Edvinsson, R. (2010), "Swedish Monetary Standards in a Historical Perspective", Edvinsson et al. (ed), *Exchange rates, prices, and wages 1277-2008*, Sveriges Riksbank.

Evans, D. and Schmalensee, R. (2005), "The Economics of Interchange Fees and Their Regulation: An Overview", *The Payment Card Economics Review*, vol. 1, pp 73-120.

Evans, D. and Schmalensee, R. (2010), "Failure to Launch: Critical Mass in Platform Businesses", *Review of Network Economics*, vol. 9 (4).

Finansdepartementet (2012), "Regleringsbrev för budgetåret 2013 avseende Finansinspektionen", Dnr Fi2012/852, Fi20121/2204 and Fi2012/2345.

Finansinspektionen (2002a), *Från konto till konto – En granskning av överföringstider inom Sverige och EES*, report 2002:2.

Finansinspektionen, (2002b). *Från konto till konto IV* – En granskning av överföringstider inom Sverige och EES, report 2002:9.

Finansinspektionen (2010), Regulations and general guidelines (FFFS 2010:3) governing payment institutions and registered payment-service providers.

Finansinspektionen (2011), Amendments to Finansinspektionen's regulations and general guidelines (FFFS 2010:3) governing payment institutions and registered payment-service providers, FFFS 2011:51.

Finansinspektionen (2012), *Supervision report 2012*.

FinCEN (2013), *Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies*, Financial Crimes Enforcement Network. FIN-2013-G001, 18 March 2013.

Guibourg, G. and Segendorf, B. (2007a), "A note on the price and cost structure of retail payment services in the Swedish banking sector 2002", *Journal of Banking and Finance*, vol. 31, pp 2817-2827.

Guibourg, G. and Segendorf, B. (2007b), "The use of cash and the size of the shadow economy in Sweden," the Riksbank's Working Paper Series, no. 204.

Gresvik, O. and Haare, H. (2009), "Costs in the Norwegian Payment System", Staff memo, no. 4, 2009.

Holmström, J. and Stalder, F. (2001), "Drifting technologies and multi-purpose networks: the case of the Swedish cashcard", *Information and Organization*, vol. 187-206.

Jonker, N., Kosse, A. and Hernández, L. (2012), "Cash usage in the Netherlands: How much, where, when, who and whenever one wants?", DNB Occasional Studies, vol. 10, no. 2.

Konkurrensverket, (1999), "Konkurrens på bankmarknaden – betalningsförmedling och villkor för nya aktörer", Konkurrensverkets rapportserie, 1999:2

Konkurrensverket, (2006), "Tillträdesvillkor för betalsystem – skillnader för små och stora banker", Konkurrensverkets rapportserie, 2006:1.

Länstyrelsen Dalarnas Län, (2009), "Årsrapport Länsstyrelsernas bevakning av grundläggande betaltjänster", rapportnummer 2009:26.

Länstyrelsen Dalarnas Län, (2012), "Betaltjänster – bredband & ny teknik", rapportnummer 2012:11.

Norges Bank (2012), *Annual Report on Payment Systems 2011.*

Nyberg, L. and Guibourg, G. (2003), "Card Payments in Sweden", *Sveriges Riksbank Economic Review*, no. 2003:2.

Nyberg, L. (2005), "Prices and Costs in the Swedish Payment Market", published speech, 25 January 2005.

Nyberg, L. (2008), "Payment is Costly – are we using too much cash?", published speech, 28 May 2008.

Riksgälden (2010), "Allmän information om det svenska garantiprogrammet".

Post- och telestyrelsen, (2012), "Ett nytt sätt att arbeta. Regionalisering av insatser inom grundläggande betaltjänster", PSTS rapportnummer PTS-ER 2012:23.

Rochet, J-C. (2003), "Theory of interchange Fees: A Synthesis of Recent Contributions", *Review of Network Economics*, vol. 2(2).

Rochet, J-C. and Tirole, J. (2003a), "Platform Competition in Two-sided markets", *Journal of the European Economic Association*, vol. 1(4).

Rochet, J-C. and Tirole, J. (2003b), "An Economic Analysis of the Determination of Interchange Fees in Payment Card Systems", *Review of Network Economics*, vol. 2(2).

SBAB (2012), "Undersökning mobila betalningar vecka 35-36 2012.

Segendorf, B. and Jansson, T. (2012a), "The Cost of Consumer Payments in Sweden", the Riksbank's Working Paper Series, no. 262.

Segendorf B. and Jansson T. (2012b), "Cards or Cash. How should we pay?", *Sveriges Riksbank Economic Review*, nr 2012:3.

Schmiedel, H., Kostova, G. and Ruttenberg, W. (2012), "The social and private costs of retail payments instruments: a European perspective", Occasional paper series, no. 137, September 2012, ECB.

Swedish Code of Statutes (2009:93), The Ordinance with Instruction for Finansinspektionen.

Swedish Bankers' Association (2009). *Swedish plan for Single Euro Payments Area* (SEPA), ed. 3, 29 May 2009.

Sveriges Riksbank (2004), "Översyn av kontanthanteringen i Sverige", memorandum, reg. no. 2004-197-MOP.

Sveriges Riksbank (2008), "Yttrande över remiss angående genomförandet av betaltjänstdirektivet", dnr 2008.

Sveriges Riksbank (2009), *The Swedish the Financial Market 2009*.

Sveriges Riksbank (2010a), *Monetary policy in Sweden*.

Sveriges Riksbank (2010b), *The Riksbank and Financial Stability*.

Sveriges Riksbank (2010c), "Policy för kontantförsörjningen", memorandum, dnr ADM-2010-248.

Sveriges Riksbank (2012a), *The Swedish Financial Market 2012*.

Sveriges Riksbank (2012b), *The Riksbank's oversight of the financial infrastructure*.

Sveriges Riksbank (2012c), "Framställning om vissa utredningsbehov med anledning av Panaxias konkurs", *framställning till riksdagen* 2012/13: RB3.

Sveriges Riksbank (2012d). Financial Stability Report 2012:2, November.

Sveriges Riksbank (2013a). 2012 Annual Report.

Sveriges Riksbank (2013b). *Financial Infrastructure Report 2013*, April.

Takala, K. & Viren, M. (2008), "Efficiency and costs of payments: some new evidence from Finland", Bank of Finland Research Discussion Papers, no. 11/2008.

The Economist, (2012), *Monetarists Anonymous*, 29 September 2012.

The Economist (2013a), *The Law and the Profits*, 9 March 2013.

The Economist (2013b), *Is it a phone, is it a bank?*, 30 March 2013.

The New Yorker (2013), The Bitcoin Boom, 2 April.

Thunholm, L-E. (1949). *Svenskt kreditväsen, Kooperativa förbundets bokförlag, Stockholm.*

Turján, A., Divéki, E., Keszy-Harmath, E., Kóczán, G. and Takács, K. (2011), "Nothing is free: A survey of the social cost of the main payment instruments in Hungary", MNB Occasional Papers, 93, Magyar Nemzeti Bank.

von Kalckreuth, U., Schmidt, T. and Stix, H. (2009), "Choosing and using payment instruments – evidence from German microdata", ECB Working Paper Series, no. 1144.

World Bank, (2012), *Innovations in Retail Payments Worldwide: a Snapshot. Outcomes of the global survey on innovations in retail payments instruments and methods (2010).*

Glossary

Account-based payments: a collective term for all types of payments conducted through some form of transfer of money between accounts.

Account-operating institute: the institution that maintains accounts for the payer, the payee or both.

Account transfer: a special payment service through which monetary value is transferred from one account to another. Occasionally referred to as account-to-account transfer. Closely related to giro payments.

Acquirer: the financial institution, usually a bank, with which the payee of a card payment has his/her account.

Bankgiro payment: refer to giro payment.

Card company (scheme owner): the legal entity that owns the set of rules and regulations and the product name for the card service. Certain card companies (scheme owners) are owned by banks and credit institutions (example: four-party systems such as Visa and MasterCard), while others are independent companies (example: three-party systems such as American Express and Diners).

Card issuer: the financial institution that issues the card concerned, meaning where the cardholder has his/her account.

Card scheme: a collection of regulations, payment procedures, payment instruments and associated infrastructure for card payments.

Card-payment terminal: device that scans a card to enable the payer to initiate a payment. A PIN code and approval of the amount may be requested.

Cash back: withdrawal of cash through the use of a card at a point of sale.

Charge card: a card that allows the holder to issue payments of a specific maximum amount during a specific period. Payments are collected and the cardholder is invoiced at the end of the period whereupon the entire invoiced amount is to be paid.

Cheque: a written, standardised payment order (standardised promissory note), through which the paying party assigns his/her bank to issue a specific amount from his/her account. The bearer (payee) thus assumes a credit risk from the paying party. Cheques resemble money orders in many ways.

Chip & PIN: a term referring the manner in which a card payment is conducted with EMV. "Chip" refers to the EMV chip in the card and "PIN" to the Personal Identification Number required to initiate a payment.

CIT (Cash-in-transit) company: a company responsible for a considerable part of cash transportation on behalf of banks and retailers. CIT companies also handle the processing, sorting and authentication of cash at cash-processing centres.

Clearing institution: the company that performs clearing and which has permits for this purpose granted by a supervising authority.

Clearing: the compilation and processing of payment instructions.

Credit card: the same as a charge card, but without any requirements to pay the entire invoiced amount. The portion which the cardholder chooses not to pay is then passed on to the next period in the form of a loan (credit) on which interest is usually charged.

Credit risk: the risk that the counterparty will be unable to meet his/her obligations, combined with the loss that then arises. For example: a bank that credits a payee account before having actually received the funds from the payer's bank is exposing itself to the risk that the payer's bank may be unable to fulfil its part of the credit transfer.

Credit transfer: a collective term for the transfer of funds from one account to another. The term is to be distinguished from the "account transfer" payment service – refer to *account transfer*.

Creditor: a party with a claim on another party (debtor).

Debit card: a card connected to a cardholder's bank account where the paid amount is directly debited.

Debtor: the party with a liability to another party (creditor).

Direct debit: a pre-authorised account transfer from the payer account to the payee account, which is initiated by the payee.

Direktbetalning: a Swedish e-commerce payment system through which a consumer uses the login information for his/her online bank to pay for products and services online. The intermediation is conducted using a secure payment switch. Similar to *overlay services,* but contractually secured, with agreements signed between all the parties. Direktbetalning is a uniquely Swedish payment solution.

Economies of scale: an economic term for production, whereby the average cost diminishes in line with an increased production volume, meaning where the marginal cost is lower than the average cost over a (large) production interval. Economies of scale normally arise when production is associated with major overhead expenses. Economies of scale may give rise to natural monopolies.

Economies of scope: cost savings that are achieved through the production of various products being co-localised. Closely related to "economies of scale."

Electronic Bill Presentment and Payment (EBPP): an invoice presented to the payer through the payers' online bank, which simplifies the initiation of payment for the customer.

Electronic money (e-money): means of payment in the form of an electronically stored monetary value that represents a receivable from the issuer.

Electronic money institution: refer to e-money institution.

Electronically initiated: a payment initiated by means of an electronic instruction, such as via online banking, mobile phone, card-payment terminal, direct debit or a file sent by a company to a bank or clearing institution.

E-money institution: a Swedish limited-liability company or economic association that has been granted a permit to issue e-money in accordance with the Electronic Money Act.

EMV: a global commercial card standard whereby the magnetic strip on a card is replaced by a chip. EMV stands for Europay, MasterCard and Visa.

End user: natural person or legal entity that utilises a payment service, either as a payee or payer of payments.

E-shopping: purchase of products or services over the Internet.

EU directive: legislation under EU law. A directive is binding for Member States in terms of the results to be achieved, but not in terms of its content. Directives are implemented in Sweden by enactment into Swedish legislation. There are various categories of directives. Maximum-harmonisation directives are to be fully enacted in the legislation of Member States, while minimum-harmonisation directives state only the lowest permissible standard to be achieved by Member States.

EU regulation: legislation under EU law that is directly binding for Member States without requiring enactment through local statutes. Compare with regulation.

European Economic Area (EEA): agreements between all EU Member States and Iceland, Lichtenstein and Norway, primarily concerning free trade and the reconciliation of legislation. Switzerland is not a member of the EEA, but has a similar agreement with the EU.

European Payments Council (EPC): a body established with the aim of managing the SEPA.

Fiat money/Fiat currency: money that derives its value based solely on the fact that an issuing institution – usually a government – has decided that it is to represent a specific value, in contrast to money, which carries a guaranteed value through its redeem ability for gold, for example (known as the gold standard). Examples of fiat money are Swedish banknotes and coins. The word fiat is Latin and roughly corresponds to "let it be done."

Financial Action Task Force (FATF): an international body that works to counteract money laundering and the funding of terrorist activities.

Financial infrastructure: the systems that manage financial positions or enable financial flows between various market players. The financial infrastructure also comprises the systems' legal framework and procedures and the participants' use of these systems.

Float: the interest income earned by account-operating institutes on a transaction amount between the amount debited from the payer account and the amount credited into the payee's account.

Four-party system: payment arrangements whereby the payer and payee may have different account-operating institutes. The terms are frequently used to signify a card scheme with two or four issuing and acquiring banks.

Giro payment: an account transfer that allows for the attachment of more information than with regular account transfers (in Sweden through Dataclearingen). In Sweden, there are bankgiro and plusgiro services. The former is designed for transfers between accounts of different banks and the latter for transfers to Nordea.

Gross Domestic Product (GDP): the market value of all products and services produced in a country during a specific period.

Initiation: start-up of the payment process. The initiation of a payment usually entails a check of the payment initiator's identity using, for example, a PIN or code generator, the initiator's right to initiate the payment and the presence of sufficient funds in the account.

Interchange fee: a fee paid by one account-operating institute to another for assistance with mediating a payment. This is the norm for card payments, where the acquiring bank pays the issuing bank and is also the practice with direct debit, for example.

Interchange: refer to interchange fee.

Interoperability: a technical and contractual arrangement that allows for payments to be mediated across various payment networks. Example: the banks' network of ATMs is interoperable in the sense that a card from Bank A can be used make a withdrawal from an ATM belonging to Bank B.

Large-value payment: a payment, usually of considerably high value, that is primarily exchanged between banks or players in the financial market and which usually requires prompt settlement.

Marginal cost: increase in the cost that arises if production increases marginally, for example, from 100,000 units to 100,001 units.

Means of payment: an instrument comprising a monetary value, the delivery of which completes a payment, such as cash.

Mobile payments/M-payments: payments conducted using mobile phones and tablet devices. Mobile payments may be account-based, in which case payment is conducted through a card or from a bank account. A mobile payment may also be implemented as a text-message payment or as a direct payment with e-money.

Money laundering: a practice aimed at providing illegally earned funds with the appearance of being legally earned.

Money order: a written payment order in the form of a standardised promissory note, through which the issuer assigns his/her bank to pay out a specific amount. In distinction to cheques, money orders represent a claim on the bank and not the issuer. The bearer of a money order thus assumes no credit risks from the issuer.

Natural monopoly: an economic term for industries that, usually due to economies of scale, may only accommodate a single company that generates a profit in the long term.

Near Field Communication (NFC): a technology that supports contactless data communications across short distances, usually about 10 centimeter. This means that an NFC payment requires only the proximity of the payer or a "brush" against the NFC terminal for payment to be implemented with an NFC-affiliated card or mobile unit.

Network effects/externality: the (positive) effects that the connection of a new user has on the network advantages of already-connected users.

Online banking: service provided by banks and that allow their customers to perform banking errands over the Internet.

Optical Character Recognition (OCR): a computer technology that uses image analysis to convert digital images of text, numbers and symbols into information that is recognisable by other computer software.

Ordinance: a type of Swedish legislation (law) enacted by the government.

Overlay services: services for payments to be conducted through online banking. The payer shares access to his/her online-banking account with a third party, who initiates the payment. In such cases, all the parties concerned do not have agreements with each other, which are considered legally risky.

Paper based: a payment initiated through the use of a form of some kind, such as giro payments, which are initiated through sending the form to the bank or over-the-counter submission. Cheques are a paper-based instrument.

Payee: the receiver of a payment.

Payer: the sender of a payment.

Payment exchanger: the intermediary for card payments. Payment exchangers are members of the card organisations, Visa or MasterCard, that perform a check on the legitimacy of the card and ensure it is not blocked, and remit payment instructions for clearing by the card organisations. Payment exchangers also test and approve the card-payment terminals available in the market.

Payments in real time: a payment through which the payee's account is (nearly) immediately credited, meaning at the same time as the initiation of payment and the debiting of payer's account.

Payment institution: a Swedish limited-liability company or economic association that has been granted a permit to provide payment services in accordance with the Payment Service Act.

Payment instrument: an instrument or procedure used to initiate a payment, such as a card, cheque or online-banking code generator.

Payment intermediary: the company/intermediary that assists in mediating payments. Examples of payment intermediaries are banks and card issuers.

Payment intermediation: activities pertaining to the assistance of a party to issue or receive a payment.

Payment process: all of the stages that a payment must pass through in order to be implemented: initiation, clearing and settlement.

Payment service: a service offered by payment intermediaries to its customers to assist with the implementation of payments. Legal definition in accordance with the Payment Service Act: deposits or withdrawals of cash from a debit account, and the transactions required for managing the account.

Payment-service provider: a collective term with regard to banks, credit-market companies and payment institutions, registered payment-service providers, electronic-money institutions, government and municipal authorities, central banks, etcetera and non-Swedish equivalents of the above that provide payment services in Sweden.

Payment-service user: see end user**.**

Payment switch: a technological system that routes payment information between different parties upon initiation of a payment.

Payment without intermediaries: the direct delivery of the monetary value from the payer to the payee.

Payment: the transfer of monetary value (funds) from one party to another.

Personal Identification Number (PIN): personal and confidential number (password) that allows for a user to identify himself/herself.

Plusgiro payment: giro payment previously referred to as Postgiro payment, refer to "giro payment."

Point of Sale (POS): the place of purchase.

POS payment: payment conducted at the point of sale.

Postal money order: a discontinued method of transferring funds through the post-office system.

Prepaid card: a card on which a monetary value is stored. Prepaid cards are closely related to e-money, but can usually be used within a limited network of points of sale.

Process innovator: a collective term for companies operating in some section of the payment chain, usually as intermediaries, to innovatively simplify or improve existing payment methods.

Promissory note: written commitment to pay a sum of money or written acknowledgement of a debt.

Pull transaction: payment initiated by the payee. Direct debits, like most card payments, are pull transactions.

Push transaction: payment initiated by the payer. Giro payments and account transfers are push transactions.

Quick Response code (**QR code**)**:** a two-dimensional code, in distinction to bar codes, which are one-dimensional. In payment contexts, QR codes can be used to identify the payer, payment or payee. The code is optically scanned using an app on a mobile-phone, tablet device, computer or cash register.

Registered payment-service provider: a collective term for market players that provide payment services and who either have permits under the Payment Service Act, belong to the category that is exempt from licensing obligations or have applied for and been granted exemption from licensing under the Payment Service Act.

Regulation: a type of Swedish legislation (law) enacted by authorities or municipalities. Compare with EU-regulation.

Remote payment: payment involving a payer and payee in different locations. Opposite to POS payment.

Retail payment: a payment of lower amount that is not usually urgent and that often takes place between individuals, companies and authorities. Retail payments are traditionally defined as all payments that do not constitute major payments (refer to *large-value payment*).

Settlement institution: the institution that maintains the accounts used for settlement.

Settlement system: the technological system used for initiating and registering settlement.

Settlement: final settlement of receivables between account-operating institutes or within an account-operating institute, meaning the transfer of credit between the accounts related to the payment. Payments between account-operating institutes pertain to the transfer of credit between them.

Single Euro Payments Area (SEPA): a project launched in 2002 to create a common market (regulations and standards, etc.) for payments in EUR within the EU.

Smartphone: a mobile unit that is usable either as an advanced mobile phone or small handheld computer.

Surcharging: when the payee charges the payer a fee for the payment. This term is normally used in conjunction with card payments.

Technology innovator: a collective term for companies that operate in some section of the payment chain and that use new technologies to develop the retail-payment market.

Telecom operator: a company that provides telecommunications services.

Three-party system: payment arrangements whereby the payer and payee may have different account-operating institutes. The term is frequently used to signify card schemes in which the card issuer and acquirer are one and the same. Some examples: Diners and American Express.

Transaction cost: the (production) cost that arises from implementation of a transaction.

Two-sided market: a market with two distinct groups of users of a service or product. The service value for one group usually depends on the size of the other group of users. For example: in the card-payment market, the value for a store that accepts card payments is contingent upon the number of consumers that use the actual card, just as the value of holding such a card is contingent upon the number of points of sale at which the card can be used.

Virtual currency: digital currency that is primarily used for payments over the Internet.

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