

■ Card payments in Sweden

BY LARS NYBERG AND GABRIELA GUIBOURG

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Consumers in the Nordic countries are frequent users of bank cards, much more so than their average European counterpart. Cash, however, is not used to any great extent. In 2000, an average of 64 card payments were made per capita in the Nordic region while the EU average amounted to 33. The average use of cash in the Nordic region during the same year, measured as the value of currency in circulation in relation to GDP, was somewhat higher than 3 per cent, compared to the EU average of 4.6 per cent. Sweden is lagging behind in this development, however; we perform fewer card transactions and use more cash than our Nordic neighbours.

The market for electronic payments has grown quickly over the past 10–15 years in the majority of industrialised nations. Several countries, although not all, have also experienced a continued decline in the use of cash. The extent to which electronic payments have replaced cash may provide a rough idea of the technical efficiency in each country's payment system.

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Development of card and other non-cash payments

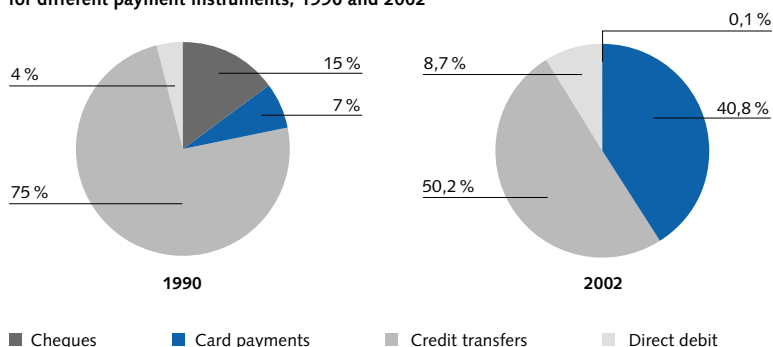
Different payment instruments are used for different types of transactions. Certain instruments can be used as substitutes while others don't even compete with each other. Cards compete with cheques and cash for small-value transactions, that is, payments that are often made over the counter. Credit transfers are used for recurring and relatively large payments, such as monthly bills.

The number of card payments is rising while cash payments are decreasing. Cheques have largely disappeared in Sweden.

Figure 1 shows the development in non-cash payments between 1990 and 2002. As can be seen, the importance of card payments has grown quickly in Sweden. During the period 1990–2000, the number of card transactions increased almost sixfold. Cards have increased their share of non-cash payments from less than 10 per cent in 1990 to just over 40 per cent today. In terms of value, the rise in the use of card payments was more modest, from 1 to 5 per cent, due to the more frequent

use of cards for small-value transactions. The rise in the number of transactions is reflected partly in a correspondent decrease in the proportion of cheque payments. In fact, cheques have virtually disappeared from the Swedish payment market. In 1990, every seventh transaction was paid for by cheque, and cheque payments accounted for just over one-tenth of the total value of non-cash payments. Today, cheque payments account for around 0.1 per cent of the number of transactions and 0.3 per cent of the total value of non-cash payments.

Figure 1. Share of the total number of non-cash payments for different payment instruments; 1990 and 2002



Source: The Riksbank.

However, the disappearance of cheques can not alone explain the rise in the use of card payments. In Sweden, the proportion of cheque payments has never been appreciably high, as credit transfers have traditionally accounted for a large percentage of non-cash payments.¹ It is primarily cash payments that have been replaced by cards, and not cheques. For obvious reasons, there are no statistics for the number of cash payments, which means that the use of cash must be estimated in some other way. The replacement of cash payments with card payments implies that an increasingly large share of all payments are registered. This is reflected in the statistics of non-cash payments through a sharp rise in the share of card payments and a simultaneous decrease in the share of credit transfers. However, the use of credit transfers has also increased in absolute figures. Direct debits, which are a fully automated and relatively cost-efficient form of giro payment, have also increased their share.²

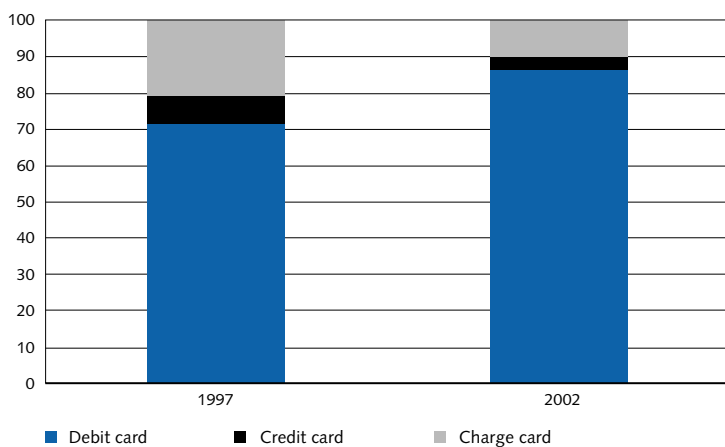
¹ In terms of value, it was credit transfers and direct debits that accounted for the major part of the total value of non-cash payments; furthermore, this share increased from 87 to 95 per cent between 1990 and 2002.

² Direct debit is an agreement which gives the payee the right to make withdrawals from the payer's account.

As regards the choice between debit cards and credit cards, there is a clear trend among Swedish card users to favour debit cards (see Figure 2 and definitions). In 2002, the number of debit card transactions accounted for 86 per cent of all card transactions, a rise of 16 percentage points since 1997. Charge cards dominated the remaining 14 per cent. Credit cards with revolving credit arrangements do not seem to appeal to Swedes. In this regard, the preferences of Swedish consumers are in line with the rest of the Nordic region and mainland Europe. Consumers in the Anglo-Saxon countries appear to perform transactions with credit cards to a larger extent. Cultural differences may account for the different preferences between credit and debit card products. At the same time, cultural differences or payment patterns can often be explained by economic factors. It is possible that Swedish consumers have relatively better access to bank credit for consumption purposes and that the banks offer more advantageous terms than credit card companies. The Swedish banks have comparatively stable customer relationships as well as access to excellent credit information services, thus facilitating credit ratings. Consequently, they are able to offer competitive alternatives to credit cards. In addition, it appears that the card market, when it matures, tends to involve a movement from credit cards to debit cards. From a European perspective, Sweden was one of the first countries to launch cards that were directly connected to a bank account.

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Figure 2. Payments with debit cards, charge cards and credit cards as a percentage of the total number of card payments; 1997 and 2002



Sources: The ECB and the Riksbank.

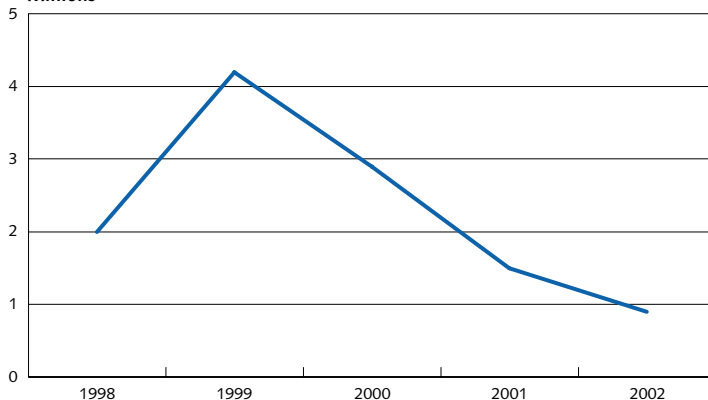
Definitions: Different card products

- Credit card:* Card that gives the cardholder credit facilities up to an agreed limit. The debt is usually paid off gradually. Interest is charged on the outstanding amount. Some cards also carry an annual fee.
- Charge card:* Card that gives the cardholder credit facilities up to an agreed limit. The entire debt is paid off at regular intervals, e.g. monthly. As a rule, cardholders pay an annual fee for this service.
- Debit card:* Card which involves the amount of the transaction being drawn directly from the cardholder's bank account. There is no credit facility on a debit card, although the card can be combined with other functions.
- Cash card:* Card with an integrated chip which is built in to the card and can be loaded electronically with money.

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One card product that has become technically possible in recent years is the Cash Card. Cards with a chip that can be loaded electronically with money can be used for small-value transactions and are accepted at smaller points of sale. The terminals that accept Cash Card payments are inexpensive and adapted to small points of sale that can not afford to handle debit cards. Furthermore, Cash Cards have a lower transaction cost since the payments do not require real-time communication between points of sale and the card-issuing bank, as the money is loaded on to the card. In Sweden, three of the four largest banks, which together comprise the lion's share of the card payment market, have agreed on a common technology. Each bank issues its own e-money which can be downloaded into a small chip in the respective bank's particular Cash Card or regular debit, charge or credit card. The technology on which the system is based is common to all three banks. Loading and point-of-sale terminals accept the Cash Cards of all banks regardless of which bank is the issuer.

Figure 3. Number of Cash Card transactions; 1998-2002
Millions



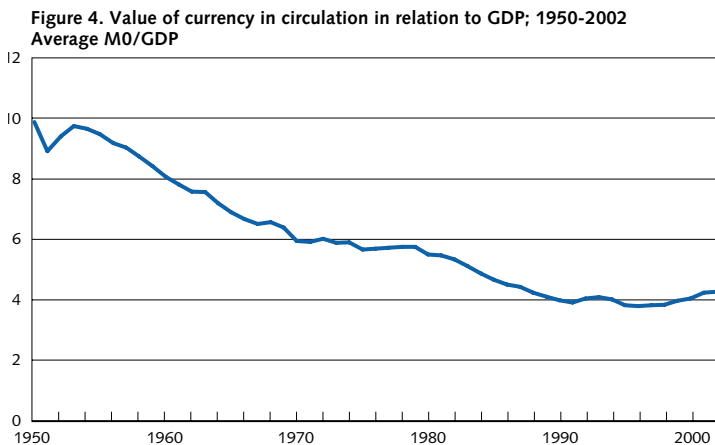
Source: The Riksbank.

Thus far, the Cash Card has not won much acceptance in Sweden (this also applies to other markets for that matter) and, recently, growth has even been negative in terms of the number of transactions (Figure 3). However, the development of card-based e-money is still at an embryonic stage. Therefore, there is reason for caution when it comes to making forecasts of its future evolution.

Cash payments

The evolution of the card market can not be seen in isolation from the evolution of other markets. Above all, the evolution of the cash market is important as cards and cash are close substitutes for each other. As there is no statistics available for cash payments, different kinds of indicators must be used to estimate the use of cash. The value of currency in circulation in relation to GDP is often used for this purpose. From a long term perspective, the use of cash has decreased in Sweden (Figure 4). The ratio of currency to GDP (M0/GDP) has been more than halved since 1950, from 10 to 4 per cent. In recent years, however, the trend of waning demand for cash has come to a halt. At the same time, this is not entirely surprising. Cash is suitable for certain types of transactions, which means that the demand for banknotes and coins should have a lower limit. Cash can be used for savings or transactions where cards do not constitute a possible substitute. In addition, both inflation and interest rates have been low, which has entailed a low opportunity cost for holding banknotes.

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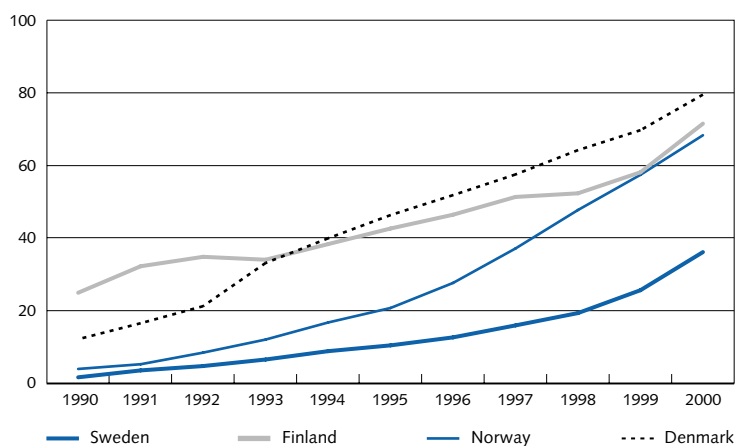
Source: The Riksbank.

Although the demand for cash has levelled out, it appears that the trend towards lower use of cash as an alternative for card payments has continued. According to the Riksbank's own estimates, the proportion of transactions in retail trade that was paid for with cash actually decreased from 76 to 58 per cent during the 1990s.³ This indicates that cash is also being used for purposes other than payment in registered trade.

Nordic comparison

Although the Swedish card market overall has grown impressively in recent years, the use of cards still lags behind that in the other Nordic countries (Figure 5).

Figure 5. Number of card payments per capita and year



Sources: The ECB and Norges Bank.

At the beginning of 2000, the number of card payments per capita in Sweden was not more than half of the number in the other Nordic countries.

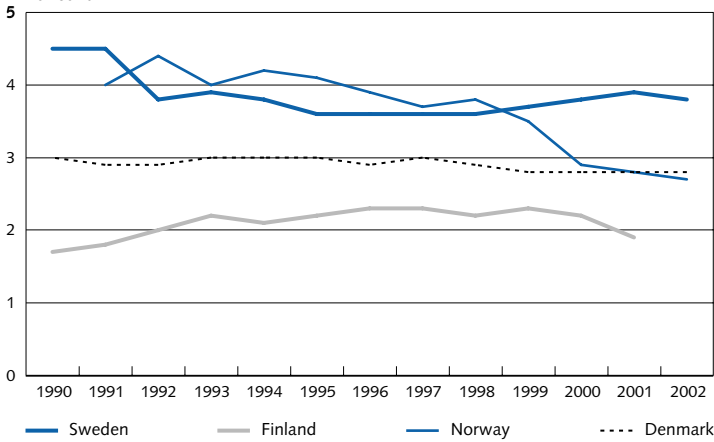
At the beginning of 2000, the number of card payments per capita in Sweden was not more than half of the number in the other Nordic countries. The number of cards per capita does not explain this difference.⁴ For example, Swedes have greater access to cards than Danes but use them to a much lesser degree. This difference in card use is somewhat surprising considering that payments systems and payment patterns are otherwise quite similar in the Nordic countries. There is no convincing answer to why Swedish consumers are less willing to make card payments than their Nordic neighbours. One possible reason is that card payments in Sweden may be more expensive for retailers than elsewhere, which could limit the number of establishments where the cards are accepted. Another

³ See Andersson & Guibourg (2001).

⁴ The number of cards per capita in 2000 was 0.94 in Sweden, 0.65 in Denmark, 1.26 in Norway and 1.28 in Finland.

explanation could be that the statistics only include transactions with cards issued by banks or card companies. Transactions using cards issued by companies or chain stores, e.g. the ICA card or Coop card, are not included.⁵ Whether these cards are used more in Sweden than in the rest of the Nordic region is unclear, however.

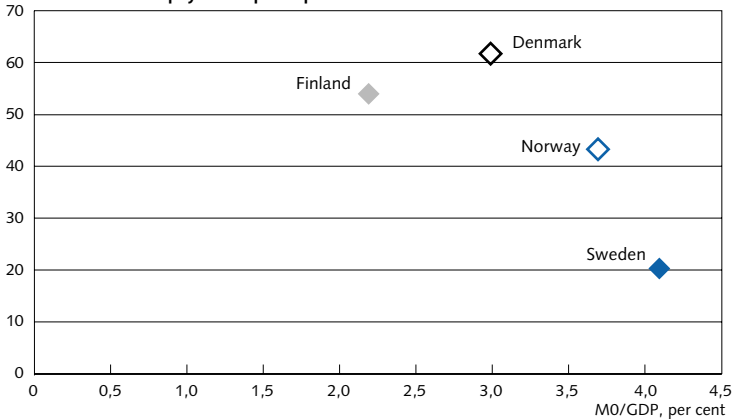
Figure 6. Value of currency in circulation in relation to GDP – Nordic comparison
Per cent



Note. Finland's figure for 2002 has not been included as the Eurosystem's procedure for the reporting of euro banknotes has had an effect on the items Banknotes in circulation and general public's holdings of banknotes and coins since January 2002. New values for M0 are not comparable with previous years.

Sources: The ECB and Norges Bank.

Figure 7. Value of currency in circulation in relation to GDP and number of card payments per capita and year; average for period 1995–2000
Number of card payments per capita



Sources: The ECB and Norges Bank.

⁵ At present, ICA is a bank and ICA card transactions will be included in the statistics in the future. Figure 3 depicts developments up to 2000 only, however.

One conclusion is that there appears to be considerable potential for expansion in the card market, particularly in Sweden.

In the other Nordic countries, the ratio of currency to GDP has been stable or declining, but also considerably lower than in Sweden (Figure 6). Where Swedes require around 4 per cent of GDP to cover their cash needs, the Danes and Norwegians use 3 per cent, and the Finns only 2 per cent. This can most likely be explained in part by a more widespread use of cards in the other Nordic countries.⁶ A clear relationship exists between the number of card payments per capita and the value of currency in circulation in relation to GDP; the higher the card use, the lower the volume of banknotes (Figure 7). One conclusion is that there appears to be considerable potential for expansion in the card market, particularly in Sweden.

Forces driving the development of the market

Supply and demand shapes the evolution of the card payment market in much the same way as in other markets.

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Demand is influenced by factors such as acceptance, convenience and relative prices. It has sometimes been argued that demand for payment instruments is not price elastic – that relative prices do not greatly influence users' preferences for different payment instruments.⁷ The Nordic experience does not support this view. The rapid expansion of card payments and other electronically initiated instruments in Norway point to considerable price sensitivity. The shift in the preferences of Norwegian consumers followed immediately after the banks' change of pricing strategy. In Sweden, the use of cheques fell sharply when banks started to charge for their use. Thus, if alternative means of payment exist, such as cards, fees for different forms of payment seem to be of great importance.

The Norwegian experience demonstrates that substantial efficiency gains can be made through a transparent and cost-based pricing arrangement. As regards the pricing of card products – like other payment instruments for that matter – the Riksbank, in consultation with the banks, has launched a research project. The aim is to investigate how well the price structure for various payment services reflects the underlying production costs for these services.

⁶ The use of cash for purposes other than registered transactions, however, does not appear to be different in the Nordic countries. See, for instance, Paunonen & Jyrkönen (2002) and Humphrey, Kaloudis & Øvre (2000).

⁷ See, for instance, Humphrey, Pulley & Vesala (1996). This is an econometric study of different factors affecting the choice of payment instruments. The price coefficient had no statistical significance in this study. However, the data set was poor. This result was later revised in the Norwegian study by Humphrey, Kim & Vale (1998).

The banks today incur considerable costs for handling cash as well as for other forms of payment. Cash withdrawals for the general public, however, are free of charge. If and when the banks begin to charge for cash withdrawals, the actual costs will become more palpable for consumers. It seems reasonable to assume that card payments will then appear even more favourable than is the case today and that the card market will expand as a result.

On the supply side, costs are obviously important. Clearly, the technological advances in IT and telecommunications have helped in cutting costs. Economies of scale and network effects are other important supply factors. Economies of scale imply that the cost per transaction falls when the number of transactions increases. Network effects imply that the number of terminals that accept a particular card greatly affect the utility of the user. The larger the number of terminals that a bank can install, the more satisfied the users will be and the larger the share of the card payment market the bank will have.

Economies of scale and network effects both increase the incentives for cooperation between card issuers in establishing common standards and communication methods between their systems. In Sweden and in the other Nordic countries as well, banks have a long tradition of cooperation in using common infrastructure and implementing common standards, perhaps more so than in many other regions. This is likely to have contributed to the rapid expansion of the card payment market in the Nordic countries. There are some country-specific differences, though. As should be expected, there is a clearly positive relationship between the number of payments per capita and the number of terminals installed. Denmark has the largest number of terminals and transactions, while Sweden is at the other end of the scale. For Sweden at least, there still seems to be positive network effects which should be able to contribute to a further expansion of the market (Figure 8).

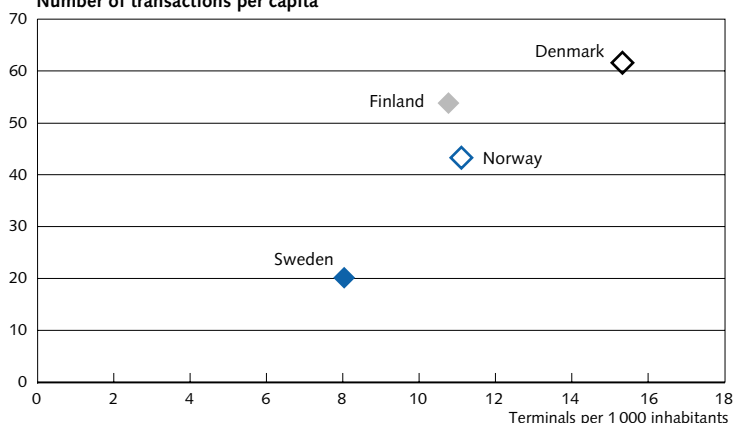
Risk considerations are always important in payment transactions. Consumers in countries with a low crime rate, such as Switzerland, Japan and Sweden, tend to favour cash payments to a larger extent than in countries where the risks associated with carrying large amounts of cash are higher. Problems in the handling of risk are also likely to be behind the disappointing development of e-commerce. The evolution of a digital market has partly been hindered by the lack of sufficiently secure payment instruments. For card issuers and banks, matters of security are crucially important. There is, as always, a trade-off between the risk of incurring losses in card handling and the cost of avoiding risk by adopting security-enhancing technology. When security technology gradually

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Figure 8. Number of card terminals per 1000 inhabitants and number of card transactions per capita and year; average for period 1995–2000
Number of transactions per capita



Sources: The ECB and Norges Bank.

becomes less costly, it will be used to a greater extent, which is likely to stimulate the development of e-commerce.

Incentives to reduce risks drive technological development. Costs for fraud are high and are increasing in most countries. Although card fraud is relatively less frequent in Sweden than in other countries, Swedish card issuers will also have to follow the global trend towards better security. Otherwise, the risk of attracting card fraudsters to the Swedish card market will increase.

In Sweden, plans are currently being made to change from magnetic stripe cards to chip cards through a migration to the global EMV standard.

In Sweden, plans are currently being made to change from magnetic stripe cards to chip cards through a migration to the global EMV standard.⁸ This means that the card information that was stored on the magnetic stripe will now be stored instead in an integrated chip embedded in the card itself. The first pilot project started in spring 2003 and the national rollout will follow in the autumn. It is not easy to forecast how long the technology migration will take. All cards have to be replaced with the new EMV compatible chip and payment terminals need to be upgraded. This process may take some time. However, market participants expect that the change of rules announced by Visa and MasterCard regarding the distribution of risks may speed up the process considerably. Currently, card issuers bear full credit risk, but from January 2005, credit risk will fall on the party, card issuer, collecting bank or owner of the card terminal that has not implemented the EMV technology. If, for example, the card issuer has upgraded its cards with an EMV-compatible chip, but the acquiring bank does not offer the retailer an upgrade of terminals so

⁸ EMV stands for Europay, MasterCard and Visa.

that these can read the information in the chip, the collecting bank must bear the credit risk if card fraud should be committed.

Conclusions

The Swedish card market has grown rapidly in recent years. Technological advances in combination with the deregulation of the telecommunications market has contributed to both lower costs and higher security for card transactions. Greater acceptance through the expansion of the number of terminals has also contributed to this growth. A comparison with other Nordic countries, however, indicates that there is still considerable growth potential in the Swedish card market.

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