

VI PAYMENT SYSTEMS

■ Settlement System of Interbank Payments

The number of payments settled through the **Real-Time Gross Settlement System (RTGS)** has been going up at a generally stable rate in recent years – by nearly 30% per year, except in April 2004 when a one-off anomaly occurred (see Figure 6.1). This arose from problems one system participant had with using the Designated Time Net Settlement System (DNS), thus settling around 5,000 extra payments through the RTGS. On average, between the fourth quarter of 2004 and the end of the third quarter of 2005, 181 payments per day were settled through the RTGS, 76% of which accounted for customer payments.

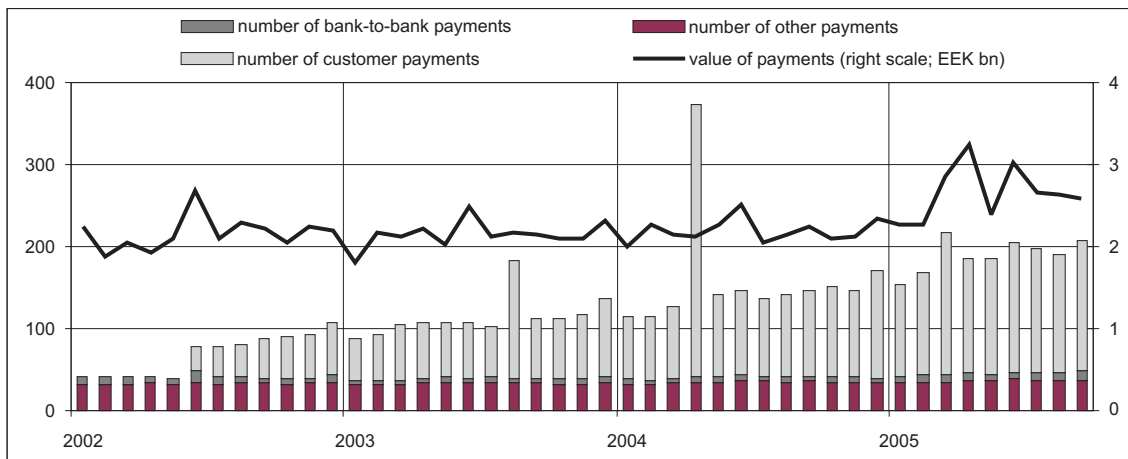


Figure 6.1. Number of payments processed per day in the RTGS system and their average daily value per month

The most significant change of the past year occurred in the average daily value of the RTGS, which increased 19% to 2.5 billion kroons a day after having remained stable at 2.1 billion kroons for a long time. The average daily value increased on the strength of a rise in the average value of interbank payments, customer payments as well as currency transactions conducted with the central bank (by 67%, 22% and 36%, respectively). Most of the value (approximately 60%) still accounted for banks' DNS collateral account transactions.

In the **DNS**, an average of 67,000 payments per day with a value of around 800 million kroons were settled from the fourth quarter of 2004 to the end of the third quarter of 2005 (see Figure 6.2). In the given period, the growth in payments slowed down to 2% from 6% in the period before. Meanwhile the growth in the average daily value of payments accelerated to 19% from 12%. As a result, the average size of a payment settled through the DNS grew 16%, amounting to approximately 12,000 kroons.

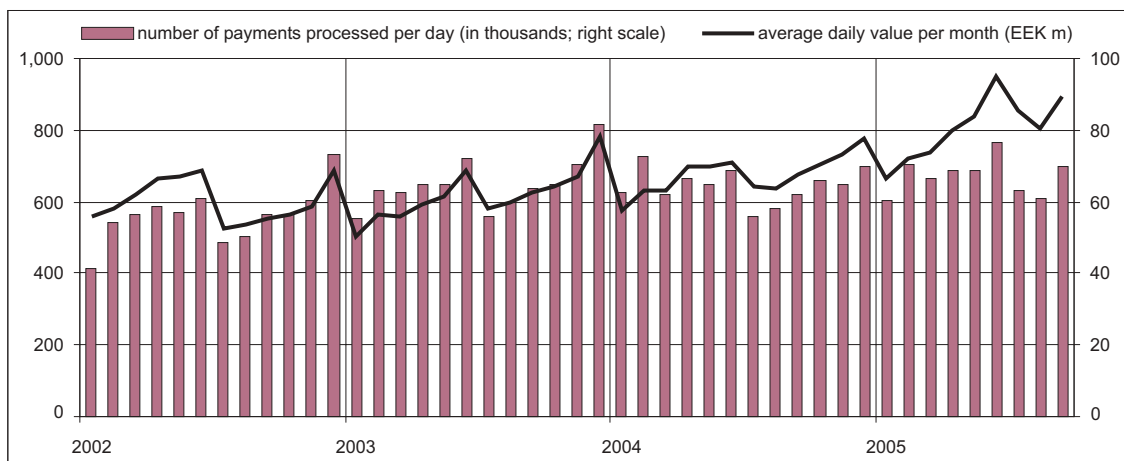


Figure 6.2. Number of payments processed per day in the DNS and their average daily value per month

■ Payment Intermediation

Payment Environment

The development of the payment environment has been stable, following the trends of recent years. Both the number of the points of sale (POS) accepting bank cards¹ and that of Internet banking contracts grew 17% per year. The number of POS accepting mobile payments increased at a slightly slower pace of 16% (see Figure 6.3). The number of Internet banking contracts amounted to over a million at the end of the third quarter of 2005, but the growth in the number of new subscribers slowed down by 9 percentage points during the year (from 26% to 17%). There were no major changes in the development of the infrastructure of post offices, bank offices, and ATMs.

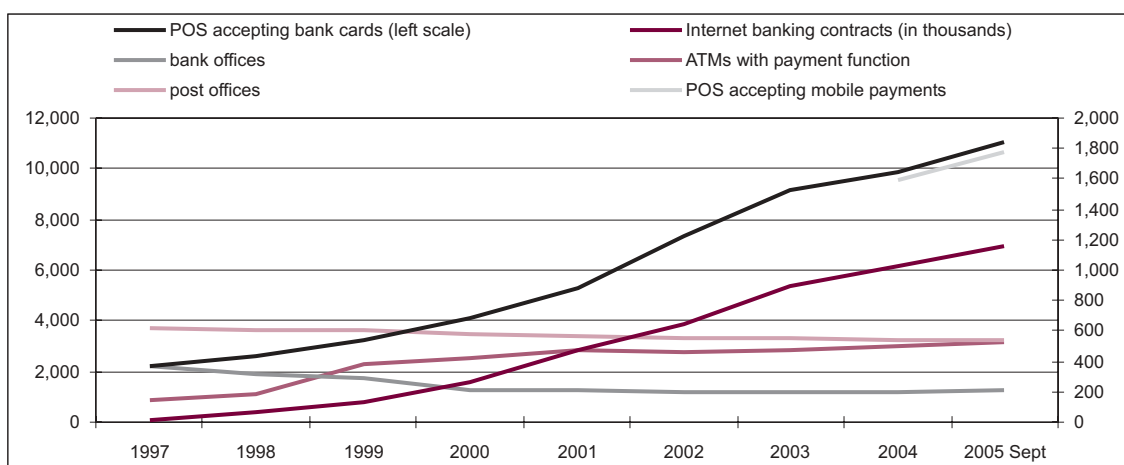


Figure 6.3. Retail payment channels in Estonia (as at end of period)

¹ Points of sale of one retailer with different offices (addresses) are regarded as different points of sale.

As for the means of receiving income, according to a study of payment habits and preferences carried out by TNS Emor in September 2005², earnings on a bank account are increasingly preferred to cash (see Figure 6.4). This in turn promotes making card payments for purchases as well as making regular payments through electronic payment channels. 60% of households made card payments for daily purchases while 81% of households made regular payments through banks (incl. 75% via electronic channels). During the past year, 6-7% of households (some 35,000–40,000 families) have ceased to pay just in cash. Those receiving income in cash as well as those paying in cash are mainly pensioners, people living in the countryside, people with lower income/position, and self-employed people (particularly sole proprietors).

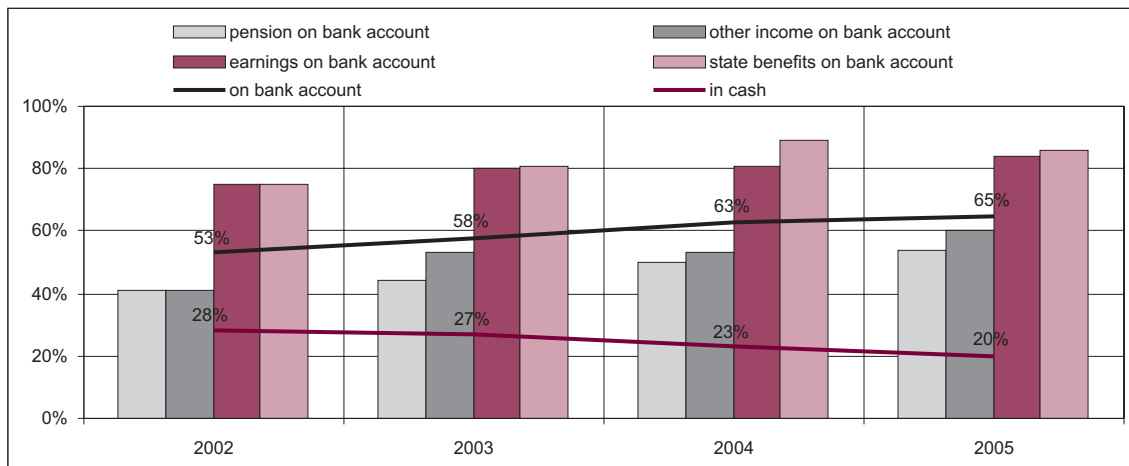


Figure 6.4. Means of income of Estonian residents aged 18 years and older during 2002–2005 (% of income receivers)

Source: TNS Emor; F-monitor 2005

According to the study, payment cards and electronic payment channels (Internet banking) have consistently the greatest growth potential. The usage of electronic payment channels may increase mainly due to more active use by the existing users and to a somewhat lesser extent through the addition of new users (i.e. there are more families that intend to use electronic payment channels more frequently in the future and fewer families that want to use these for the first time).

Payments via Credit Institutions

The number of payments initiated with payment cards and credit orders has grown year-on-year, but at an increasingly slower pace (see Figure 6.5). As to the most frequently used means of payment, the biggest year-on-year rise was in card payments (33%), which increased by more than five million transactions (to 21.6 million transactions) with growth rate remaining at the level of the previous period. The number of Internet banking credit orders went up 25% (by two million transactions), but the growth rate slowed down by 4 percentage points (from 29% to 25%). The growth in the number of direct debits has remained at 20%. Although the number of paper-based payment transactions has been declining over the last years, their use has again slightly accelerated, growing 4% year-on-year. Such a turn might stem from changes in collecting payment statistics³ as well as from the growing share of the elderly in the structure of banking customers. The use of telebank credit orders has declined too.

² The respondents were aged 18 and older.

³ Loan repayments are partly reflected under paper-based credit orders and partly under direct debit.

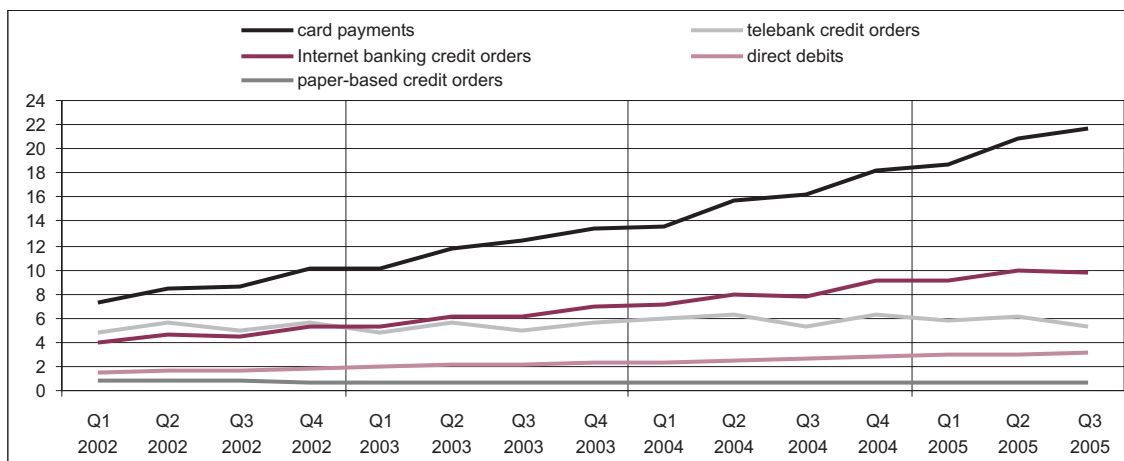


Figure 6.5. Widely used payment instruments in Estonia by number of payments (millions)

According to the study by TNS Emor, regular payments⁴ are mainly made through banks and particularly by using electronic means of payment⁵. A breakthrough between payments via banks compared to other payment options⁶ occurred in 2002 when more than half of regular payments were made through banks for the first time (see Figure 6.6). It is noteworthy that even pensioners who have for years preferred to pay in cash have increasingly started to make regular payments through banks with credit orders.

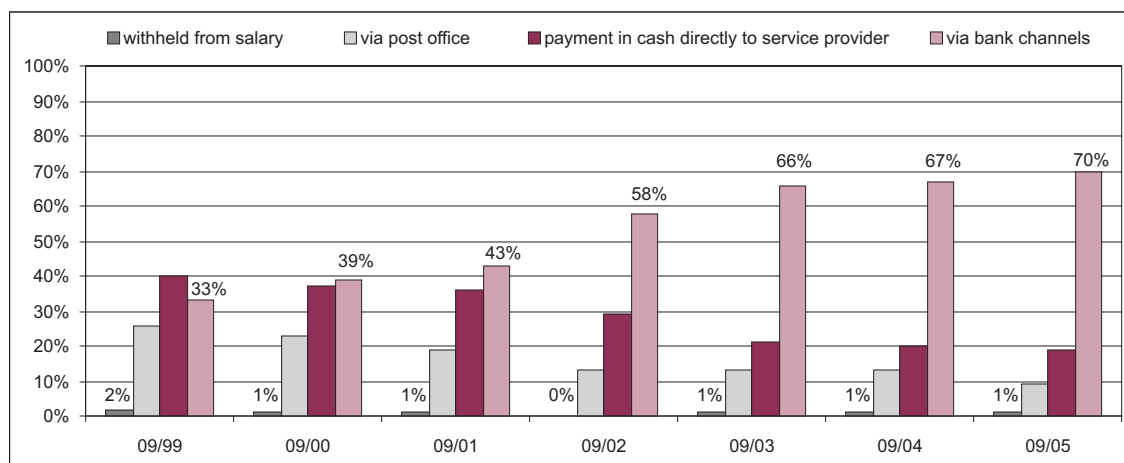


Figure 6.6. Regular payments via bank and other channels (% of all wide-spread regular payments made by households)

Source: TNS Emor; F-monitor 2005

As to the means of payment offered by banks, the most popular means to make regular payments⁷ are direct debit and/or standing order (used by 55% of households and accounting for 31% of all payments). The next in line are Internet banking payments⁸ (37% of households and 27% of all payments). The number

⁴ Payments made regularly (at least once a month) for utilities, satellite and cable TV, electricity, gas, phone and insurance as well as loan repayments etc.

⁵ Standing order or direct debit, ATMs, Internet banking, card payments.

⁶ Payment in cash directly to service provider or via post office or withheld from salary.

⁷ Except when paying for utilities, gas and insurance.

⁸ Internet banking credit orders are not used for loan, leasing or hire purchase payments.

of customers using the post office as a payment intermediation provider has again started to fall and nearly 10% of households has abandoned using that service. Meanwhile the share of households making Internet banking payments has grown on account of that. The use of telephone-bank credit orders is fading away (only 1% of households currently use this mean of payment).

Based on preferences, standing orders and direct debit have had the greatest growth potential for several consecutive years; 6% of the households not currently using these means of payment would prefer to make use thereof.

Use of Payment Cards

By the end of the third quarter of 2005, approximately 1.4 million payment cards had been issued in Estonia. 82% of those were debit cards (1.1 million cards) and 18% credit cards (255,000 cards). The total number of payment cards increased more than 8%. The growth in the number of credit cards (14%) outpaced that of debit cards (7%), year-on-year. This was well expected since an average of 84% of the Estonian residents have a debit card while just every fifth holds a credit card. Slightly more than 80% of debit card holders and more than half of credit card holders (60%) make active use of their cards.

The share of passive payment cards has remained at the level of the previous period (21%). There were 693 actively used debit cards and 112 credit cards per thousand residents (see Figure 6.7). In the given year, the number of POS accepting payment cards grew faster than in the year before (by 17% and 3%, respectively).

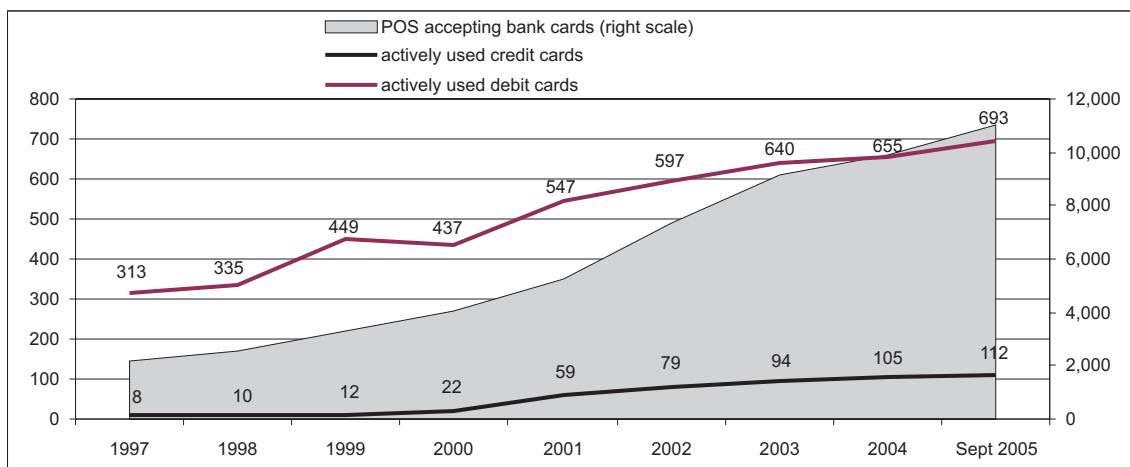


Figure 6.7. Number of payment cards in Estonia per thousand residents and number of POS terminals accepting payment cards at end of year

TNS Emor has mapped the means of payment used when paying for purchases and has concluded that the popularity of card payments is increasing. Three quarters (76%) of income earners who receive their income on a bank account make card payments more or less frequently and just about a quarter (23%) of them pay only in cash for their daily purchases. The share of families using payment cards is consistently growing – 60% of households make card payments for daily purchases (53% a year ago) and 44% for major purchases (40% a year ago). Convenience and the possibility to use payment cards at many merchants have been pointed out as the main reasons for usage. Further growth in card payments will, however, be rather based on more active use of the existing cards.

■ Assessment by the Overseer of Payment Systems

In conclusion, it can be said that the payment systems operating in Estonia witnessed no such cases that would have posed a threat to the country's financial stability in the period from the fourth quarter of 2004 to the third quarter of 2005.

The launch of an interbank Settlement System of Ordinary Payments (ESTA) as of 3 October 2005 can be regarded as the most significant change in the **systemically important settlement systems** in Estonia (RTGS and DNS) during the past year. ESTA is an updated version of the DNS used so far, allowing faster interbank settlements, longer operating time of the system and greater efficiency without an increase in the risks to financial stability. Moreover, the settlement system developments⁹ contribute to boosting competition in the banking market since it expands the opportunities of small banks and ensures meeting market demand also in the future. It would be expedient to implement also an interbank direct debit service to further tighten competition between banks.

Regardless of the fact that the functionality and operating principles of the settlement systems described above have been built so that the possibilities for different risks to materialise have been brought to a minimum, some operational problems occurred in the past year (see Figure 6.8). Namely, technical failures are usually a source of operational risk. However, the problems that occurred did not affect financial stability.

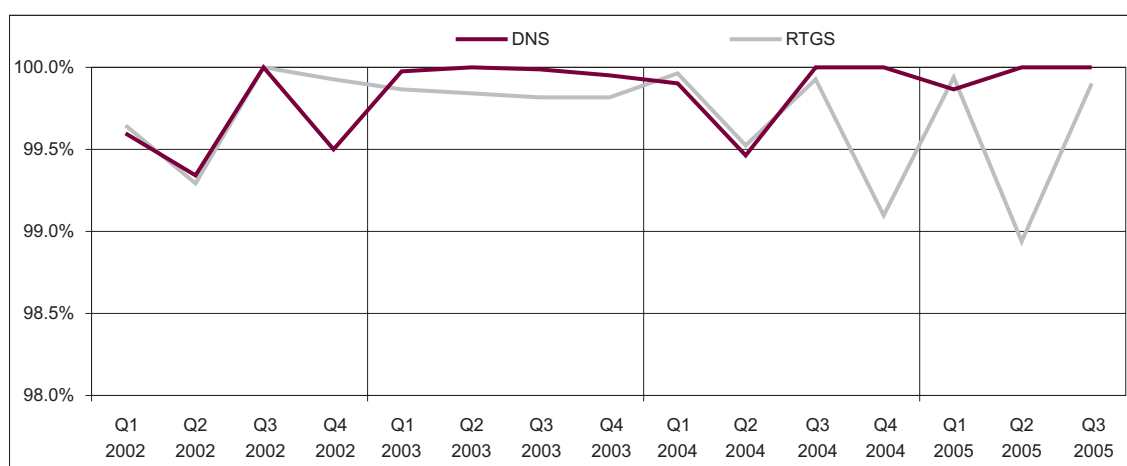


Figure 6.8. Availability of interbank settlement systems

The causes of failures were analysed and the malfunctions caused by information system failures were eliminated. Procedures were changed and the settlement systems were improved to hedge risks. In order to reduce operational risk, internal contingency principles were elaborated within the framework of the technical specifications of the settlement system. In addition, contingency situation scenarios were drawn up which are to be tested once a year together with system participants. **However, from the aspect of risk management it is crucial that in case of a failure in one settlement system another settlement system could be used at any time.**

As to the changes that occurred in **important settlement systems** (the securities settlement system and the card payment settlement system) over the year, the following should be outlined.

⁹ For a detailed description of the settlement systems managed by Eesti Pank see <http://www.eestipank.info/pub/en/majandus/finantskeskkond/maksesysteem/arveldus.html>.

- 1) Establishment of links between the Estonian Central Register of Securities and Lithuania’s securities depository in March 2005 (a respective link with Latvia exists as of January 1997). As a result, the Baltic States can more or less be regarded as a single securities market and this has substantially simplified the entrance of Estonian investors to Latvian and Lithuanian securities markets and increased investment opportunities. Hopefully, in the future such opportunities will also expand in the Nordic direction, which in turn would create a single Nordic and Baltic investment environment.
- 2) Bringing nearly all POS terminals¹⁰ in line with the EMV standard at the initiative of Pankade Kaardikeskus (Card Centre of Banks). As a result, transactions with smart cards have become considerably safer (copying card information has become more complicated). It is planned to bring all payment cards and cash registers in line with the EMV standard to enhance the safety of the card transactions environment.

BACKGROUND INFORMATION

PERFORMANCE OF THE ROLE OF PAYMENT SYSTEMS OVERSIGHT IN DIFFERENT COUNTRIES

Financial sector infrastructures – settlement systems of payments and financial instruments (securities) – may be either channels or sources of transmission of systemic risk. A smooth and efficient functioning of such systems is absolutely inevitable for the secure and stable operation of the consolidating markets. Therefore, over the last decades more attention than ever has been paid to systemic risk prevention on the international financial markets and in discussions, and hence one of the crucial tasks of central banks has emerged – **payment systems¹¹ oversight**.

Similar to other actions required to ensure financial stability, payment systems oversight is an ongoing process where, at first, a relevant policy is formulated (see Figure 6.9). Arising from the policy, the market and the systems are monitored and assessed, and, if appropriate, various measures are employed to intervene in the functioning of the systems. Then the process begins anew, the difference lying in the correction of the relevant policy at the beginning of the process cycle based on market needs and the general economic development.

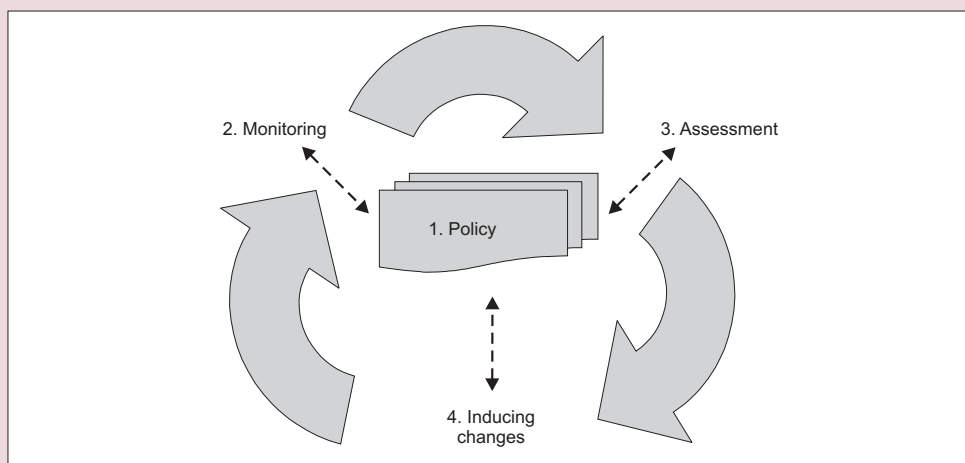


Figure 6.9. Process of payment systems oversight

¹⁰ A terminal capable of reading from a memory chip in a card data necessary for making a card payment.

¹¹ The present background information looks at payment systems as both the settlement systems of payments and financial instruments as well as the systems for making various payments (e.g. card payments) and payment methods (e.g. Internet banking or credit orders initiated otherwise).

According to theoretical sources¹², the **ultimate goals of the payment systems oversight are economic development and financial stability**. The sub-goals to be achieved are as follows:

- efficient, secure and stable payment systems;
- prevention of market abuse (consumer protection, prevention of money laundering, etc.);
- development of payment services and extension of the scope of their use; and
- avoiding of excessive regulatory burden on market participants.

The tasks of the overseer to achieve the goals include:

- elaboration of principles and regulations;
- establishment of guidelines, definition of (international) standards for the system and assessment of compliance with standards;
- enhancement and coordination of development; and
- ensuring of the system functioning.

The aim of this background information is to analyse the arrangement of the payment systems oversight across countries. The focus is on the EU Member States as Estonia is an EU country. In addition, the survey covers several non-EU countries, including G-10 countries¹³ as major participants in the international discussions, establishing good practices in the given field. The conclusions of the survey are based on theoretical and other public sources, and the results of the questionnaire carried out among central banks¹⁴.

Role of the overseer and legal basis of payment systems oversight

The responses of the survey showed that only one central bank is not involved in the payment systems oversight. In all other countries the role is performed at minimum at an informal level. Consequently, the legal basis for the oversight by central banks varies from those enacted by law (legislation on payment intermediation or central bank laws) to contractual relationships between the payment systems overseer and the system manager and/or operator. The primary sources of the legislative level are legislation on payment intermediation and securities markets, central bank laws and the statutes of central banks, where, as a rule, the payment systems oversight is included in the context of ensuring financial stability or smooth currency circulation. Various combinations of legal bases occur (e.g. in the case of systems managed by central banks, oversight is carried out at a non-formal level, whereas for other systems cooperation agreements are concluded at a formal level). The analysis of the said group of countries also shows the following conclusions:

- the higher the living standard in the given country, the more formal is the role of the payment systems oversight of the central bank and the more regulated its activities are (moderate dependence);

¹² Banca d'Italia 1997; BIS 2004; Bossone, Cirasino 2001; Heller 2004; Humprey, Keppler, Montes-Negret 1997.

¹³ Australia and Norway from outside the EU and the US, Japan, Canada and Switzerland from G-10.

¹⁴ 83% of the central banks responded to the questionnaire, including all the central banks of the countries that acceded in 2004, 80% of the central banks of the EU-15 countries and 67% of the central banks of the non-EU G-10 countries.

- the more economic freedom the country enjoys (as for components of economic freedom indices, the focus lies on banking and financial sector and market regulations)¹⁵, the less formal is the central bank's role as a payment systems overseer, and the less frequently the role is established by law (strong dependence).

Apart from national law, the central banks' role as an overseer is also based on international standards and good practices outlined in the following table (see Table 6.1).

Table 6.1. Legal basis of payment systems oversight

Scope of application	Legislation, standards and good practice	
	Payment and settlement systems	Securities settlement systems
International	BIS Lamfalussy Report (1990)	BIS-IOSCO Recommendations for securities settlement systems (2001)
	BIS Core principles for Systemically Important Payment Systems (2001)	BIS-IOSCO Recommendations for Central Counterparties (2004)
	BIS Policy issues for central banks in retail payments (2003)	
	BIS Report on Oversight of payment and settlement systems (2005)	
European Union	EU Consolidated version of the Treaty on European Union and of the Treaty establishing the European Community (2002)	
	EMI Minimum common features of domestic payment systems (1994)	ESCB-CESR Standards for Securities Clearing and Settlement in the European Union (2004)
	ECB Oversight standards for euro retail payment systems (2003)	
	Memorandum of Understanding on cooperation between payment systems overseers and banking supervisors in Stage Three of Economic and Monetary Union (2002, amended 2004)	
European Economic and Monetary Union	ECB The role of the Eurosystem in the field of payment systems oversight (2000, amendment in progress)	EMI Standards for the use of EU Securities Settlement Systems in ESCB Credit operations (1998)
Domestic	Laws on payment circulation, acts of central banks, statutes of central banks, memoranda of understanding	Laws on securities market, memoranda of understanding

Objectives of oversight

The objectives of the payment systems oversight as defined by the central banks are well in line with those set out in the theoretical framework (see Figure 6.10). It means that the **efficiency, stability and reliability of the payment systems and their smooth functioning along with the goal of risk minimisation in the field of the payment systems oversight are the objectives of most central banks**. Moreover, competitiveness of the financial system is underlined in the case of G-10 countries, which may be considered characteristic of developed societies. As for the new EU Member States, interestingly enough, consumer protection stands out, which generally is not a central banks' priority, but which has evidently received more attention in the course of accession negotiations and stricter consumer protection requirements in the EU than was common earlier in those countries. The central banks surveyed also mentioned other goals, such as facilitating the monetary policy transmission mechanism, which, among others, is a goal of the European System of Central Banks for the payment systems¹⁶, and equal access to the systems.

¹⁵ Data of the Heritage Foundation and the Fraser Institute were used.

¹⁶ The goals of the ESCB in the field of the payment systems are maintaining systemic stability, ensuring efficiency of payment systems, maintaining public confidence in payments/instruments and currency, and protecting the monetary policy transmission mechanism

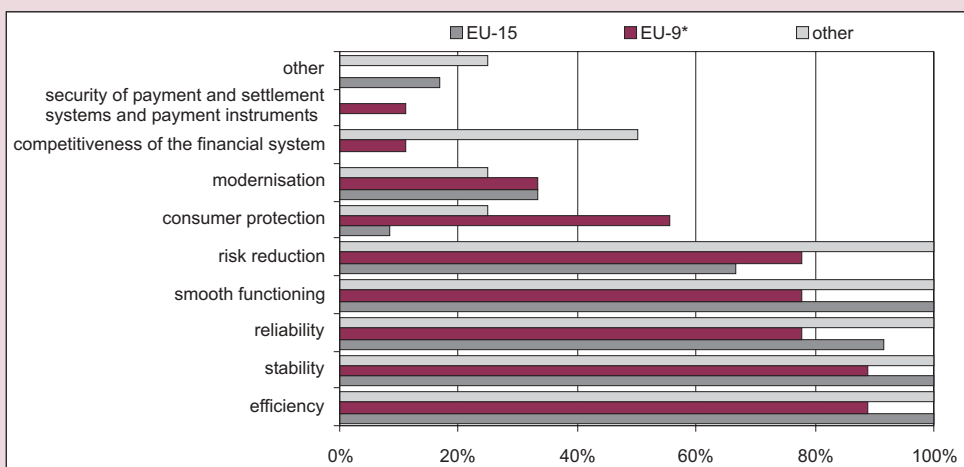


Figure 6.10. Objectives of oversight in different groups of countries as a share in the respective group

* EU-9 comprises new EU Member States, except Estonia

Instruments and activities of oversight

The **instruments of oversight** are “soft instruments” in most cases, for instance **policy dialogue, monitoring and analysis** (see Figure 6.11). However, nearly half of the central banks also use licensing and regulation, and several countries perform on-site inspection of the systems, which is normally common to institutional supervision. Direct service provision and system governance are rather widespread as well. Other instruments also include assessment of compliance of the systems with international standards and imposing sanctions arising from the law.

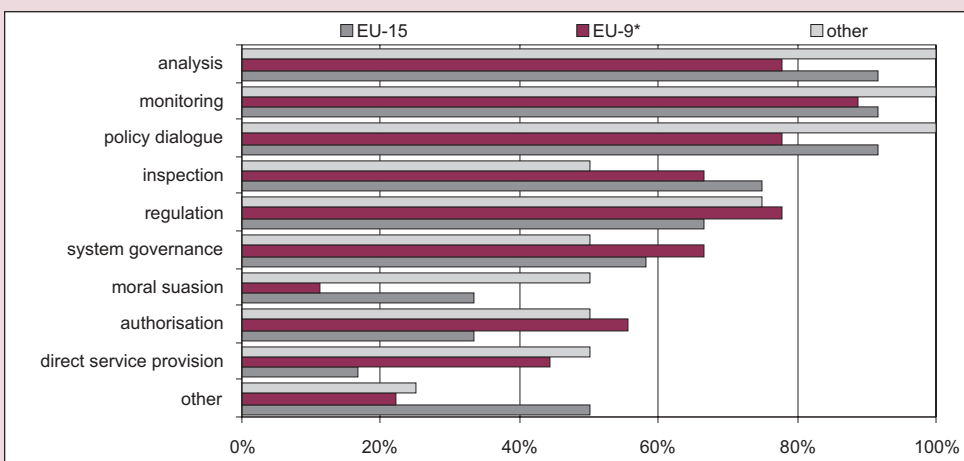


Figure 6.11. Instruments of oversight in different groups of countries as a share in the respective group

* EU-9 comprises new EU Member States, except Estonia

As for the activities of oversight, the focus is on risk management and risk prevention (largely so in G-10 countries), namely crisis management and routine activities that involve daily monitoring of the systems as well as reduction of risk probability (see Figure 6.12). Research and development form an integral part of central bank activities and other actions for updating the payment systems in accordance with the economic development. Both the instruments and activities of oversight contain systems assessment by the central bank and making recommendations to the system operator concerning the respective system development needs.

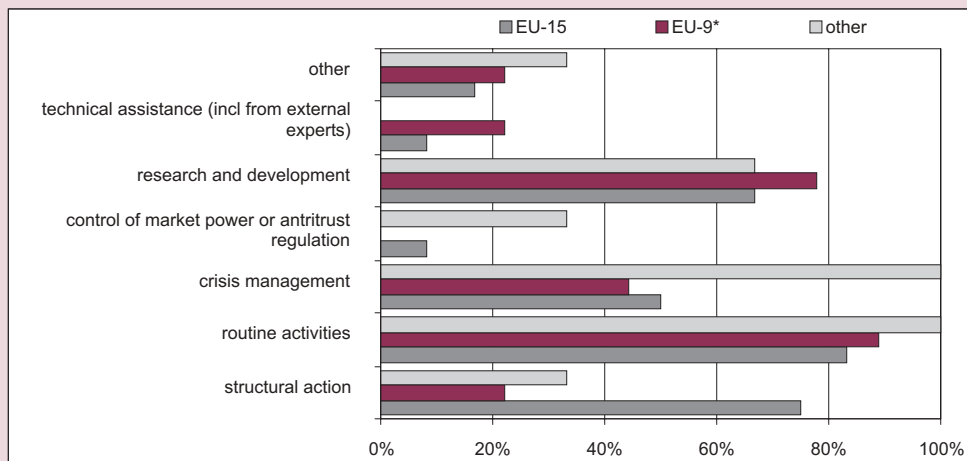


Figure 6.12. Types of oversight activities in different groups of countries as a share in the respective group

* EU-9 comprises new EU Member States, except Estonia

Scope of oversight and areas of interest

Based on international principles and national practices, the payment systems oversight focuses on (by types of payment systems and by their importance for the financial system) **systemically important payment systems** that include both payment and securities settlement systems (see Figure 6.13). Other systems applied in payment intermediation and widely used by companies and households (e.g. card payment systems) are generally monitored according to their scope of use. The focus, however, lies on aspects different from those essential for systemically important payment systems (e.g. security of payment methods, prevention of fraud). The system components monitored in the course of the oversight are mostly the same across countries. These include technical infrastructures, system participants and payment instruments and services. Among other fields that are of interest to the overseers, the legislative infrastructure (system rules) should be mentioned.

Risk management was outlined in many occasions in the survey as one of the areas of interest to overseers. In addition, **free access to the systems, information transparency,** and **development and viability of the system,** i.e. continuous functioning and efficiency in payments settlement, were brought out (see Figure 6.14). As to other fields, also system availability, governance, payment services and products, and security requirements for innovative payment methods for the prevention of fraud and the like were mentioned.

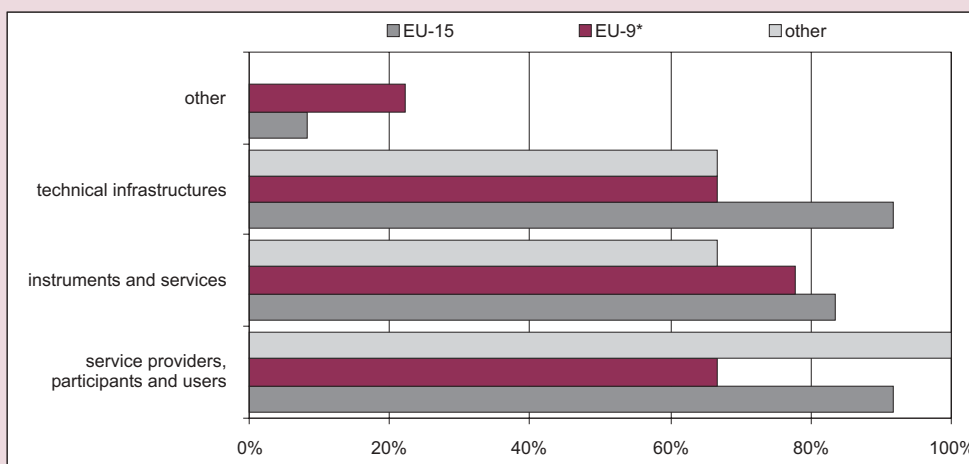


Figure 6.13. Scope of oversight in different groups of countries as a share in the respective group

* EU-9 comprises new EU Member States, except Estonia

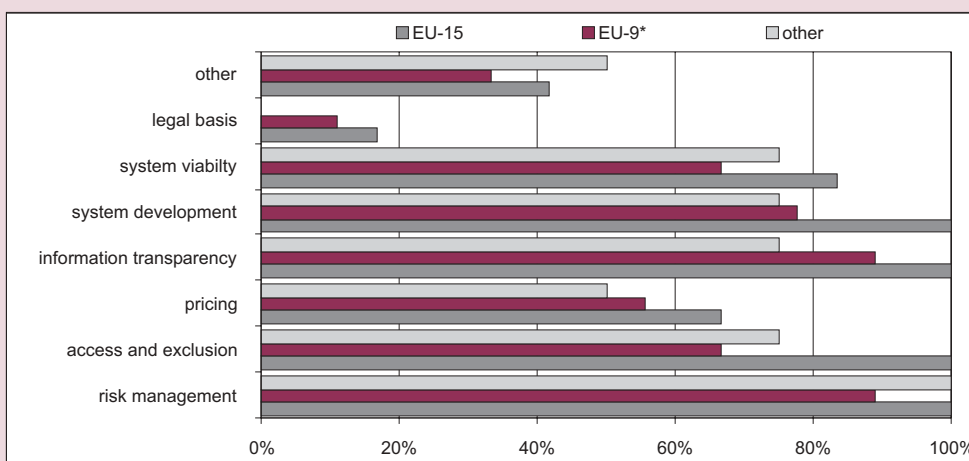


Figure 6.14. Areas of interest relevant to oversight in different groups of countries as a share in the respective group

* EU-9 comprises new EU Member States, except Estonia

To conclude, the **payment systems oversight is a task essential for central banks to secure financial stability**. The main objectives of the payment systems oversight include efficiency, stability, reliability and smooth functioning of the payment systems as well as reduction of risk probability. The higher the living standard in the country, the more formal is the oversight and the more regulated the central bank’s activities are in the given field. However, the more economic freedom the country enjoys, the less formal the bank’s role as the overseer is, and the less frequently this role is established by law.

The most common oversight instruments comprise policy dialogue, system monitoring and the analysis of the monitoring results, which is the so-called market-oriented approach. Another group is formed by the central banks that, in addition to the above-mentioned instruments,

favour intervention and thus use licensing, regulation and on-site inspection of the systems. The oversight activities most frequently used include risk management procedures. The payment systems oversight concentrates on payment systems that are systemically important for the financial system, including the oversight of the payments and securities settlement systems. Among the specific areas both technical and legal infrastructures are monitored, as well as payment instruments and services and system participants.