

VI. PAYMENT AND SETTLEMENT SYSTEM

The monetary stability as well as efficient and stable financial sector established as the objectives of Eesti Pank presume a payment and settlement system that functions on solid bases. In order to implement successful monetary policy, each central bank, including Eesti Pank, needs an efficient settlement system for settling payments in the base currency. In recent years Eesti Pank has therefore focused on developing the settlement system. A modern and efficient settlement system, being the infrastructure of the financial sector, is also a precondition for the efficient and secure functioning of the payment and settlement system as a whole, guaranteeing the stability and sustainable development of the financial sector as well as efficient circulation of money in the country. Trust in the monetary system is also enhanced by properly meeting the cash demand of the society.

NEW INTER-BANK SETTLEMENT SYSTEM

The new inter-bank settlement system was launched on 21 January 2002 and the year 2001 can be considered the year of realising the ideas of previous years and completing the several years long major project. The work done in the years 1998–2001 resulted in a settlement system that meets the international requirements and the needs of Estonian financial system as well as the entire society with minimum possible costs.

Unlike the old inter-bank settlement system processing both large-value and retail payments, the new system consists of two sub-systems: Real Time Gross Settlement System (RTGS) and Designated Time Net Settlement System (DNS). The RTGS, where payments are processed in real time, is primarily meant for processing large-value (over 15 million kroons) and urgent payments. In the DNS, which is meant for processing retail payments, net settlements are also made continuously, but received payment orders are transmitted to the receiving bank three times a day (at 11.00 am, 14.00 and 16.00). Inter-bank balances arising from processing payments in the DNS are settled once daily, at 16.15, in the RTGS.

In terms of its structure, the new inter-bank settlement system fully meets the international requirements and good practices. The new system does not involve any credit risk either. The latter risk is hedged in the RTGS by the principle that the receiving bank is notified about a payment only after its settlement at the accounts of the sending bank and the receiving bank with the central bank. The credit risk in the DNS is hedged by the principle that liabilities arising from payments initiated by a bank can never exceed the amount of security deposited by the bank in the DNS collateral account.

The introduction of the new settlement system enables commercial banks to extend the range of services offered to customers and manage their liquidity more flexibly. For bank clients, the launching of the new system primarily means that payments initiated in another commercial bank are received more quickly on the account of the client. The development of the system continues also during the entire year of 2002.

AMENDMENT OF LEGISLATION CONCERNING PAYMENT AND SETTLEMENT SYSTEMS

In 2001 Eesti Pank updated the legislation concerning payment and settlement systems. The legislation was amended regarding the procedure of making non-cash settlements through credit institutions.

Non-cash settlements regulated by decrees and regulations of the Governor of Eesti Pank that entered into force in different years were reviewed and the necessary norms contained in these were gathered into a single up-to-date decree of the Governor of Eesti Pank. The updated legislation ensures that several new principles established in the European Union directives are now implemented also in Estonia. Concentration of non-cash settlement regulations into a single legislative act also makes it easier for the banks and their clients to get a comprehensive view about the current legislative norms.

PAYMENT INSTRUMENTS

Like in previous years, the number of **cash payments** decreased in comparison to other payment instruments also in 2001. The share of cash payments accounted for only 1.4% of all the payments settled through credit institutions and 0.2% of their turnover. The number of cash payments declined twice against 2000.

The most widely used non-cash payment instrument in 2001 was the **credit order**, comprising 58% of the total number of non-cash payments and 97% of their turnover (see Table 6.1). More and more bank customers prefer more convenient and cheaper **Internet banking** to the conventional paper-based credit order. The turnover of Internet banking credit orders almost doubled against 2000, reaching 94,458 million kroons. Among non-cash payment instruments, the share of Internet bank credit orders accounted for 19.5% of the total number of payments in 2001. Among other electronic payment instruments, the turnover of **telebank and telephone bank** credit orders was 459,563 million kroons and 2,609 million kroons, respectively, and their share in the total number of non-cash payments was 30 and 1% respectively.

Table 6.1. Payments by payment instruments in 2001

	Turnover (EEK m)	Number of payments (thousands)	Average size (EEK thousand)
Cash	4,698.6	984.0	4.8
Non-cash payments	1,984,325.9	67,159.6	29.5
Cheques	247.2	23.8	10.4
o/w travellers cheques	23.1	6.1	3.8
other cheques	224.1	17.7	12.6
Card payments	8,818.7	23,382.6	0.4
Direct debit	50,463.5	4,967.9	10.2
Credit orders	1,924,796.5	38,785.2	49.6
o/w standing orders	9,474.9	1,123.2	8.4
paper-based credit orders	173,068.6	3,481.2	49.7
telebank credit orders	459,562.9	20,204.9	22.7
telephone-bank credit orders	2,609.2	742.7	3.5
internet-bank credit orders	94,457.5	13,122.8	7.2
SWIFT	1,185,623.3	110.4	10,736.3
Unidentified	0.0	0.0	5.8
Total	1,989,024.5	68,143.5	29.2

The most widespread type of debit instrument in 2001 was still payment with the **bankcard** that accounted for 35% of the total number of non-cash payments and totalled 8,819 million kroons of turnover. The number of bankcard payments increased by 53% and turnover about 37% compared to 2000. A change in payment habits is characterised by another debit-type payment order, **direct debit**, that customers got used to very rapidly, using it to settle more than 4.9 million payments in 2001. The number of direct debits increased by more than two thirds against 2000 and their share in the total number of payments increased from 5.7% to 7.4% over the year.

By end-2001 credit institutions had issued more than 987,000 **bankcards** (see Table 6.2), 16% of which were passive, ie no payments were made with these. **Debit cards** made up 89% of issued bankcards at the end of 2001. Over 110,000 **credit cards** had been issued by end-2001. Due to the introduction of a new type of credit card – revolving credit card without an annual fee and fixed maturity – and active marketing, the number of credit cards increased more than 2.5-fold compared to the end of 2000. Bankcards limited to local use made up only 0.9% of all bankcards. Along with a growth in the number of cards, the possibilities for their use have also increased. The number of **automated teller machines (ATMs)** increased by 50 over the year and reached 680 at the end of 2001 (see Table 6.3). International bankcards with widespread international trademarks issued in any country of the world can be used in 88% of the ATMs. **The number of points of sale with a bankcard payment facility** increased by almost 29% over the year and reached 5,260 by end-2001.

Table 6.2. Total amount of bank cards issued in Estonia (in thousands)

	1997	1998	1999	2000	2001
Domestic debit cards	406.1	292.3	59.5	13.4	8.8
o/w cash cards	56.5	51.0	15.1	4.5	4.9
debit cards	349.6	241.5	44.3	9.0	3.9
International debit cards	186.3	386.1	690.0	810.6	868.2
Debit cards total	592.4	678.5	749.5	815.1	877.0
Domestic credit cards	0.1	–	–	–	–
International credit cards	14.9	19.2	20.5	43.3	110.1
Credit cards total	15.0	19.2	20.5	43.3	110.1
Debit and credit cards total	607.4	697.6	770.0	858.4	987.2

Table 6.3. Number of automated teller machines (ATMs) and points of sale (POS) accepting bank cards

	1997	1998	1999	2000	2001
Automated teller machines (ATMs) total	427	490	591	630	680
o/w cross-usage ATMs	331	433	530	564	600
ATMs accepting cash payments	12	8	9	10	10
Cash dispensers	279	307	203	203	210
Cash and payment dispensers	110	126	327	361	390
Payment dispensers	38	57	61	66	80
Points of sale accepting bank cards	2,153	2,586	3,267	4,084	5,260

Table 6.4. Payments settled through Eesti Pank

		Total	Change compared to the previous year (%)	Daily average	Share by the size of credit orders (%)		
					0 - 50,000 EEK	51,000 - 1,000,000 EEK	over 1,000,000 EEK
1997	Amount of credit orders (in thousands)	10,891.1	24.5	43.0	95.9	3.9	0.2
	Volume of settlements (EEK m)	323,830.6	52.6	1,280.0	14.0	21.1	65.0
	Average size of payment (EEK thousand)	29.7	–	–	–	–	–
1998	Amount of credit orders (in thousands)	11,096.9	1.9	43.9	96.3	3.5	0.2
	Volume of settlements (EEK m)	331,157.5	2.3	1,308.9	13.5	18.5	68.0
	Average size of payment (EEK thousand)	29.8	–	–	–	–	–
1999	Amount of credit orders (in thousands)	10,335.0	-6.9	41.2	97.3	2.6	0.1
	Volume of settlements (EEK m)	234,967.3	-29.1	938.9	15.3	18.4	66.4
	Average size of payment (EEK thousand)	23.0	–	–	–	–	–
2000	Amount of credit orders (in thousands)	10,918.8	5.7	43.2	97.4	2.4	0.2
	Volume of settlements (EEK m)	279,210.8	18.8	1,103.6	12.7	14.1	73.2
	Average size of payment (EEK thousand)	25.6	–	–	–	–	–
2001	Amount of credit orders (in thousands)	13,840.7	26.8	53.7	97.6	2.3	0.1
	Volume of settlements (EEK m)	347,785.2	24.6	1,359.0	12.8	14.0	73.2
	Average size of payment (EEK thousand)	25.1	–	–	–	–	–

Along with the economic upturn and more active use of various payment instruments, **the number and turnover of payments settled through the settlement system of Eesti Pank** increased by 26.8% and 24.6%, respectively in 2001 (see Table 6.4). Payments up to 50,000 kroons were responsible for 97.6% of all the payments and 12.8% of their turnover. Payments over a million kroons accounted for only 0.1% of the total number of payments but for 73.2% of the turnover.

At the end of 2001 commercial banks introduced the **Internet-based telebanking** for business customers that enables companies to link their accounting system to the Internet bank. The advantage of the new instrument is that it functions without any special client-side software.

MEETING THE CASH DEMAND

One of the main objectives of Eesti Pank is to meet the society's cash demand. To accomplish this, the central bank:

- issues cash to credit institutions as the demand grows;
- accepts cash from credit institutions as the demand falls;
- replaces worn-out banknotes and coins with new ones and destroys the old ones.

Due to the currency board system applicable in Estonia, all the issued banknotes and coins must be covered with Eesti Pank's foreign reserve.

To make cash operations more efficient and improve the management, the former Cash Department and Security Department of Eesti Pank were combined into a single department in 2001. The reason for this was that the operations of the formerly separate departments had become largely intertwined¹.

ISSUED BANKNOTES AND COINS AND THEIR STRUCTURE

As of 31 December 2001 there was a total of 8,066.5 million kroons in circulation, of which 1,113.3 million kroons, ie 13.8% was in the vaults of Estonian credit institutions and 6,953.2 million kroons, ie 86.2% in circulation outside the credit institutions. The amount of cash in circulation increased by 789.1 million kroons, ie 9.8% over the year. Banknotes and coins in circulation formed 19.8% of broad money (M2) at the end of 2001, a year earlier the same indicator was 22.1%.

Apart from the stable continual growth in the amount of circulating cash in 2001, seasonal changes were clearly observable in June and December like in earlier years. In these months the amount of cash in circulation increased by approximately 5%. Such an increase can be explained by payment of holiday pays and Christmas bonuses to employees in June and December, respectively.

Earlier trends continued to prevail also in the structure of cash in circulation in 2001 (see Table 6.5). The amount of 500kroon banknotes in circulation increased significantly, which practically covered all of the increase in the amount of cash in circulation. But also the number of 2kroon banknotes increased, replacing in part the 1kroon banknotes that are gradually removed from circulation. The amount of other banknotes in circulation remained quite stable.

Despite the fact that the number of all coins issued by Eesti Pank went up (except 5kroon coins), the coins accounted for less than 1% of total cash in circulation.

¹ See also Reorganisation of Organisational Structure and Improvement of Management Activities, p 88.

Table 6.5. Banknotes and coins in circulation

Denomination	By sum (EEK m) as of				Million pieces as of			
	31.12.98	31.12.99	31.12.00	31.12.01	31.12.98	31.12.99	31.12.00	31.12.01
1kroon notes	11.1	7.5	5.8	5.1	11.1	7.5	5.8	5.1
2kroon notes	13.9	16.6	18.9	20.7	7.0	8.3	9.4	10.3
5kroon notes	30.5	30.9	33.0	34.1	6.1	6.2	6.6	6.8
10kroon notes	61.9	61.3	62.5	63.6	6.2	6.1	6.3	6.4
25kroon notes	126.9	144.3	154.9	162.0	5.1	5.8	6.2	6.5
50kroon notes	72.4	61.7	57.0	51.1	1.4	1.2	1.1	1.0
100kroon notes	1,058.9	1,082.9	1,055.8	1,065.9	10.6	10.8	10.6	10.7
500kroon notes	3,970.5	5,185.9	5,818.2	6,583.6	7.9	10.4	11.6	13.2
Banknotes total	5,346.1	6,591.1	7,206.2	7,986.0	55.4	56.3	57.6	59.9
5sent coins	2.2	2.2	2.2	2.2	43.6	43.6	43.5	43.1
10sent coins	6.8	7.7	8.3	9.0	67.8	77.0	83.5	89.6
20sent coins	9.6	11.0	12.0	13.1	48.1	54.9	60.0	65.7
50sent coins	8.4	9.3	10.4	11.5	16.7	18.7	20.7	23.0
1kroon coins	4.1	14.1	25.0	31.8	4.1	14.1	25.0	31.8
5kroon coins	8.8	8.6	8.2	7.9	1.8	1.7	1.6	1.6
Coins total	39.8	52.9	66.1	75.5	182.1	210.1	234.4	254.7
Commemorative coins	4.7	4.8	5.0	5.0	0.1	0.1	0.1	0.1
Sum total	5,390.7	6,648.8	7,277.4	8,066.5	x	x	x	x

A large share of 500kroon notes (amounting to over four fifths of the total amount of cash in circulation) and a small share of coins can be considered a peculiarity of Estonian cash circulation. The smallest banknote issued by Eesti Pank is the 2kroon note (the face value of the smallest euro banknote, for instance, is 5 euro, ie ca 78 kroons).

With the increase in the number of 500kroon banknotes, the average value of a banknote in circulation increased by 8.4 kroons in 2001 and amounted to 133.4 kroons on 31 December. The average value of a coin in circulation was 29.6 sents.

Considering the accession negotiations with the European Union, Eesti Pank is not planning to change the structure of banknotes and coins to be issued.

CASH MOVEMENT

In 2001 Eesti Pank issued 14,627.1 million kroons of banknotes and coins to credit institutions and 13,836.2 million kroons was returned to Eesti Pank (see Table 6.6). In terms of quantity, Eesti Pank issued 104.4 million banknotes and 21.9 million coins, whereas 101.8 million banknotes and 1.5 million coins were returned to Eesti Pank. It means that each banknote in circulation on an average moved through Eesti Pank twice in 2001.

During the past two years the turnover of banknotes between Eesti Pank and credit institutions has increased significantly (ca 70%). All banknotes and coins returned to Eesti Pank are being sorted by

Table 6.6. Movement of cash between Eesti Pank and credit institutions

	By sum (EEK m)		Million pieces			
	Issued from Eesti Pank	Received by Eesti Pank	Issued from Eesti Pank		Received by Eesti Pank	
			banknotes	coins	banknotes	coins
1998	6,285.4	6,314.0	60.0	19.8	62.2	3.9
1999	8,245.8	6,986.5	61.6	28.3	60.7	1.2
2000	11,655.1	11,025.1	83.3	24.7	82.1	0.2
2001	14,627.1	13,836.2	104.4	21.9	101.8	1.5

the Cash and Security Department's sorting machine. Worn-out banknotes and coins are removed and destroyed, the rest of the cash is returned to circulation. All banknotes (except the 1kroon notes) were processed in 2001 by means of a fully automatic sorting machine.

22.4 million worn-out banknotes were withdrawn from circulation in 2001 (see Table 6.7).

Table 6.7. Worn-out banknotes withdrawn from circulation

Denomination	By sum (EEK m)				Million pieces			
	1998	1999	2000	2001	1998	1999	2000	2001
1kroon notes	5.1	4.9	1.5	1.0	5.1	4.9	1.5	1.0
2kroon notes	8.4	7.7	9.2	9.0	4.2	3.9	4.6	4.5
5kroon notes	32.9	22.3	27.5	22.0	6.6	4.5	5.5	4.4
10kroon notes	63.8	43.4	29.7	17.2	6.4	4.3	3.0	1.7
25kroon notes	116.1	117.1	77.1	21.1	4.6	4.7	3.1	0.8
50kroon notes	57.1	56.4	34.6	51.1	1.1	1.1	0.7	1.0
100kroon notes	730.7	845.5	567.8	627.9	7.3	8.5	5.7	6.3
500kroon notes	1,184.9	1,100.1	739.2	1,314.5	2.4	2.2	1.5	2.6
Total	2,199.0	2,197.4	1,486.7	2,063.8	37.7	34.0	25.5	22.4

INTRODUCTION OF NEW BANKNOTES, CASH EXAMINATION

In planning the production of cash it is important to find an optimum balance between the face value of cash, the production price and one of the significant components – the cost of security features. A banknote or coin of maximum security could cost several times more than a similar and less secure note or coin. However, a banknote with few security features can be easily counterfeited.

A new technical specification of the 25kroon note was prepared in 2001 and an international underbidding was carried out for their production. The new 25kroon note has a number of new security features that make the note more counterfeit-proof. The new banknote is also more easily recognisable for the visually impaired. In technical and security terms the new 25kroon banknote belongs to the same generation as the 100kroon banknote issued in 1999 and the 500kroon note issued in 2000.

The bank conducted examinations of 2,068 worn-out and damaged Estonian banknotes and 227 counterfeited Estonian banknotes in 2001. The partly preserved surfaces of banknotes were precisely measured according to a method developed in the year 2000. The authenticity of allegedly counterfeit or forged Austrian, British, Canadian, Czech, Dutch, Finnish, French, German, Italian, Norwegian, Spanish, Swedish and US banknotes submitted by commercial banks was examined and expert opinion expressed. Employees of credit institutions were trained on the security features and identification of counterfeit euro banknotes.

EURO MEDIATION

In the first quarter of 2001 Eesti Pank started to make preparations for providing technical and informative support in Estonia to the circulation of euro cash².

Usually commercial banks get their foreign exchange, including the euro, directly without any mediation of the central bank. Considering the recommendations of the European Central Bank as well as the

² See also Participation in Presenting Euro Banknotes and Coins, p 86.

speed and delivery terms of various methods for obtaining euro cash, Eesti Pank concluded an agreement in 2001 for the procurement of euro cash from the European System of Central Banks. This was an irregular single procurement to ensure sufficient reserves to meet the demand for the single currency cash in the first days of 2002 and possible irregular demand during the period of parallel circulation.

The central bank made an analysis about the necessary amount of euro cash needed to replace the national currencies of countries shifting to the euro that were in circulation in Estonia; the results were also discussed with the Estonian Banking Association. The amount of euro cash procured to Estonia for the beginning of 2002 was determined on the basis of this analysis and considering individual orders placed by the commercial banks. The supplying of the banks with euro went smoothly and euro were available on the first business day of 2002 in all the commercial banks in Estonia.

A comprehensive training for the Estonian commercial banks' cash specialists about the security features of euro banknotes and methods for the detection of counterfeit euro was organised largely on the account of Eesti Pank funds, using the specialists of the central bank³.

³ See Training, p 90.