

THE PAYMENT AND SETTLEMENT SYSTEMS--2007

1. INTRODUCTION

The payment and settlement system was upgraded in 2007 with the introduction of a Real Time Gross Settlement (RTGS) system—known in Israel as Zahav, its Hebrew acronym—the system used by most nations around the world.

Rapid technological changes in communications and computerization systems since the 1980s and the progress of globalization have deepened the involvement of central banks in payment and settlement systems, which leads to a streamlining of the payment system and the improvement of its reliability. In most countries, the RTGS system is operated directly by the central bank, and the majority of the payment and settlement systems, even those operated by the private sector, are supervised and directed by the central bank.

The Israeli payment and settlement system has been upgraded over recent years and, at the end of the process, it will comply with the international standards set by the Bank for International Settlement (BIS).

The reform of the payment and settlement systems in recent years covers a number of aspects, such as the abolition of retroactive entries, extending the banking business day, and improving the process of clearing checks.

In addition to reforms carried out earlier, check truncation planning has continued, and the Electronic Check clearing 5768–2008 memorandum was published. At the same time, preparations are being carried out for the operation of check imaging and image transfer, before check truncation comes into effect.

The highlight of the reform was the establishment of the Zahav system, which began operating in the second half of 2007. The establishment of the Zahav system brought on an in-depth examination of all settlement processes in the Israeli economy, which contributed to their streamlining.

The Zahav system became fully operational in September 2007, and allows the immediate and final settlement of large and urgent payments. The Zahav system is also the final clearer of all settlement systems, among them the paper-based clearing house (checks), the banks' (automated) clearing house (also known by its Hebrew acronym, Masav) and the Stock Exchange clearing house

As is accepted in other countries, and in accordance with international standards, a Payment Systems Law, 5768–2008 was passed (hereinafter: “the Law”), the purpose of which is to serve as a strong legal basis for the activities of the Israeli payment system. Among other things, the Law determines the finality of payments settled in certain payment systems, establishes the Bank of Israel's authority for various important payment systems, and deals with the eventuality of a participant's bankruptcy.

In order to permit the operation of the Zahav system before the Law was passed, rules and agreements among the system's participants were defined. The system's rules cover all issues pertaining to its operation, including the finality of payment.

According to the plan, the Bank of Israel will join the Continuous Linked Settlement (CLS) in 2008. The CLS is a real time settlement system (similar to the RTGS system), in which members hold settlement accounts in various currencies. Until now, members held settlement accounts in fifteen currencies, including the US dollar, the euro, the pound sterling, the Swiss franc, and the Japanese yen. Two more currencies will be joining in early April—the Israeli shekel and the Mexican peso. Real time settlement of transactions between currencies minimizes conversion risk in those transactions.

As part of the process of joining the CLS, two Israeli commercial banks will become members of the CLS, meaning that they will hold settlement accounts in the system, and another commercial bank will serve as a liquidity provider for the system.

The Israeli member banks will be able to settle in foreign currencies, and other Israeli banks holding accounts of foreign CLS member banks will provide the foreign banks with transfer services for their shekel transaction in the Zahav system against their CLS account.

Joining the CLS allows an upgrade in payments in Israel in shekel and in foreign currency, permitting immediate and final payments in almost any currency.

2. PAYMENT SYSTEMS IN ISRAEL

Several interbank clearing houses already exist in Israel—the Zahav system, the paper-based clearing house (checks), the banks' automated clearing house and the Stock Exchange clearing house (securities and derivatives). These clearing houses, with the exception of the Zahav system, transfer net data to the Zahav system at different times, with the net settlement being final.

Non-cash payments are possible between companies and individuals with accounts in the same bank or between those with accounts in different banks. Payment systems were established for the purpose of transferring payments between the banks.

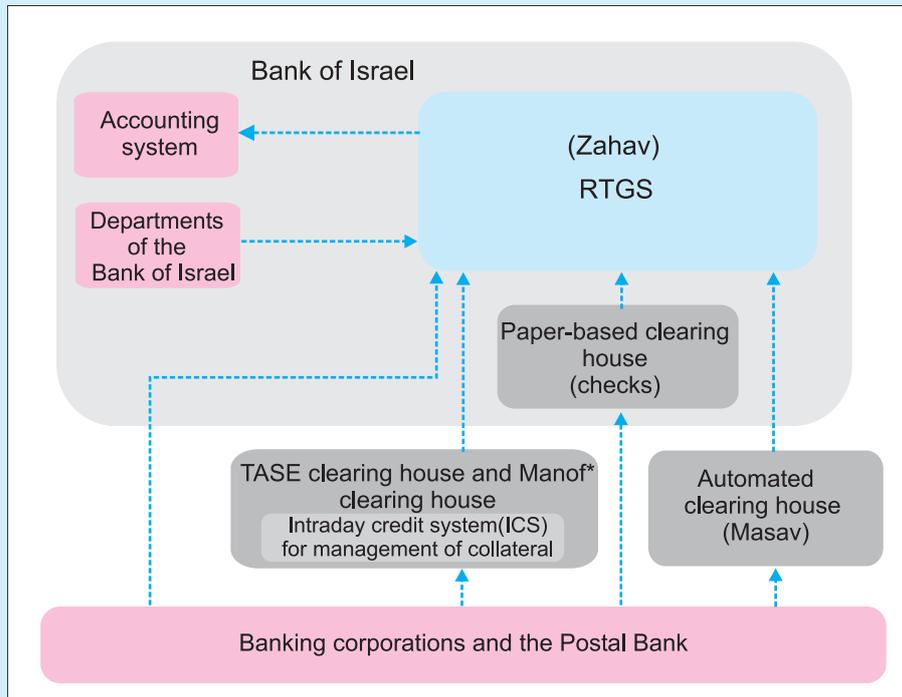
a. The Zahav (RTGS) System

The Zahav (RTGS) system is a system used by most advanced and emerging economies. This system enables the final and immediate settlement of bilateral transactions, as well net settlement of multilateral transactions of the clearing houses. The settlement is safe, as it is carried out by the Swift system, the world's safest money transfer system.

The Zahav system was launched in late July 2007, and in the first month of its operations it only carried out payment orders from the Bank of Israel and the payment systems, and interbank transfers. At that stage, the system was not available to the banks' customers; it was made available to them in early September.

The purpose of this system is to cancel or reduce the various risks existing in other settlement systems, especially systematic risk, settlement risk and credit risks. The system settles bank payments immediately and finally, so that, at any moment, each participant's balance is final.

Figure 1
Israel's Settlement System



*Options and derivatives.

SOURCE: Bank of Israel.

In the Zahav system, the participant sends an order to charge his account and credit the account of another participant in the system. After the payment order enters the system, it passes through various checks, and if the payer's bank balance is sufficient to execute the payment order, the account is charged and the credit is immediate and final. The Zahav manages the payment orders in the order of their arrival (FIFO—first in first out), but the participant can set his priorities among his different payment orders, and thus manage the order of their settlement according to their importance or urgency.

In order to avoid liquidity pressures on the system's participants, the Bank of Israel allows them to receive intraday credit against shekel and foreign currency securities, as well as against bonds traded on the stock exchange. The credit does not bear interest, and is repaid by the end of the trading day. Throughout the day, participants may manage the amount of intraday credit in their account, by depositing collateral in the Bank of Israel stock exchange account, or withdrawing collateral provided the intraday credit against the collateral has not been used. At the end of the day, the intraday credit is repaid or converted to overnight credit. The overnight credit is automatically given to banks unable to return the intraday credit, against collateral and at one percent above Bank of Israel interest rate.

The Zahav system is in operation between 7 a.m. and 9 p.m. It is managed through a control room located in the Bank of Israel, the purpose of which is to supervise the system's current activities, handle various business problems and provide warning of technical problems. The control room provides helpdesk services for participants with questions or problems.

The Zahav system manages the settlement of bilateral interbank transactions, as well as transactions between the banks and the Bank of Israel—monetary credit, deposits by the banks in the Bank of Israel, cash withdrawals from the Bank of Israel, and so forth. In addition, as mentioned, the Zahav system settles the net results of settlements by the other clearing houses (banks, checks and stock exchange).

The number of transactions in the Zahav system in the last quarter of the year reached some 45,000, with a value of about NIS 5,000 billion. The interbank transactions consisted of 88 percent of the number of transactions and some 40 percent of their value.

Table 1
Activity in the Zahav (RTGS) System, October–December 2007

	Total		Interbank transactions	
	Number of transactions	Value (NIS million)	Number of transactions	Value (NIS million)
October	11,417	1,758,050	9,793	598,736
November	15,779	1,661,945	13,903	619,993
December	18,347	1,553,781	16,666	671,691
Total	45,543	4,973,777	40,362	1,890,420

SOURCE: Bank of Israel.

b. The banks' clearing houses

The banks' clearing house is made up of the paper-based (checks) clearing house and the automatic clearing house (Masav). The clearing house operates according to an agreement between its members—the commercial banks in Israel, the Postal Bank, and the Bank of Israel. Some members of the clearing house operate directly within the clearing house, and some are represented by other banks. Banks operating in areas under the Palestinian Authority are also members of the clearing house, and they are represented by two banking corporations in Israel. The banks' clearing house is managed by the Clearing House Committee, which numbers 14 members—half from the Bank of Israel and half from the banking system—and which acts according to the clearing house regulations determined by the Committee. The Committee convenes from time to time, as necessary, and publishes an annual report on its activities.

i. Paper-based (check) clearing house

Paper-based transmissions presented in the clearing house by the banks consist mainly of checks presented electronically. In addition, non-magnetic, i.e., manual, instruments are presented, as well as returns of checks.

The number of checks drawn in 2007 (including checks deposited in the bank from which they were drawn) totaled 165 million, with a value of NIS 977 billion. Eighty-six percent of checks drawn, i.e., 142 million, with a value of NIS 747 billion, were deposited in banks different from the one on which they were drawn, and thus were presented in the paper clearing house, with only 14 percent not passing via the clearing house.

It should be noted that the data on checks in the paper-based clearing house is an estimate, based on a report one day per month on the number and value of checks.

In 2007, 148 million transmissions were presented (and accepted) at the paper-based clearing house, mainly checks presented and returned, as well as other manual instruments, with a total value of NIS 878 billion.

Table 2
The Paper-Based Clearing House, by Type of Instrument, 2005–07
(Instruments presented and returns, monthly average)

	2005		2006		2007		Change in 2007	
	Value	Number	Value	Number	Value	Number	Value	Number
	NIS million	thousands	NIS million	thousands	NIS million	thousands	percent	
Manual instruments	106,478	1,160	98,810	818	104,002	500	5.3	-38.8
Checks	646,976	146,305	710,269	149,145	748,528	142,639	5.4	-4.4
Returns	21,993	3,898	22,245	3,764	23,601	4,497	6.1	19.5
Total	775,447	151,364	831,324	153,727	876,130	147,637	5.4	-4

SOURCE: State Loans Administration, Clearing Section.

The value of the checks presented at the paper-based clearing house was some 85 percent of the value of all transfers at the clearing house, and manual transfers amount to 12 percent. The remainder consists of returns, the value of which was less than 3 percent of the settled amount in 2007.

Many attempts were made in the past to convert all manual transmissions to the automated clearing house, but till now some have remained in the paper clearing house, although their share in the total number of all transmissions continues to decline. Use of checks in 2007 was 4 percent less than in 2006, but their value increased by 6 percent. This means that the average amount per check settled between the banks (including manual transmissions) increased in 2007 to NIS 5,900, from NIS 5,400 in 2006. It should be noted that with growth in the use of credit cards for payments, the average sum per check has increased (see Section 4 below).

ii. Automated clearing house (Masav)

The automated banks' clearing house (Masav) settles automated interbank automatic transactions that are not paper or cash. In addition, charges and credits are transmitted on to Masav directly by non-bank institutions.

In 2007 the value of transactions cleared by Masav was NIS 6,175 billion, of which NIS 5,940 billion were credits and the rest, debits. Half of the sum of the credits was interbank credit, even though the number of such transactions was only 6 percent of total credit transactions.

Table 3
Transactions in the Banks' Automated Clearing House (Masav), 2005-07
 (Monthly average)

	2005		2006		2007		Change in
	Value	Transactions	Value	Transactions	Value	Transactions	2007
	NIS billion	Million	NIS billion	Million	NIS billion	Million	Percent
Credits	4,079	84	5,437	89	5,940	93	9.3
<i>of which: Interbank</i>	3,385	4	4,637	6	2,962	6	-36.1
Debits	198	136	215	141	235	146	9.4
Total	4,277	221	5,651	230	6,175	239	9.3

SOURCE: Masav.

The value of transactions cleared via Masav rose by 9 percent in 2007, compared to a 32 percent rise in 2006. The change in the rate of increase this year derived from the introduction of the Zahav system (see Section 3 below), and the value of interbank credits fell by 36 percent. The number of transactions through the banks' clearing house increased by 4 percent in 2007, similar to its increase in 2006. This means that the introduction of the Zahav system in 2007 affected the value of settlements by Masav, but not the number of transactions it handled (see Section 3 below).

c. The Tel Aviv Stock Exchange clearing house

The Tel Aviv Stock Exchange (TASE) clearing house calculates the net value of each bank's transactions and transfers the net results to the Zahav system for settlement. The clearing house settles all securities-related transactions and provides additional services such interest, dividend and debenture redemption payments. In addition, the Stock Exchange clearing house settles payments in the Ma'of (options and derivatives) clearing house deriving from the purchase and expiry of derivatives.

In recent years, the TASE has acted to match the timing of the transfer of a security with the timing of the settlement, in order to reduce risk. Since the introduction of

the Zahav system, the transfer of the payment is simultaneous with the transfer of the security (DVP—delivery versus payment).

As part of the Zahav system, the TASE clearing house operates an intraday credit system (ICS), which provides the Bank of Israel with collateral for the intraday credit advanced to participants in the system.

Table 4
Turnover in Securities, 2005–07
(NIS billion)

	Shares and convertibles	Bonds			<i>Makam</i>	Total
		Government	Other	Total		
2005	245.4	275.1	53.1	328.2	165.6	739.2
2006	360.3	356	68.1	424.1	197.5	981.9
2007	506.2	635.7	164.7	800.4	207	1,513.6
Increase in 2007 (%)	40.5	78.6	141.9	88.7	4.8	54.2

d. Summary of payment system activities

In 2007, the Zahav RTGS system joined the other settlement systems operating in Israel; its share in total settlement activity was not fully expressed in its few months of operation in 2007, and is expected to increase significantly in 2008.

In recent years, the shares of the various clearing houses in total settlement activity changed slightly, with the Masav clearing house handling about three-quarters of the total settlement valued, and the balance handled by the paper-based and TASE clearing houses. With the introduction of the Zahav system, there have been further changes in the shares of the different payment systems, but it is too early at this stage to quantify these changes.¹

Table 5
Clearing Houses Summary, 2005–07
(NIS billion, annual data)

	Paper-based clearing house	Masav	TASE	Total
	2005			
2006	831	5,651	982	7,465
2007	878	6,175	1,514	8,566
Increase in 2007 (%)	5.6	9.3	54.2	14.8

¹ As the data relating to the Zahav system also include settlement data from other clearing houses, at this time there is no way of separating them.

3. INFLUENCE OF THE INTRODUCTION OF THE ZAHAV SYSTEM ON THE PAYMENT SYSTEM

The establishment of a system like Zahav is an extensive process, which requires interaction between many market factors—primarily the system’s participants: the commercial banks, the clearing houses, the Postal Bank and the Bank of Israel. The Zahav system, which began operating in 2007, handles all market transactions involving large sums, as well as all urgent transactions, including those with smaller sums. There is no reason why non-urgent low-sum transactions should not also be handled by the system, but the significant advantage of performing transfers through the Zahav system—the immediacy of payment—is particularly important in large and urgent transactions.

Executing transactions in the system requires the use of Swift messages, which also include the sender’s and recipient’s IBAN (International Bank Account Number) numbers. The IBAN number—which incorporates the client’s bank, branch and account numbers and check digits—allows immediate transfers to the recipient’s account without any manual intervention, known as straight through processing (STP). In addition, the payer using the Zahav system must include the sender’s and recipient’s names in English in the Swift message.

The main effects the changes have on the payment and settlement systems are:

1. They afford clients the ability to make sales without risk;
2. They enable daily management of intraday bank liquidity;
3. They enable transactions to be performed without settlement risks;
4. They reduce conversion risk.

The Zahav system commenced full operation between the banks and their clients at the beginning of September this year.

Naturally, for the first few months, use of the system was limited. Most of the transactions were initiated by the banks’ dealing rooms, with very few transactions initiated by banks’ clients.

At the banks’ request, it was decided that interbank transactions equaling NIS 3 million or more will be transferred only through the Zahav system, not including batch transactions and transactions sent by clients directly to the automated clearing house and not via the banks.

Analysis of interbank activity in the Zahav system in the fourth quarter of 2007, including activity by banks’ customers, clearly indicates that Zahav transactions have reduced the number of transactions and the value of interbank credits in the automated clearing house.

As the Zahav system also settles the net results of the other systems (the paper-based, banks’ and Stock Exchange clearing houses), the comparison is only between interbank transactions.

The Bank of Israel’s directive concerning the limitation of payments using the banking and paper clearing houses to payments of less than NIS 3 million came into force at the beginning of November. As a result of this directive, the value of interbank

credits via the automated clearing house dropped considerably (some 61 percent) compared to October, while the number of credits actually grew. This trend continued into December, when the value of transactions via the automated clearing house fell by 37 percent, and the number of transactions increased again. The Zahav system saw a significant increase in those months in the sum of interbank credits, but also an increase in the number of transactions—which more than doubled.

Table 6
Interbank Credits in the Zahav System and Masav, October-December 2007

	Masav		Zahav	
	Value (NIS million)	Number	Value (NIS million)	Number
October	9,793	598,736	530,978	213,614
November	13,903	619,993	592,791	82,448
December	16,666	671,691	618,723	52,016
Total	40,362	1,890,420	1,742,492	348,078

SOURCE: Bank of Israel and Masav.

The transfer of large-value transactions from the banks' and paper-based clearing houses to the Zahav system is a continuous process, primarily because banks' customers and branches are not yet sufficiently aware of the Zahav system and the requirements involved in its use.

The number of interbank credits for banks' customers via the Zahav system is expected to increase over the next few months. According to December 2007 data, the number of interbank payments using the Zahav system reached 16,600, of which 40 percent were transfers for banks' customers. Projections indicate that the number of transactions on behalf of customers will increase as the advantages of the Zahav system become more widely recognized.

The Zahav system's impact on the paper clearing house is more limited, as there is not much use made of large-value checks. A November 2007 examination by the large banks indicated that only 0.5 percent of all checks deposited were for NIS 1 million or more.

4. MEANS OF PAYMENTS

Various means of payment are used to debit the public's current accounts. These include checks and electronic transfers, direct debits, credit cards, transfers between the customer and the bank, and other automated transfer methods.

According to data from the Banking Supervision Department, debits on public current accounts amounted to NIS 22,757 billion in 2007—28 percent more than

in 2006. This significant increase, which is far beyond the increase in the market's financial activity (GDP growth), exceeded last year's increase.

Most current account debits are not categorized, and come under the item "Other debits," which include debits via credit cards. This item also includes business activities between a bank and its customers, such as the purchase of securities or foreign currency, and bank charges. The rest of the debits are cash withdrawals either via a bank teller or via ATMs, checks and direct debits.

Even though the value of "Other debits" constitutes over 90 percent of the total value of the public's debits, they account for less than half of the total number of debits.

Table 7
Debits on the Public's Current Accounts, 2003–07

NIS billion	Checks	Cash withdrawals	Direct debits	Other	Total
2003	769	111	389	10,275	11,544
2004	787	115	421	11,160	12,483
2005	821	137	471	13,731	15,160
2006	888	143	527	15,910	17,468
2007	977	158	572	21,050	22,757
Increase in 2007 (percent)	10.1	10.4	8.6	32.3	30.3
Transactions (million)					
2003	171	141	152	276	740
2004	166	134	155	265	720
2005	164	134	163	274	734
2006	163	138	171	304	776
2007	165	140	178	343	826
Increase in 2007 (percent)	1.2	1.4	4.1	12.9	6.4

SOURCE: Banking Supervision Department, Bank of Israel.

a. Drawing checks

In 2007, 165 million checks were deposited in Israeli banks with a value of NIS 977 billion. The number of checks was about one percent greater than the number in 2006, and their value was 10 percent higher. It should be noted that the data of the Supervisor of Banks are based on the banks' reports and not clearing house data. They therefore also include checks deposited in the bank they were drawn on, and therefore did not pass through the clearing houses.

The average sum per check in 2007, according to the Report of the Supervisor of Banks, was about NIS 5,900, similar to the average of checks handled by the clearing house.

Table 8
The Use of Checks, 2003–07
 (Annual)

	Value of checks	Total debits	Share of debits by check
	NIS billion		percent
2003	170.6	768.6	4,495
2004	166.1	786.7	4,739
2005	164.2	820.7	5,004
2006	163	887.5	5,445
2007	164.9	977.2	5,923

SOURCE: Banking Supervision Department, Bank of Israel.

Use of checks has decreased since the beginning of the decade—a slow but steady decline, similar to the process in other advanced economies. According to (provisional) 2007 data, this trend changed: the number of checks deposited increased slightly rather than decreased. The total value of checks increased by 10 percent in 2007, above the rates of increase in recent years.

b. Cash withdrawals

The use of cash increased by over 10 percent in 2007, and amounted to NIS 158 billion. Since 2004, the amount of cash withdrawals has increased, and the rate of increase this year was double last year's.

In previous years too the sum of cash withdrawals via bank tellers and ATMs increased. The average ATM withdrawal was about NIS 450, and the average via bank tellers was NIS 5,560. The share of withdrawals via ATMs in the total value of cash withdrawals decreased slightly in 2007 to less than 35 percent.

Table 9
Cash Withdrawals, 2003–07

	Amount	Annual increase	Share withdrawn from ATMs
	NIS billion	percent	percent
2003	121.6	7.2	36.3
2004	115.1	-5.4	36.4
2005	137.0	19.1	32.1
2006	143.1	4.5	35.3
2007	158.0	10.4	34.5

SOURCE: Banking Supervision Department, Bank of Israel.

c. Direct debits

There were 178 million direct debits in 2007, with a value of NIS 572 billion, a rise of about 9 percent from the value in 2006. The value of direct debits has grown steadily over recent years, at a rate of over 10 percent per year, indicating that direct debits have become a generally accepted means of payment, as they are abroad.

Table 10
Direct Debits, 2003–07

	Transactions (million)	Value (NIS billion)	Annual increase in value (percent)
2003	152	422.4	
2004	155	420.9	-0.3
2005	163	471.3	12
2006	171	527.0	11.8
2007	178	572.2	8.6

SOURCE: Banking Supervision Department, Bank of Israel.

d. Other debits

Other debits to the public's current accounts are not categorized, and are primarily one-time debits or standing orders by customers to transfer sums to another of their accounts, as well as debits deriving from business transactions between customers and banks. These other debits also include orders to debit current accounts with credit card payments, as well as payments via banks and the Zahav system, but not interbank transfers on behalf of the banks themselves.

Other debits totaled NIS 21,050 billion in 2007, compared with NIS 15,900 billion in 2006—a rise exceeding the annual rate of increase in recent years by almost a third. Apparently, this unusual increase in debit derives mainly from an increase in the purchase of securities.

These other debits consist, as noted, of over 92 percent of the value of all the public's debits, but by number constitute only 41 percent of all debits. This means that the average sum for a single transaction in these other debits (including credit cards) is larger than in the other categories of debits. Since this "Other debits" item also includes transactions involving securities, foreign currency, etc, it is indeed likely that the average sum for these debits is high.

e. Debits via credit card

Data on credit card activities is reported by the credit card companies directly to the Supervisor of Banks.

Credit card debits totaled NIS 135 billion in 2007—an increase of 8 percent from the previous year. In previous years (2003–06) the increase was more than 10 percent a year, and the number of credit card transactions increased at a similar rate. Credit cards are a close substitute for checks, and therefore, the mutual impact of these two payment methods is to be expected.

The number of credit card transactions, 571 million, is far higher than the number of checks drawn, 165 million. However, the average credit card transaction in 2007 was about NIS 240, compared to an average of about NIS 5,900 per check, so that the total sum of credit card debits reached only 14 percent of the value of checks.

Table 11
The Use of Credit Cards and Checks, 2003-07

	Credit cards			Checks		
	Number of transactions	Value of transactions	Average transaction	Number of checks	Value of checks	Average check
	Thousands	NIS million	NIS	Thousands	NIS million	NIS
2003	405	92,677	229	171	768,622	4,495
2004	443	102,446	231	166	786,667	4,739
2005	482	113,062	235	164	820,666	5,004
2006	532	125,768	236	163	887,536	5,445
2007	571	135,620	238	165	977,247	5,923

SOURCE: Banking Supervision Department, Bank of Israel.

Data in Table 11 include only shekel transactions, including cash withdrawals using credit cards, while credit cards issued by Israeli companies are also used for purchases and cash withdrawals in foreign currency. These foreign currency transactions, which largely take place abroad, reached NIS 6.6 billion in 2007, constituting about 4.5 percent of the total use of Israeli credit cards—slightly above the rate of recent years.

f. Summary

Public purchases using manual instruments and credit cards reached NIS 1,300 billion in 2007. About three quarters of the payments were by means of checks, and the remainder via credit cards and in cash,² in equal shares. Payments made by the banks for their clients in the stock market and through the Zahav system are not included in these calculations.

² The amount of cash withdrawals is an estimate for the use of this means.

As the figure indicates, payments by check still heavily outweigh those by credit card or cash.

