THE PAYMENT AND SETTLEMENT SYSTEMS IN ISRAEL IN 2009

Reform in the payment and settlement systems

- In July 2007 the Bank of Israel launched the Zahav system (a Hebrew acronym for Real Time Credits and Transfers), more commonly known in the world as RTGS (Real Time Gross Settlement System). The Zahav system is an advanced system for final, effective and reliable settlement of shekel payments in the economy in real time. Payment instructions in the Zahav system are handled immediately and they are final. Settlement in the Zahav system is safe and fast: transactions are cleared within a few minutes, they are irrevocable, and recipients may use payment immediately, without exposure to risk.
- Introduction of the Zahav system required the entire banking system to improve the way in which it manages liquidity and to move from retroactive liquidity management to liquidity management on an intraday basis. The Bank of Israel initiated the development of a system for full collateral management against intraday and overnight credit. This system is managed by the TASE.
- Together with the creation of the Zahav system, as part of the reform in the payment and settlement systems, the Bank of Israel also introduced a series of other changes and improvements into the existing payments systems, in order to bring them into line with accepted international standards. The principal changes were:
  - Cancellation of retroactive recording of transactions in the banks' accounts so that balances in the banks' accounts are final.
  - Extending the business day from 15:00 to 18:30, so that transactions can be performed in the Zahav system in the afternoons and evenings as well.
  - Creation of an interbank arrangement to handle failure of one of the participants in the multilateral Masav clearing or check clearing house, to ensure that payments are settled by the clearing houses by the end of the day at the latest.
  - Implementing the improvements in the check clearance process, including: mandatory electronic settlement for all banks, cancellation of retroactive check clearing, check imaging and transfer of files between banks, and initiation of

a law for check truncation. In 2009 a memorandum of law "Electronic Check Clearing, 5768-2008" was published.

- Implementing the improvements in the Masav clearing process, including: a change in the order of operations so that sending of the files to the banks (clearing) takes place only after settlement in the Zahav system, cancellation of retroactive settlement of returns and the creation of two clearing windows during the day (morning and evening).
- The TASE Clearing Houses prepared to introduce a Delivery Versus Payment (DVP) system so that settlement of the payment in the Zahav system will be executed together with transfer of the security. This method significantly reduces the possibility of settlement risks in the TASE Clearing House. This move began with government bonds and *makam*, and in coming years the TASE will work to extend it also to corporate bonds and afterwards to securities.

▪ To minimize legal risks in the payment systems, the Bank of Israel initiated the process leading to the passing of the Payment Systems Law, 5768-2008. This law ensures the effective function of Israel's payments systems and minimizes the risks relating to them. The law also defines the Bank of Israel's powers in supervising those payments systems declared by the Governor as "controlled systems."

▪ The Zahav system has provided Israel with new options also in the international plane. The most important of these was for the shekel to be included in settlement by the CLS system in May 2008. CLS (Continuous Linked Settlement), which was established in the early 2000s, functions as an international clearing house for exchange transactions. The activity in CLS is similar to the activity in RTGS system, although instead of settlement action in a single currency, in the CLS system the actions of settlement and currency conversions are carried out simultaneously.

A. Principal developments

Between 2004 and 2007, there was a comprehensive reform of the payment and settlement systems, including the TASE Clearing Houses, check clearing and Masav. In July 2007, a new payments system, the Zahav system was launched, which meets international standards and which brought Israel's financial infrastructure to an advanced international level. Development of the new system and legislation of the Payments Systems Law, 5768–2008, also helped the shekel join the CLS system.

These and other measures, which were completed in May 2008, helped improve the stability of the local financial infrastructure, allowing foreign and local entities to continue to perform transactions in the shekel and between the shekel and other currencies in an immediate, final and secure fashion, even when the global financial crisis became more severe in September 2008.

Payment Systems Law, 5768-2008

As part of the reform of Israel's payments and clearing systems, the Bank of Israel promoted the legislation of the Payment Systems Law, 5768-2008. Among other things, the Law grants the Bank of Israel the authority to oversee the payment systems declared by the Governor to be "controlled systems," specifies criteria for classifying systems as controlled, the obligations applicable to the operators of controlled systems, and the tools given to the Bank of Israel for implementing this authority. The Law also prescribes the finality of the payments settled through a "designated controlled system" and sets out a legal arrangement granting legal protection to payments in the system even if one of participants in the settlement goes bankrupt.

The stability of the financial infrastructure reduced its sensitivity to the repercussions of the global financial crisis and enabled normal business activity to continue. The importance of preserving the safety and credibility of Israel's financial infrastructure during the financial crisis was recognized, as was the need to oversee the different payments systems. In 2009, the Bank of Israel started working towards the establishment of a system for the oversight of the payment systems, consistent with the Payments Systems Law, 5768-2008. This oversight will enable the Bank to monitor the operation of the system and reduction of the various risks associated with banks' activity—particularly operational risk, liquidity risk, legal risk and systemic risk.

The controlled systems will also be required to implement operational and legal arrangements allowing their business activity to continue even when one of the settlement participants is declared bankrupt. Settlement risks may develop into a system-

wide risk in which the failure of one participant in the payment system causes the failure of other participants in the system. In more serious cases, risks may pass from one system to another, and even cause a financial crisis throughout the economy.

The Zahav system helps to reduce the various risks associated with payment systems significantly. In practice, the Zahav system eliminates the credit and liquidity risks, so that payment becomes final as soon as the transaction is completed, and the receiving bank can then credit its customer without worrying that the payment may be cancelled. The system thus reduces the dependence of one participant on the other participants in the system and this significantly reduces the systemic risk faced by banks participating in the settlement. Operational risks are reduced through the setting up of backup systems for the various components of the Zahav system as well as a complete backup site established for the Zahav system. The enactment of the Payment Systems Law also reduces the legal risk inherent in the operation of Israel's payment and settlement systems.

In line with the rules of the Zahav system, during the course of 2009 a National Committee for Payments and Settlement was established, whose members represent different entities operating in Israel's payments system and include representatives from the Bank of Israel (including the Committee's chairman), banks and payment systems. The Committee is also composed of three representatives from interested parties. It is worth noting that the Committee is purely advisory, aimed at reinforcing the financial stability and efficiency of Israel's payment systems. The Committee meets once in each calendar year.

Risks in the Payments System

Inefficient payment and settlement systems expose their participants to several risks, the most important of which are:

Credit risk—one of the parties to the transaction will fail to settle an obligation for full value, either when due or at a time thereafter.

Liquidity risk—one of the parties to the transaction will fail to settle an obligation for full value when due.

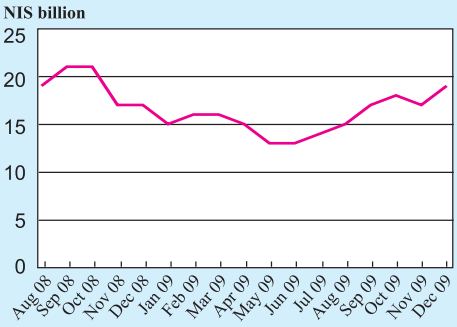
Legal risk—the risk of loss to one of the parties to the transaction because the payment and settlement systems are not supported by clear laws and regulations.

Operational risk—the risk of loss resulting from inadequate or failed systems or their environments, such as human error, technical failure of hardware or software, and communications failures.

1. The Zahav system

During the course of 2009 the Zahav system settled about 198 thousand transactions with a value of NIS 62,304 billion; compared with 216 thousand transactions in 2008, with a value of NIS 21,874 billion (an increase of about 185 percent in the amount settled).

Figure 1
The Value of Interbank Transactions in the ZAHAV System, August 2008 to December 2009
(daily average)



SOURCE: Bank of Israel.

In September-October 2008, interbank activity[9] in the Zahav system expanded (Figure 1). In November-December 2008 and during the first two quarters of 2009 activity slowed and the volume of interbank transactions settled in the system declined. This decline can be attributed to the general slowdown in the economy resulting from the financial crisis. Towards the end of 2009 the number of transactions increased, corresponding with the signs of recovery in the Israeli economy. It is worth noting that in the crisis months there were no irregular business events in the Zahav system which affected the normal course of settlement activity.

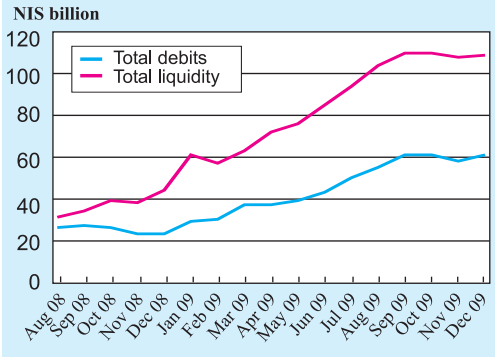
The average amount of one interbank transaction settled by the system during 2009 was NIS 28 million, as against NIS 33 million in 2008.

The amount of liquidity in the Zahav system grew noticeably in 2009; in the last quarter of 2009 the average daily value of liquidity in participants' accounts was NIS 109 billion, as against NIS 40 billion at the end of 2008. This increase can be attributed to the policy of the Bank of Israel of enhancing Israel's ability to withstand the negative repercussions of the global financial crisis. Such policy included, inter alia, the introduction of a plan to increase the foreign exchange reserves[10] from the end of the first quarter of 2008, and to purchase of government bonds[11] of different types and maturities, from February 2009. From September 2009 there have been signs of stability in the ratio between total debits[12] and the amount of liquidity in the system, so that in the last quarter of 2009, the average daily ratio was about 55 percent, as against about 60 percent in the last quarter of 2008 and 80 percent in September 2008.

[9] Interbank activity is composed of the activity of the banks, CLS Bank and the Postal Bank.
[10] Bank of Israel press release from March 20, 2008.
[11] Bank of Israel press release from March 25, 2009.
[12] Total debits settled in the participant's current account consist of bilateral payment instructions sent to the system by the participant, in which the participant's current account is debited, and the account of another participant in the system is credited, as well as debits to the participant's current account which are included in multilateral payment instructions from clearing houses.

Figure 2 presents the total number of debits (daily average) settled in the Zahav system compared with the average liquidity in the system. It can be seen that the difference grew noticeably in 2009.

Figure 2
Total Liquidity and Total Debits in the ZAHAV System, August 2008 to December 2009
(daily average)

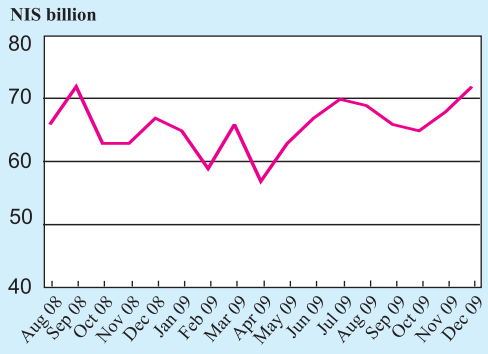


SOURCE: Bank of Israel.

2. Paper-based clearing house (checks)

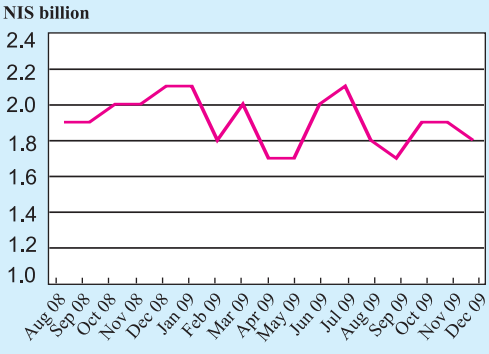
Total activity in the paper-based clearing house was NIS 788 billion, as against NIS 826 billion in 2008 (a 4.7 percent decline). During September 2008 there was an increase in the number of paper-based transactions compared with October and November, when the number and value of the transactions in the clearing house declined. The decline in the volume of activity is attributed to the general slowdown in the economy during the financial crisis.

Figure 3
The Value of Transactions in the Paper-Based Clearing House, August 2008 to December 2009
(monthly total)



SOURCE: Bank of Israel.

Figure 4
The Value of Returned Checks in the Paper-Based Clearing House, August 2008 to December 2009
(monthly total)



SOURCE: Bank of Israel.

The number and value of returned checks grew during the period October 2008 to January 2009, and in subsequent months, until mid 2009, the number and value of returned checks declined (Figure 4).

In 2009 3.1 percent of checks in the paper-based clearing house were returned, similar to the proportion in 2008.

3. Masav

The number of institutions operating through Masav grew by 5.2 percent in 2009. Overall Masav activity expanded by 2.4 percent, and the number of transactions increased by 2.5 percent.

4. TASE clearing houses

In 2009 the volume of trade handled by the TASE clearing houses totaled NIS 1,596 billion, compared with NIS 1,658 billion in 2008 (a 3.8 percent decline) (Table 6). From the fourth quarter of 2008 the component of government bonds increased, in contrast with trade in shares and convertibles, which declined. There was no noticeable change in the corporate bond and *makam* components. The increase in government bonds can be explained by the financial crisis which led many investors to seek low-risk and safe investment channels. Since April 2009 there have been signs of recovery—a decline in the amounts of trade in government bonds and an increase in shares and convertibles.

5. CLS (Continuous Linked Settlement) Bank

In 2009, the CLS bank settled $870 trillion, compared with $1,040 trillion in 2008 (a decline of 16 percent). In 2009, CLS Bank handled shekel transactions of NIS 930 billion ($236 billion)— 0.03 percent of the total amount settled by CLS during the year.

In 2009 CLS settled an average of $3.4 trillion daily, compared with $4 trillion in 2008 (a 15 percent decline). The total daily average settlement in shekel currency in 2009 was NIS 3.7 billion ($0.9 billion).

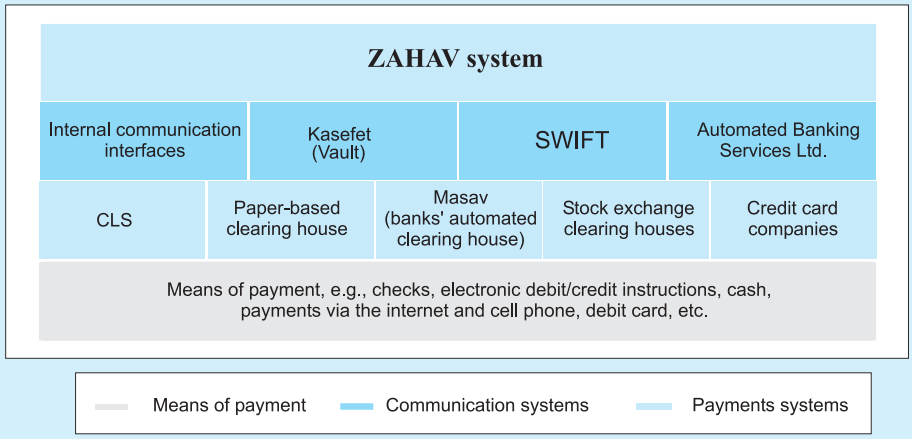
Since September 2008 there has been a significant decline in the volume of activity in CLS, which can be explained by the financial crisis and the slowdown of financial markets around the world. Importantly, the decline in the volume of shekel activity in CLS was less than the decline in CLS activity overall. Starting from February 2009 CLS activity in shekel and other currencies began to recover.

B. The payment system in Israel

The financial infrastructure in Israel includes interbank payment and settlement systems which are used to transfer and settle payments, communication systems and means for making payments (Figure 5). The most important payment systems in Israel are the Zahav system, which is designated for immediate and final settlement of large or urgent payments; the paper-based clearing house for paper transmissions (checks and various debits and credits); the Masav (banks' automated clearing house) which settles electronic debit and credit instructions; the TASE clearing houses (the securities and the Maof clearing houses) and the credit card companies.

The CLS system which operates outside Israel is an integral part of Israel's payments and settlement system: it settles the Israeli currency against foreign currencies which are settled in CLS.

Figure 5
Israel's Payments System



The payment systems encompass transactions using different methods—including automated (electronic) debit/credit instructions, checks, debit cards, cash and payments by means of Internet and cellular phone.

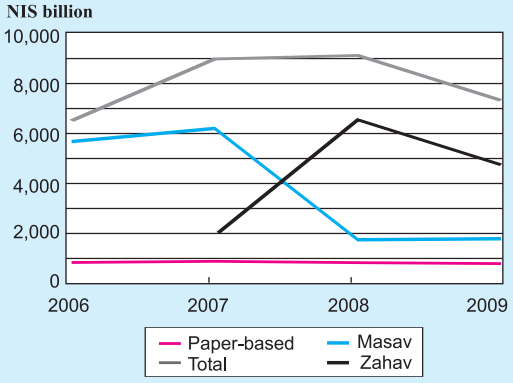
Participants in the various payment systems are mostly commercial banks and large financial institutions, and the payment methods are also used directly by the general public. Customers with accounts at the same bank have no need to use the interbank payment systems.

The activity of the major payment systems in Israel in 2009

In the past, prior to the introduction of the Zahav system, when the settlement of funds was carried out only in the check clearing house and Masav, Masav accounted for about 87 percent, on average, of all amounts settled, while the check clearing house accounted for about 13 percent. In 2009 most of the large interbank amounts were settled directly through the Zahav system. This year about 65 percent of the total value of alternative interbank transactions[13] was settled in the Zahav system, Masav settled about 24 percent, and the checks clearing house settled 11 percent (Figure 6).

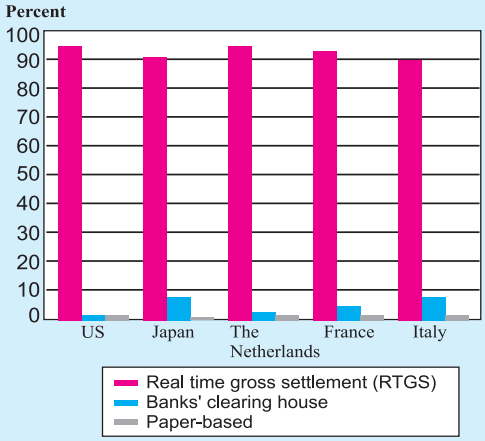
This contrasts with the distribution of the number of transactions among the different systems: Masav accounted for about 44 percent of transactions, checks for about 56 percent and Zahav for just 0.08 percent. As in most developed economies, the Bank of Israel's goal is to settle more than 90 percent of total value through the Zahav system (RTGS) (Figure 7).

Figure 6
Value of Transactions in the Clearing Houses, 2006-09



SOURCE: Bank of Israel.

Figure 7
Share of Settlement in the Payment Systems of Selected Countries, by Value of Transactions, 2008



[13] Masav transactions presented in figure 6 are composed only of credits and not debits, as the debits cannot be settled through the Zahav system.

1. Payment systems

1.1 The Zahav system

The Zahav system (real time credits and transfers), which was inaugurated in Israel at the end of July 2007, is an RTGS system (Real Time Gross Settlement) which operates in most countries of the world (developed and developing).

The system settles payments immediately, and they are final and irrevocable. Participants in the system are banks, the Postal Bank and CLS (hereinafter: "the Settlement Participants"), the clearing houses (Masav, TASE clearing houses, paper-based clearing house) and Bank of Israel divisions. One of the main goals of the Zahav system is to eliminate or reduce the various risks associated with the other settlement systems, mainly systemic risk, liquidity risk, credit risk, legal risk and operational risk.

The settlement in the Zahav system takes place in real time from 7:45 to 18:30 each business day. All payment instructions received in the system are settled separately, with no offsetting between debits and credits from the bank sending the instructions. The Zahav system operates through a "settlement account" held by each participant in settlement. The settlement account is composed of a current account and a credit account, to which the Bank of Israel transfers intra-day credit against collateral as necessary. The Zahav system manages payments according to order of their arrival, i.e., on a FIFO basis (First In First Out). Nevertheless, it allows participants to prioritize their payment instructions depending on their importance and urgency. If there are insufficient funds in the sending bank's account with the Bank of Israel to cover a transaction, the payment instruction is put into a queue, until sufficient funds are available, and the waiting transactions are registered in accordance with the priorities assigned by the participant.

The Bank of Israel provides the participating banks with intraday credit which they may utilize according to their needs during the system's operating hours. This credit does not bear interest, but it fully covered by collateral for the specific day of operations only, and the banks must repay the credit by closing time of the Zahav system. The collateral provided against the intraday credit is government bonds, *makam* and the banks' deposits held with the Bank of Israel. The banks deposit bonds used as collateral for credit in a special Bank of Israel account at the TASE clearing house.

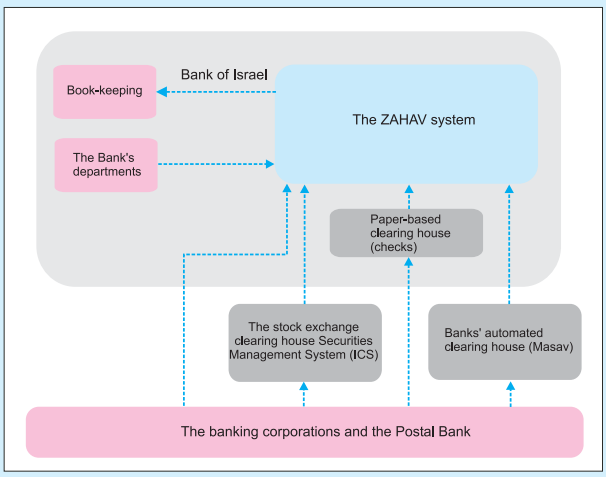
The TASE clearing house has developed a special Intraday Credit System (ICS) for the Bank of Israel, to handle each participant's securities submitted against the credit that enables participants to change the amount of intraday credit in their accounts. The system automatically calculates the amount of available intraday credit in accordance with the amount and type of securities deposited by the participant.

Settlement in the Zahav system is safe since the participants are linked to the system

through the SWIFT international communication system which is used for the safe transfer of funds in numerous countries in the world. In addition, the Zahav system meets the very high standards set by the National Authority for Information Security in Israel.

The Zahav system serves as the final clearer for all the settlement systems in Israel (Figure 8). The system settles bilateral transactions between customers and participants in the system, as well as transactions between the participants and the Bank of Israel—credit to the banks, banks' deposits with the Bank of Israel, cash withdrawals from the Bank of Israel, etc. In addition, the system settles the net results of other payment systems (Masav, the paper-based clearing house and the TASE clearing house).

Figure 8
The ZAHAV System as the Final Clearer



SOURCE: Bank of Israel.

Table 1
ZAHAV System Activity 2008 and 2009

	2008				2009			
	Total		Interbank[a]		Total		Interbank[a]	
	Value (NIS billion)	Transactions (number)	Value (NIS billion)	Transactions (number)	Value (NIS billion)	Transactions (number)	Value (NIS billion)	Transactions (number)
Jan.	2,017	22,039	639	19,938	2,899	15,669	381	13,026
Feb.	1,766	20,030	574	18,148	2,493	14,896	360	12,748
March	1,821	21,935	687	20,252	3,614	17,176	417	14,662
April	1,774	19,911	598	18,315	3,496	14,095	350	11,955
May	1,953	18,187	530	16,287	4,224	15,895	335	13,351
June	2,293	17,162	546	14,972	5,007	17,507	345	14,726
July	1,930	18,114	567	15,616	5,979	16,953	361	14,179
Aug.	1,843	15,186	465	13,297	6,608	16,790	398	14,054
Sept.	1,692	16,341	527	14,664	6,417	16,208	391	13,707
Oct.	1,383	14,679	458	13,264	7,303	16,205	455	13,609
Nov.	1,524	15,774	431	13,882	6,945	17,162	431	14,577
Dec.	1,878	17,046	459	14,847	7,319	19,093	507	16,263
Total	**21,874**	**216,404**	**6,480**	**193,482**	**62,304**	**197,649**	**4,730**	**166,857**
Change (%)[b]					184.8	-8.7	-27.0	-13.8

[a] Including transactions of the banks and their customers.
[b] The Zahav system started operating in July 2007. Hence no changes for 2008 are shown.
SOURCE: Bank of Israel.

Table 1 shows that during 2009 197,649 transactions were settled in the Zahav system with a total value of about NIS 62,304 billion; this is against 216,404 transactions with a total value of NIS 21,874 billion in 2008 (a decline of 8.7 percent in the number of transactions and an increase of 185 percent in total value). In 2009 there were 166,857 interbank transactions in the Zahav system, an average of 551 transactions per business day, and a total of about NIS 4,730 billion for the year; this contrasts with NIS 6,480 billion in 2008 (a decline of 27 percent). The rest of the transactions in the Zahav system were carried out by the clearing houses and the Bank of Israel, and their total value in 2009 was about NIS 57,573 billion.

Table 2 shows that interbank and clearing house activity declined this year (by about 36 percent), whereas Bank of Israel activity increased substantially (by about 568 percent), mainly due to the expansion of monetary activity.

Table 2
Activity in the Zahav System, by Component, 2008 and 2009

	2008		2009		Change in 2009	
	Value (NIS billion)	Transactions (number)	Value (NIS billion)	Transactions (number)	Value (percent)	Transactions (percent)
Transactions						
Total interbank	**6,480**	**193,482**	**4,730**	**166,856**	**-27.0**	**-13.8**
Interbank (excluding CLS)	5,974	188,000	3,801	156,464	-36.4	-16.8
CLS[a]	506	5,482	930	10,392		
Clearing houses	**7,506**	**8,948**	**4,831**	**9,398**	**-35.6**	**5.0**
Bank of Israel	**7,887**	**13,974**	**52,742**	**21,395**	**568.7**	**53.1**
Total	**21,874**	**216,404**	**62,304**	**197,649**	**184.8**	**-8.7**

[a] Activity in shekel in CLS began on May 26, 2008.
SOURCE: Bank of Israel.

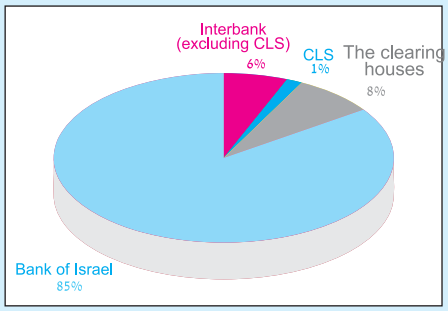
Figure 9 presents the composition of the Zahav system's activity. The Bank of Israel accounts for about 85 percent of activity in the Zahav system; as against 6 percent for interbank transactions (excluding CLS), 8 percent for the other clearing houses (Masav, checks and TASE) and 1 percent for CLS settlement activity in CLS.

The Zahav system holds the settlement accounts of settlement participants. The participant's settlement account, which reflects its total liquidity in the system, consists of a current account used to settle (credit/debit) payments and its intraday credit accounts. Among other things, the intraday credit accounts are composed of intraday credit which the participant receives from the Bank of Israel against collateral deposited in a Bank of

Israel account, in the TASE clearing house and in the participant's deposits (in NIS and dollars) held at the Bank of Israel.

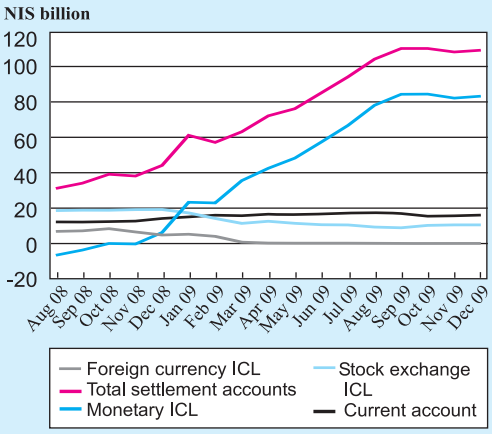
Figure 10 presents the components included in the system's total liquidity and shows that the increase in total liquidity is due mainly to the growth of shekel deposits (monetary ICL) of the banks with the Bank of Israel. The increase in liquid reserves may be ascribed principally to the Bank of Israel's policy for enhancing the effect of monetary policy and the economy's ability to withstand the negative effects of the global financial crisis. This policy involved, inter alia, implementing a plan to increase the foreign exchange reserves[14], which began in the first quarter of 2008. Starting from February 2009, as part of its open market activity, the Bank of Israel also purchased government bonds[15] of different types and maturities.

Figure 9
Activity of the ZAHAV System, by Component, 2009



SOURCE: Bank of Israel.

Figure 10
The ZAHAV System, Components of the Clearing Account, August 2008 to December 2009
(daily average)



SOURCE: Bank of Israel.

1.2 The banks' clearing house

The banks' clearing house is composed of the paper-based clearing house (checks) and the Masav automated clearing house (Masav). The clearing house operates according to an agreement between its members, i.e., the commercial banks in Israel, the Postal Bank and the Bank of Israel. Some of the clearing house members operate directly within the clearing house while others are represented by other banks. The banks operating in the Palestinian Authority are also members of the clearing house and they are represented by three banking corporations in Israel[16].

[14] Bank of Israel press release from March 20, 2008.
[15] Bank of Israel press release from March 25, 2009.
[16] Excluding branches operating in the Gaza Strip whose representation by Bank Hapoalim and Discount Bank was discontinued in January 2009.

The banks' clearing house is managed by its Board, which consists of 14 members, half of whom are from the Bank of Israel and half from the banking system. The banks' clearing house operates according to the "clearing house regulations," which are periodically updated according to the decisions of the Board. The Board meets periodically to discuss the ongoing needs of the clearing house and to update the clearing house regulations according to those needs.

1.2.1 Paper-based clearing house (checks)

The instruments presented by the banks to the paper-based clearing house are primarily checks, which are currently presented and returned electronically only. In addition, non-magnetic debits and credits (which are manual transmissions) are also presented.

In recent years progress has been made on several issues relating to the paper-based clearing house, including the tabling of a draft bill—Electronic Clearing of Checks Law, 5768-2008 (hereinafter: Check Truncation Law), deployment for check imaging, the introduction of measures to reduce the number of non-magnetic manual transmissions and establishing a standard for a uniform check.

The Check Truncation Law is now in the hands of the Ministry of Justice undergoing the legislative process, and is currently being discussed by the interested parties. The draft law means that checks will remain with the presenting banks and will not be transferred to the withdrawing banks, and instead files with images of checks will be conveyed between the banks. From the legal and business perspective, the check image will be the binding transmission. Check imaging[17] was devised to help the banks process their intraday processing work, reducing the time window as the business day was lengthened. It is worth noting that until the Check Truncation Law has actually been passed, imaging will not be a satisfactory substitute for the original check. A final date for application of the Law has not yet been set, nevertheless the banks have begun to prepare for this change and they are in advanced stages of preparing to implement the law.

During 2008–09 the clearing house Board discussed the issue of reducing the number of manual transmissions, and in 2009 a uniform standard for checks was defined. The repercussions of this definition are additional printing of magnetic information on the check so that partly torn transmissions and checks with illegible magnetic data can be dealt with.

Table 3 shows that during 2009 activity in the paper-based clearing house totaled NIS 788 billion; compared with NIS 826 billion in 2008 (a decline of 4.7 percent).

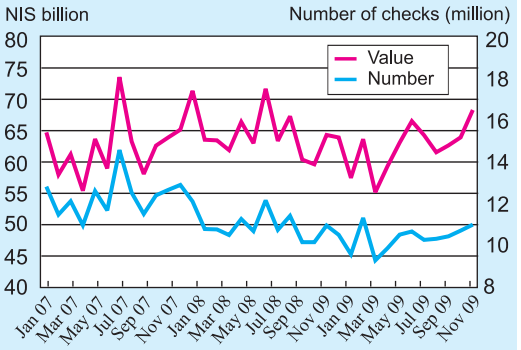
Most of the transmissions presented and returned in the paper-based clearing house are checks, which are currently presented electronically only, and which account for about

[17] Check imaging is a photocopy of checks presented at the presenting bank and their transfer to the withdrawing bank.

95.2 percent of the clearing house's total activity. The rest of the transmissions are manual transmissions.

The transmissions settled manually in 2009 constituted about two percent of the total transmissions (checks and manual transmissions) settled by the paper-based clearing house, although they represented about 4.8 percent of the total value. The value of manual transmissions in 2009 totaled about NIS 38 billion, as against NIS 26 billion in 2008.

Figure 11
Electronic Check-Clearing, 2007-09



SOURCE: Bank of Israel.

In 2009 the paper-based clearing house handled about 127 million transmissions (of which 125 million were checks) with a value of about NIS 788 million; 3.1 percent of the checks presented in the paper-based clearing house were returned.

These figures indicate that the number of checks presented declined by about 8 percent compared to the previous year, whereas the value of the checks declined by 6 percent; thus the average value of checks presented to the paper-based clearing house increased - from NIS 5,892 in 2008 to NIS 5,998 in 2009[18].

1.2.2 Automated clearing house—Masav

The automated banks' clearing house (Masav) settles interbank transactions that are not based on paper on cash. Thus, Masav handles direct credits and debits of non-bank institutions. From December 2009 Masav has cleared monetary activity originating in credit returns.

The total value of the transactions carried out by Masav in 2009 was NIS 1,779 billion (compared with NIS 1,738 billion in 2008, an increase of 2.4 percent). Of this, credits accounted for NIS 1,503 billion, authorized debits for NIS 271 billion and the return of debits for about NIS 6 billion. The average value of a transaction in Masav in 2009 was NIS 6,827, as against NIS 6,839 in 2008.

A sharp drop in the value of transactions in Masav in the final months of 2007, which can be seen clearly in Figure 12, can be attributed to the inauguration of the Zahav system; this contrasts with the ongoing increase in the number of transactions.

According to the regulations of the Bank of Israel[19], it is prohibited to transfer payments in Masav of an amount exceeding NIS 3 million, except for extraordinary circumstances

[18] Presentation of checks only (without returned checks).
[19] Letter from the head of the comptroller's office dated October 31, 2007.

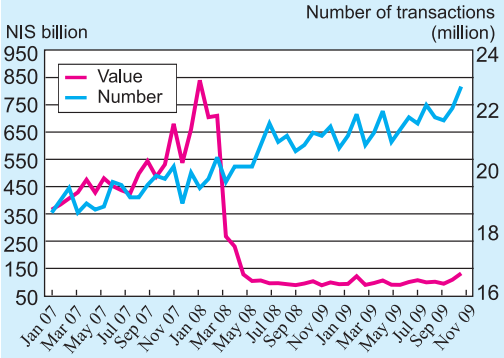
Table 3
Paper-Based Settlement by Component, 2007-2009

	2007		2008		2009		Change in 2009	
	Value (NIS billion)	Transactions (thousands)	Value (NIS billion)	Transactions (thousands)	Value (NIS billion)	Transactions (thousands)	Value (percent)	Transactions (percent)
Manual instruments	**106**	**3,172**	**26**	**1,994**	**38**	**2,343**	**44.6**	**17.5**
Debits	55	2,737	21	1,742	29	1,748	36.2	0.4
Credits	51	435	5	251	9	595	80.6	137.0
Checks	**772**	**151,762**	**800**	**135,348**	**750**	**124,507**	**-6.3**	**-8.0**
Presented	749	148,254	776	131,739	727	121,258	-6.3	-8.0
Returns	24	3,508	24	3,609	22	3,249	-5.7	-10.0
Total	**878**	**154,934**	**826**	**137,342**	**788**	**126,851**	**-4.7**	**-7.6**

SOURCE: Bank of Israel

defined by the Bank of Israel, such as the transfer of payments by banks or institutions in batches. These regulations took effect in November 2007.

Figure 12
Clearances via Masav (Banks' Automated Clearing House), 2007-09
(daily average)



SOURCE: Bank of Israel.

In 2009 the activity of Masav increased—both in value (by 2.4 percent) and in number of transactions (by 2.5 percent) (Table 4). Most of this increase was due to the credits component, NIS 1,502 billion in 2009 compared with NIS 1,473 billion in 2008, a 2 percent increase. About 12 million credits in Masav were transferred to the banks which sent them, and the rest of the credits (about 85 million) were transferred to the interbank settlement in the Zahav system. The "return of debits" component grew both in value and number—about 12.9 percent and 7.9 percent respectively.

Table 5 shows that of the credit transactions transferred for settlement in the Masav system in 2009, most were salary transfers (55.3 percent), although the monetary value of the salary component was the lowest (12.1 percent). In contrast, the number of interbank transactions was the lowest (9.4 percent), but their value was the highest (34.5 percent) in the credit transactions.

Table 4
Automated Settlement, by Component, 2008-2009

	2008		2009		Change in 2009	
	Value	Transactions	Value	Transactions	Value	Transactions
	(NIS billion)	(millions)	(NIS billion)	(millions)	(percent)	(percent)
Credits	1,473	96	1,502	98	2.0	1.2
Debits	261	153	271	158	4.0	3.2
Returned credits	5	5	6	5	12.9	7.9
Total	**1,739**	**254**	**1,779**	**261**	**2.4**	**2.5**

SOURCE: Masav.

Table 5
Masav–Credits, by Destination, 2009

	Value	Transactions	Value	Transactions
	(NIS billion)	(millions)	% of total credits	
Interbank	518	9	34.5	9.4
Wages	181	54	12.1	55.3
Institutions	480	22	31.9	22.9
Intrabank	323	12	21.5	12.4
Total debits	**1,503**	**97**	**100.0**	**100.0**

SOURCE: Masav.

1.3 The TASE clearing houses

The TASE clearing houses calculate the net value for each bank and transfer the results to the Zahav system for the purpose of settlement and debiting/crediting of the banks' relevant accounts at the Bank of Israel. The clearing houses settle the transactions related to all securities and provide additional services, such as payment of interest, dividends and redemptions of bonds. In addition, the TASE clearing houses settle payments resulting from the purchase and expiry of derivatives in the Maof clearing house.

Since the introduction of the Zahav system, the settlement of government bonds and *makam* has been parallel to the time of financial settlement (delivery versus payment—DVP). The TASE clearing houses have completed their preparations for transferring the clearing of corporate bonds on date t+1 (similar to government bonds). The transition is planned for the second quarter of 2010, and accordingly DVP will also apply to transactions in corporate bonds.

During 2009 the value of transactions initiated by the TASE which were settled in the Zahav system totaled about NIS 595 billion. In addition, the volume of trade in shares and *makam* dropped by 12 percent and 17 percent respectively, whereas the volume of trade in government bonds rose by 4 percent (Table 6).

Table 6
Trading Volumes in Securities, 2006-09
(NIS billion, in current prices)

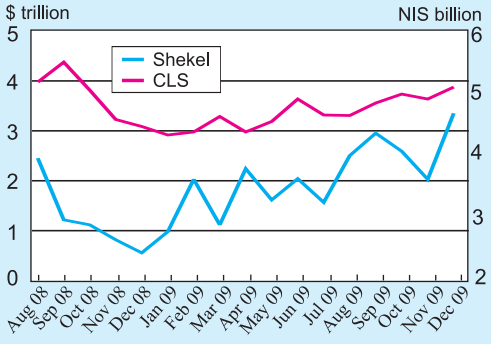
	Shares and convertible	Bonds				
		Govt.	Other	Total	*Makam*	Total
2006	360	356	68	424	198	982
2007	506	636	165	800	207	1,514
2008	481	761	224	985	192	1,658
2009	**423**	**789**	**223**	**1,012**	**160**	**1,596**
Increase in 2009 (percent)	-12.1	3.8	-0.6	2.8	-16.6	-3.8

SOURCE: TASE Web site: statistics/turnover/annual

1.4 The CLS system

The CLS system, which was established by a group of major foreign banks to reduce the risk in settling foreign currency transactions, operates as an international clearing house for foreign currency conversions. The operations performed in the CLS system are similar to those of RTGS system, but instead of settlement activity in one currency, the CLS system carries out settlement and conversion activities from currency to currency simultaneously. The CLS system provides settlement services for 17 currencies, and all the central banks in those countries are connected to it directly through their RTGS. The CLS system settles more than 50 percent of all foreign currency conversion transactions worldwide.

Figure 13
Total Shekel Activity Compared with Total CLS Activity, August 2008 to December 2009
(daily average)



SOURCE: Bank of Israel, and CLS Bank.

In May 2008 the shekel joined the CLS system. The addition of the Israeli currency to the international system has significantly reduced the conversion risks involved in the activity between Israeli businesses and those abroad, reinforcing their stability. The

inclusion of the shekel among leading world currencies currently handled by the CLS system greatly strengthens Israel's currency and makes it fully convertible, traded freely around the world.

The CLS system is owned by more than 70 financial institutions worldwide, and is supervised by the American Federal Reserve Bank, in conjunction with representatives from all countries whose currencies are traded in the CLS.

In 2009 the average daily value of settlement in the CLS system was about $3.4 trillion, of which the average daily value for transactions in shekel was NIS 3.7 billion (about $0.9 billion). Shekel transactions in the CLS system in 2009 totaled NIS 930 billion (about $236 billion). In 2009 about $870 trillion was settled in the CLS system, of which shekel transactions accounted for 0.03 percent.

1.5 The credit card system

Direct debit card activity in general and credit card activity in particular, has grown considerably in recent years. This is due to the extensive use of such cards by various businesses and the ability to use them by means of internet and phone.

The number of credit card transactions in 2009 was 686[20] million, while the value of these transactions totaled about NIS 162 billion—about 5.2 percent higher than in 2008. The average credit card transaction this year was only NIS 236.

Table 7 relates only to transactions in shekels, including cash withdrawals by means of credit cards and does not include purchases and cash withdrawals in foreign currency.

Table 7
Use of Credit Cards, 2005-2009

	Value	Transactions	Year on year increase
	(NIS billion)	(millions)	(percent)
2005	113	482	10.4
2006	126	532	11.2
2007	139	585	10.9
2008	154	642	10.1
2009[a]	**162**	**686**	**5.2**

[a] Q3 data: estimate.
SOURCE: Bank of Israel.

[20] It should be emphasized that the number of transactions shown in this table includes all the transactions listed in the customers' statements, whereas the other debits in the public's current accounts only list debits recorded in the current account (Table 8).

2. Communication systems

2.1 SWIFT

The SWIFT international communication system facilitates the safe and efficient automatic transfer of payment instructions. Thus, most developed countries have a payments system based wholly or partially on this system. In Israel SWIFT serves as a means of communication between different financial entities; inter alia to transfer payment instructions and other messages between the Zahav system and its participants and between the banks and the TASE clearing houses. SWIFT is also used by the banks and financial institutions for transferring foreign currency payment instructions abroad.

Due to the critical importance of the SWIFT system in most countries, the ten central banks of the G-10 countries decided to introduce joint supervision of the system. This supervision is led by the central bank of Belgium[21].

2.2 ABS (Automated Banking Services)

The ABS (Automated Banking Services) Company (hereinafter: the Company), is a limited company established in 1978 by Israel's five largest banks with the purpose of providing services to various financial institutions—banks, financial institutions, credit companies, provident funds, etc. The company operates according to a permit issued by the Deputy Governor of the Bank of Israel in 1981. The Company is a joint services company as this term is defined in Section 23 of the Banking (Licensing) Law, 5741-1981.

ABS's operations focus on four key areas: management of the communication network between the credit card terminals in businesses (POS) and the credit card companies, management of the network of ATMs which are not located at bank branches, management of the communication network of ATMs located at banks, and providing the credit card companies with communication services to Masav and to banks participating in monetary tenders vis-à-vis the Bank of Israel.

2.3 Kasefet (Vault)

Kasefet (Vault) was established by the Cyber Ark Company. This communication interface facilitates the management of a set of virtual vaults which provide the secure and encrypted transfer of data (files with information) between enterprises over the internet network.

To facilitate the transfer of secure information on the internet, the system provides several layers of information security and encryption. Information transmitted from a particular source to the target enterprise is saved in computerized vaults, with advanced

[21] The central bank of Belgium was chosen as SWIFT's supervising body because SWIFT is registered in Belgium.

access passwords and controls. Each vault is accessible only to a defined group of users who share it. When logging in, the user sees only the vaults he is authorized to access.

The Bank of Israel uses this means to transfer/receive information to/from the commercial banks—classified documents, statistical data sent from the banks to the Bank of Israel and bank statements sent to banks, etc.

With the establishment of the Zahav system, use of the Kasefet (Vault) extended for transferring payment instructions to the Zahav system from Masav and from government ministries. In future it will also be extended to other participants (as a backup for the SWIFT). Furthermore, communication with the paper-based clearing house is performed through the Kasefet (Vault).

3. Means of payment

As noted, Israel's payment and settlement system is composed of payment systems, communication systems and means of making payments. The previous sections reviewed the payment system and communication interfaces, while this chapter will review the principal means of payment available in Israel.

The means of payment through which the public can make payments include cash, checks, electronic debits, use of debit cards, authorized debits, internet-based payments, payments by cell-phone, etc.

Data[22] on the public's current account transactions (Table 8) using the means of payments include: checks, cash withdrawn at ATMs and banks, authorized debits (executed through Masav) and other types of debits. Other type of debits include: electronic transfers (through Zahav and Masav), activity by debit cards, internet-based payments and other business transactions between the customer and the bank—purchase of securities, purchase of foreign currency, bank charges, etc.

The debits of current accounts held by the public totaled NIS 18,058 billion in 2009, as against NIS 21,474 billion in 2008. The total value of debits of current accounts held by the public in 2009 declined by 16 percent compared to 2008. Debits by check declined by 7 percent this year, and other debits declined by 17 percent (most of this was due to a decline in activity in the Zahav system). In contrast, cash withdrawals increased by 8 percent, and authorized debits increased by 2 percent.

It should be mentioned that data on the public's current accounts differ from the data of the Clearing Houses, since clearing house data list interbank transactions only, whereas the data of the public's current accounts include all transactions, including those settled in the bank that did not pass through the clearing house.

[22] Source: Banking Supervision Department, Bank of Israel.

Table 8
Debits on the Public's Current Accounts, 2005–09

	Checks	Cash withdrawals	Authorized debits	Other debits	Total
			Value (NIS billion)		
2005	821	137	471	13,731	15,160
2006	888	143	527	15,910	17,468
2007	970	158	572	21,051	22,751
2008	924	163	634	19,754	21,474
2009	**860**	**175**	**649**	**16,374**	**18,058**
Increase in 2009 (percent)	-7.0	7.9	2.4	-17.1	-15.9
			Transactions (millions)		
2005	164	134	163	274	735
2006	163	138	171	304	776
2007	165	140	178	343	825
2008	159	135	188	338	820
2009	**152**	**131**	**195**	**305**	**782**
Increase in 2009 (percent)	-4.8	-3.1	3.7	-9.8	-4.6

SOURCE: Bank of Israel

3.1 Use of checks

According to the reports from the banks (Table 9) about NIS 152 million checks were drawn by Israelis in 2009, of which about 121 million were presented in the interbank clearing house, and the rest (about 31 million) were deposited in the banks from which they were drawn.

The number of checks drawn and their value were lower this year than in previous year, a trend which characterizes developed countries and originates primarily from the growing use of credit cards and other automated transfers.

Of the checks drawn in 2009 about 4.2 million (about 2.8 percent) were returned—the same proportion as last year. Of the total value of checks drawn (NIS 860 billion), about 3.3 percent were returned (as against 3.0 percent in 2008). About half of the checks were returned because of insufficient coverage, and about the half were returned for other reasons—checks past their validity date, an unrecognized signature, etc.

At the beginning of 2009 the percentage of returned checks was noticeably higher than the annual average.

Table 9
Checks Drawn and Checks Returned, 2009

	Checks drawn		Checks returned		Return rate	
	Value (NIS million)	Transactions (thousands)	Value (NIS million)	Transactions (thousands)	Value (percent)	Transactions (percent)
January	69,673	12,313	2,705	388	3.88	3.15
February	65,103	11,411	2,372	346	3.64	3.03
March	77,596	14,187	2,539	395	3.27	2.79
April	65,073	11,618	1,989	318	3.06	2.73
May	70,440	12,596	2,252	328	3.20	2.60
June	71,167	12,748	2,443	336	3.43	2.64
July	74,105	12,812	2,512	335	3.39	2.61
August	73,264	12,565	2,306	345	3.15	2.75
September	71,854	12,820	2,051	311	2.85	2.43
October	67,670	12,130	2,243	355	3.31	2.93
November	76,761	13,473	2,337	349	3.04	2.59
December	76,959	13,074	2,385	368	3.10	2.81
Total 2009	**859,666**	**151,748**	**28,134**	**4,174**	**3.27**	**2.75**

SOURCE: Bank of Israel.

3.2 Cash withdrawals

Cash withdrawals by the public totaled about NIS 175 billion (as against NIS 163 billion in 2008)—about 8 percent higher than last year. In 2009, cash accounted for about 0.97 percent of all current account debits by the public (compared to 0.76 percent last year).

Table 10
Cash Withdrawals and Held by the Public, 2004-2009

	Cash withdrawals		Cash held by the public	
	Annual, cumulative (NIS billion)	Year on year increase (percent)	Annual, cumulative (NIS billion)	Year on year increase (percent)
2004	115	3.5	21	8.6
2005	137	19.0	24	17.5
2006	143	4.5	26	4.6
2007	158	10.4	29	13.4
2008	163	2.9	34	18.6
2009	**175**	**7.9**	**41**	**20.8**

SOURCE: Bank of Israel.

Despite the increase in the use of debits cards, prepaid cards, the internet and more, the use of cash as a means of payment does not seem to be in decline; quite the contrary: cash withdrawals increased from 2004 until the present time by about 52 percent.

3.3 Authorized debits

There were about 195 million authorized debits in 2009, with a value totaling NIS 649 million, compared to 188 million transactions and NIS 633 billion in 2008.

The value of authorized debits has increased over time and constitutes about 3.6 percent of total debits in current accounts held by the public. The table shows that in 2009 the annual increase in authorized debits was lower than in previous years—about 2.5 percent compared to an average of about 10.7 percent for the previous four years. According to figures published by the BIS the total value of these debits in the wealthiest countries has grown continuously over the last few years[23] at an average annual rate of 16 percent.

Table 11
Authorized Debits, 2005-2009

	Value (billion)	Transactions (million)	Annual increase in value (percent)
2005	471	163	12.0
2006	527	171	11.8
2007	572	178	8.6
2008	633	187	10.6
2009	**649**	**195**	**2.5**

SOURCE: Bank of Israel.

3.4 Other debits

Other debits of the public's current accounts are not classified and mainly include one-time or standing orders for the transfer of funds to an account of the same customer or that of a different customer, debits resulting from business transactions between the customer and the bank (e.g., interest payments, commissions on the purchase of securities or foreign currency), orders to debit an account using a credit card[24] and payments made by the public in the Zahav system.

Other debits totaled NIS 16,374 billion for the reviewed period, as against NIS19,754 billion in the previous year. Most of this decline derives from the decline in the amounts settled in the Zahav system in 2009. In 2009 other debits accounted for about 91 percent of total debits in current accounts held by the public.

[23] Statistics on payment and settlement in selected countries, March 2008.
[24] Some of the banks include this in authorized debts.