



# Monetary Policy Instruments and International Reserves Management

1

2

3

4

5

6

7

8



## 2.1 Instruments of Monetary Policy in 2007

To mitigate external imbalances of the Croatian economy, the Croatian National Bank focused its efforts in 2007 on reducing bank placements growth and slowing down external debt growth of banks. In that context, the central bank retained all the existing measures for restricting external borrowing growth and introduced a new measure to directly influence the growth of domestic placements of banks.

In 2007, the central bank continued to use marginal reserve requirements and special reserve requirements and with a view to directly restricting placements growth, introduced as of 1 January 2007 a Decision on the purchase of compulsory CNB bills, thus restricting the growth of bank placements not subject to a purchase obligation in that year to 12%.

At the same time, the central bank continued to actively manage banking system liquidity throughout 2007 through open market operations. Foreign exchange interventions and regular weekly reverse repo operations were the main instrument of reserve money creation. In the last quarter of 2007, the central bank conducted foreign exchange interventions through increased purchases of foreign currency from the banks, reducing at the same time liquidity supply at regular reverse repo auctions. Even though the interest rate spread, as determined by interest rates on the standing facilities such as the Lombard loan and overnight deposits, was set to limit possible interest rate fluctuations on the money market, asymmetric demand of banks for liquidity and a fall in the amount of created liquidity at regular CNB auctions led to an increase in overnight interest rate volatility, particularly in the second part of 2007.

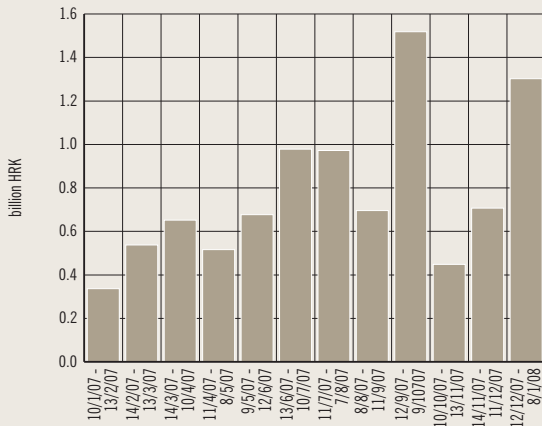
### 2.1.1 Open Market Operations

Open market operations are the basis of central bank liquidity management. Consisting of regular operations, fine-tuning operations, and structural operations, their volume affects interest rate developments on the interbank market, where the major share of transactions involves overnight loans. However, interest rates are not the main factor considered by the CNB when deciding on the volume of open market operations.

Demand for reserves in the accounts of banks with the central bank is determined by the total amount of the kuna component of reserve requirements and demand for surplus liquidity. Total average demand for reserves stood at HRK 31.8bn in 2007. Of that amount, the kuna component of reserve requirements averaged HRK 31.1bn, with the average surplus liquidity standing at HRK 0.8bn. The average balance of total demand for liquidity rose 17.9% in 2007, compared with 2006, largely due to the increase in the kuna component of reserve requirements. Average surplus liquidity ranged from HRK 0.3bn to HRK 1.5bn during the reserve maintenance periods in 2007. Of all the reserve requirements maintenance periods, that in September saw the highest maximum amount of average surplus liquidity. In the last maintenance period in the year when average surplus liquidity is commonly higher, average surplus liquidity stood at HRK 1.3bn.

## 2.1 Average Liquidity Surplus in Reserve Requirements Maintenance Periods

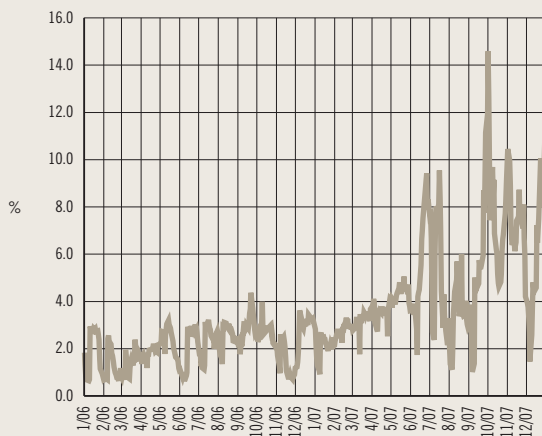
by maintenance periods



Source: CNB.

The supply of reserves is determined by factors under direct influence of the central bank, such as open market operations, and by autonomous factors, such as CNB balance sheet items which affect banking system liquidity but whose changes are not under direct CNB influence. The most significant autonomous factors include net foreign assets, currency outside banks and government kuna deposits. Autonomous factors averaged HRK 28.5bn in 2007, an increase of 9.6% compared with 2006. Of the autonomous factors, the average daily balance of currency outside banks rose the most (15%) while net foreign assets rose by 10.8%. The average level of government kuna deposits shrank by 20.9% in 2007 compared with the previous year, pointing to improved asset management of the government.

## 2.2 Overnight Interest Rates



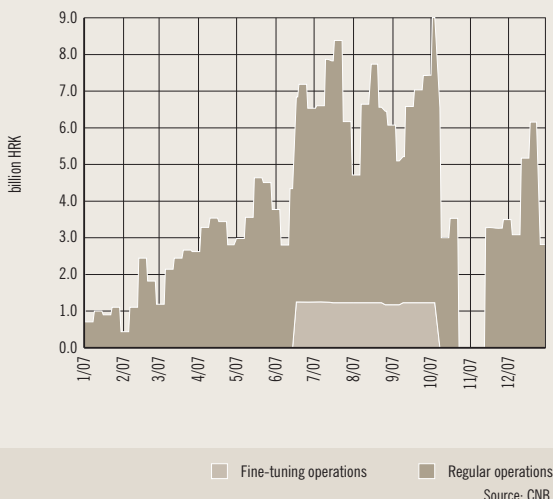
Source: CNB.

The average level of overnight interest rates and their variability on the money market were greater in 2007 compared with 2006, despite higher average surplus liquidity in 2007 compared with 2006. The overnight interest rate ranged from 0.92% to 14.59% in 2007, compared with 2006, when it ranged from 0.63% to 4.37%. As a result, the variation coefficient stood at 51.54% in 2007, an increase of 30.25% compared with the variation coefficient in 2006 (39.57%). Relatively high interest rate variability in an environment characterised by increased surplus liquidity levels shows that liquidity management of banks and the money market are still not sufficiently developed.

## Regular Operations

Regular open market operations, most commonly reverse repo operations, are the primary source of liquidity for the banks. These operations are conducted at auctions which are normally held every Wednesday. Participation is open to domestic banks and acceptable collateral includes kuna T-bills of the Ministry of Finance.

## 2.3 Regular and Fine-Tuning Operations



Source: CNB.

In addition to foreign exchange interventions, reverse repo operations conducted at auctions organised by the CNB were the main instrument of liquidity creation in 2007. The banks participated in all of the total of 49 reverse repo auctions held in 2007.

In 2007, similarly as in 2006, in the period from June to October, liquidity was increased not only through regular operations but also through fine-tuning operations, with the largest amount of liquidity thus created in 2007 being utilised by the banks during the summer months.

Liquidity creation at regular reverse repo auctions was particularly strong in the first part of each of the reserve requirements maintenance periods, showing that the banks still tend to ensure the bulk of their reserve

requirements already in the first part of the maintenance period.

The total amount of funds thus placed to the banks in 2007 stood at HRK 164.4bn, a three-fold increase compared with the previous year. The amount of funds placed at auctions in 2007 ranged from HRK 0.4bn in January to HRK 6.5bn in October. The average daily balance of the funds created through reverse repo operations during the same period was HRK 3.4bn. The largest average daily balance of funds created through reverse repo auctions was HRK 5.1bn recorded in the maintenance period from 12 September 2007 to 9 October 2007. Individual amounts of funds placed at the four auctions during that period ranged from HRK 4.1bn to HRK 6.5bn.

Repo rates bid at reverse repo auctions in the first three quarters of 2007 equalled the marginal repo rate which stood at 3.5% during that period. However, in the last three months of 2007, some banks participated in auctions with several bids. Besides, in the first three quarters, partial acceptance (75%) of the bids received, took place at only one auction, while all the other auctions were characterised by full bid acceptance. The ratio of bids accepted to total bids received ranged from 45.2% to 89.7%, while the percentage of bids accepted at the marginal repo rate at these auctions ranged from 45.2% to 100%. The number of banks which took part at reverse repo auctions ranged between two and twelve, with seven banks on average participating in each auction. The average number of bids per bidder ranged between one and 1.6.

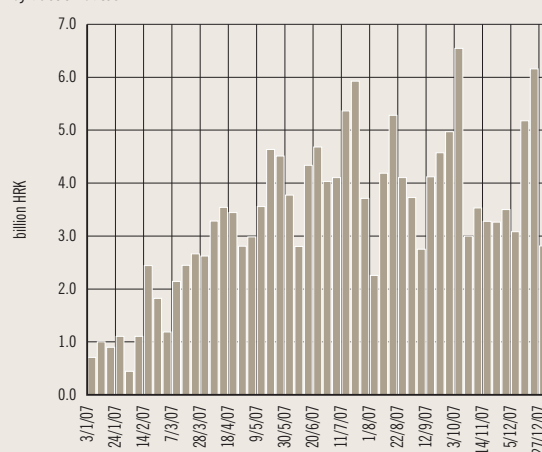
## Fine-Tuning Operations

Unlike regular operations which are used exclusively to improve the system's liquidity, fine-tuning operations are used to temporarily reduce or improve the system's liquidity. These operations are conducted on an ad hoc basis to manage the liquidity situation in the market and to manage interest rates, in particular in situations when it is necessary to neutralise the effects of interest rate changes caused by unexpected market fluctuations. Operations of this type may be executed as repo and reverse repo operations, outright purchases and sales of securities and foreign currency, and foreign exchange swaps. Frequency and maturity of fine-tuning operations have not been standardised which ensures a high level of flexibility and possibility to respond quickly to any sudden market fluctuation. These operations are conducted at auctions through unstandardised bids or bilaterally through a limited number of participants. Acceptable collateral includes kuna T-bills of the Ministry of Finance.

In the context of open market operations, the central bank executed in June 2007 a fine-tuning operation, creating HRK 1.3bn worth of liquidity, with non-standard maturity of the reverse repo operation. Another four fine-tuning operations followed in July, August, September and October, involving amounts ranging from HRK 1.2bn to HRK 1.3bn.

## 2.4 Regular Operations

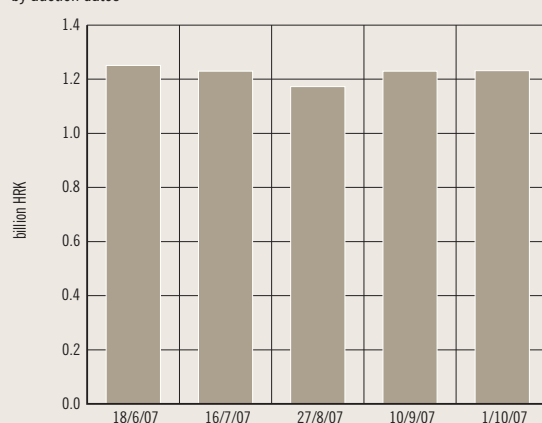
by auction dates



Source: CNB.

## 2.5 Fine-Tuning Operations

by auction dates



Source: CNB.

## Structural Operations

The third type of open market operations are structural operations which are carried out in the case of need for longer-term liquidity structure adjustment. Carried out through outright securities purchase and sale transactions and repo and reverse repo operations, they are used to increase or reduce the system's liquidity. Their maturity and frequency are not standardised and they are carried out at auctions through standard bids and with banks' participation. Acceptable collateral for these types of operations includes various government securities. No structural operations took place in 2007.

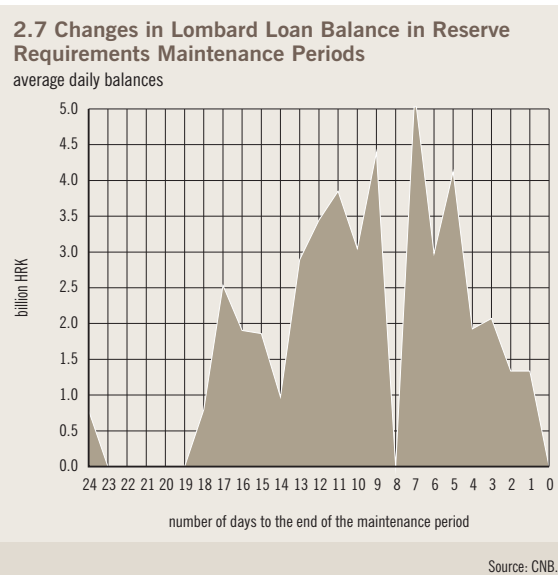
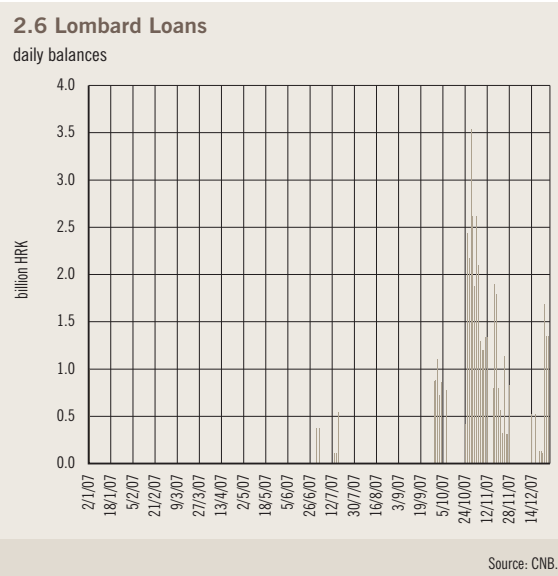
### 2.1.2 Standing Facilities

Standing facilities are instruments available to banks on their own initiative for an unlimited number of days in a month to stabilise any unexpected changes in bank liquidity. Standing facilities have an overnight maturity and may take the form of a Lombard loan in case of deficit liquidity or a deposit facility in case of surplus liquidity. These facilities provide an interest rate corridor on the money market, with the interest rate on the Lombard facility setting a ceiling and the interest rate on the overnight deposit with the CNB setting a floor to that interest rate corridor. Interest rates on the money market should move within that corridor. With regular CNB presence on the market, standing facilities should be used only exceptionally.

#### Lombard Loan

Interest rate on the Lombard loan provides a ceiling to the interest rate corridor on the money market. In 2007, it was set at 7.5%. The facility is granted against a pledge and may be used on a daily basis up to an amount of 90% of the nominal value of the pledged T-bills of the Ministry of Finance. The Lombard loan is used on a bank's request or is granted automatically in the event of default on an intra-day loan, and that exclusively at the end of a business day. It is repayable on the next business day. The CNB may at its discretion deny the banks temporarily or permanently the use of the Lombard facility. In the context of measures for restricting credit activities of banks, the interest rate on the Lombard loan was raised from 7.5% to 9% in early December 2007, with scheduled application as of 1 January 2008.

Although the Lombard loan was used for only one business day in the first half of 2007, the use of this facility intensified later in the year, especially in the last quarter of the year. The amounts granted under the Lombard facility in 2007 ranged from HRK 0.1bn to HRK 3.5bn, with the average daily amount of the use of the facility standing at HRK 1.1bn. The maximum average amount of the Lombard loan during the days of its use was HRK 1.6bn in October 2007. The largest daily Lombard loan of HRK 3.5bn was also granted in that month (29 October 2007). The minimum average daily amount of the Lombard loan of HRK 0.3bn was recorded in July 2007. In 2007, this facility was used for a total 42 days, of which as many as 36 days took place in the last three months of 2007. The banks used



the Lombard facility between one and 17 business days within a month, with the largest number of days of use of the Lombard facility taking place in November 2007.

## Deposit Facility

The banks may deposit any end-of-day surplus liquidity with the CNB. It is an overnight deposit that is repayable to the banks at the beginning of the next business day and that is remunerated by the CNB at 0.5% annually, an interest rate that is also the floor of the interest rate corridor on the money market. Funds deposited by banks in the form of overnight deposit facility with the CNB are not included in reserve requirements maintenance. The CNB may at its discretion deny banks, either temporarily or permanently, the use of the deposit facility.

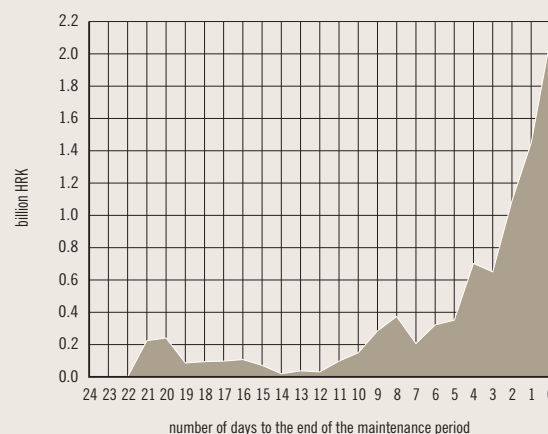
Throughout 2007, the banks made use of the overnight deposit facility with the CNB, particularly, in terms of the number of days, in the last quarter of 2007. Within a reserve requirements maintenance period, the use of overnight deposits is commonly more frequent in the second part of the period, when the banks are more confident that they will meet the reserve requirements. Overnight deposits commonly increased immediately before a new period of reserve requirements maintenance, with monetary deposits exceeding HRK 2.0bn on individual days.

The average daily balance of the deposit facility in 2007 was HRK 0.8bn. The largest daily amount of the overnight daily deposit facility was HRK 4.6bn recorded in early October 2007. Overnight deposits were used for a total of 107 days in 2007, and the banks used the overnight facility between 4 and 19 business days in a month. The maximum average amount of the facility during those days was HRK 1.8bn in October 2007, and its minimum average amount was HRK 0.3bn in April 2007. The largest number of days of the use of overnight deposits took place in December 2007 when the banks deposited their funds with the central bank for 19 days, with the average deposit standing at HRK 0.6bn.

### 2.1.3 Reserve Requirements

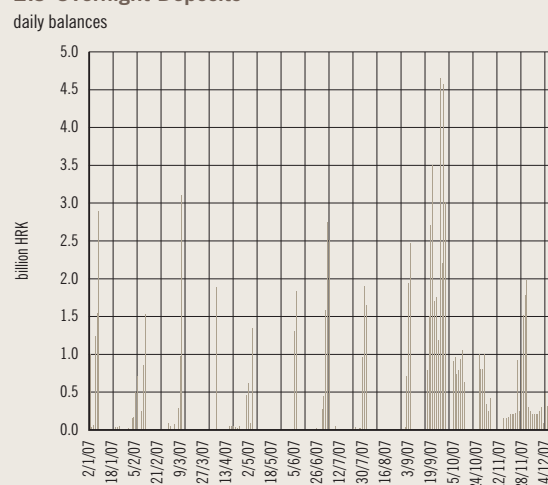
Reserve requirements were again the main instrument of banking system liquidity sterilisation in 2007. The reserve requirement rate remained unchanged at 17% throughout the year. The base for the calculation of reserve requirements consists of the kuna and foreign currency components. Of the calculated foreign currency component of reserve requirements, 50% is included in the calculated kuna component of reserve requirements and is executed in kuna. The calculation period extends from the first to the last day of a calendar month, and the maintenance period begins on the second Wednesday in a month and ends on the day which precedes the second Wednesday of the following month. The kuna and foreign currency reserve requirements allocation percentages are 70% and 60%, respectively, of the calculated reserve requirements. However, the foreign currency component of reserve requirements calculated on the basis of non-residents' foreign currency funds and foreign currency funds received from

**2.8 Changes in Overnight Deposit Balance in Reserve Requirements Maintenance Periods**  
average daily balances



Source: CNB.

**2.9 Overnight Deposits**



Source: CNB.

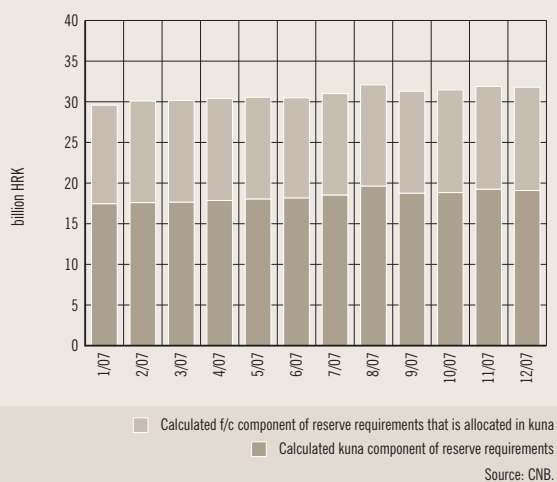
legal persons in a special relationship with a bank is allocated at the rate of 100%. The remaining part of reserve requirements may be maintained by average daily liquid claims balance.

## Kuna and Foreign Currency Component of Reserve Requirements

The kuna component of the base grew steadily throughout 2007, except for its November fall, reaching HRK 114.0bn in December, a 10.2% growth on an annual level. The growth of kuna component of the base ranged from 0.3% to 2.3% per month in 2007, reaching its highest growth in October.

### 2.10 Total Kuna Component of Reserve Requirements

balance in maintenance periods



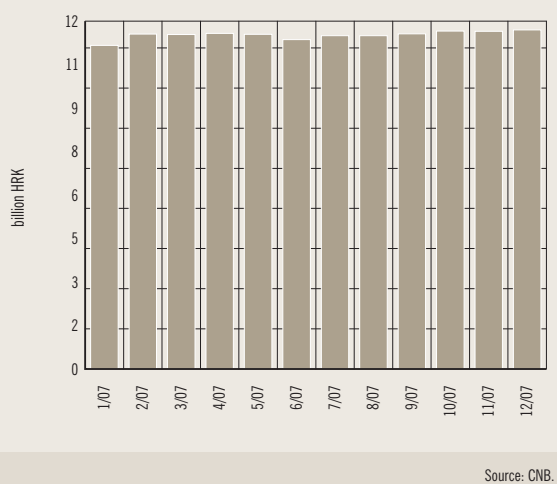
The foreign currency component of the base fluctuated between HRK 144.8bn in May and HRK 150.5bn in December 2007, growing by 2.2%. The largest increase (3.4%) in the foreign currency component of the base took place in January. Overall, the remaining part of 2007 was marked by milder growth, with even negative growth rates taking place in individual months.

In 2007, the kuna component of reserve requirements rose by 7.4%, reaching HRK 31.8bn in the last period of maintenance. The growth of the kuna component of reserve requirements was slower than the growth of the kuna component of the base due to stagnation in the foreign currency component of reserve requirements that is executed in kuna.

The share of the calculated foreign currency component of reserve requirements that it allocated in kuna rose by 4.8% from the January maintenance period to the maintenance period in December 2007, which is in line with developments in the foreign currency base during that period, given that the percentage of that foreign currency component did not change during the year.

### 2.11 Total Foreign Currency Component of Reserve Requirements

balance in maintenance periods



The foreign currency component of reserve requirements fluctuated during 2007 and, in line with developments in the foreign currency component of the base, rose from HRK 12.1bn in January to HRK 12.7bn in December, an increase of 4.8%.

Remuneration paid for the allocated kuna component of reserve requirements in 2007 was 0.75%. The remuneration paid on the foreign currency component of reserve requirements allocated in euro amounted to 50% of the ECB Minimum Bid Refinance Rate and on those allocated in American dollars to 50% of the US Federal Funds Target Rate.

## 2.1.4 Measures for Restricting Placements and External Debt Growth

In addition to the existing instruments, marginal reserve requirements and special reserve requirements, the CNB also used in 2007 a subscription of compulsory CNB bills, a new measure aimed at restricting the growth of bank placements.

## Marginal Reserve Requirements

The instrument of marginal reserve requirements did not undergo any changes in 2007. The base for the calculation of this requirement again consisted of four components.

The first component of the base for the calculation of marginal reserve requirements (MRR I) is the positive difference between the average daily balance of sources of funds received from non-residents and legal persons in a special relationship with the bank in the calculation and initial calculation periods, with the initial calculation period being that from 1 June to 30 June 2004.

The second component of the base for the calculation of marginal reserve requirements (MRR II) is calculated in the same way as the first component of the base, with the exception that the initial calculation period is that from 1 to 30 November 2005.

The third component of the base for the calculation of marginal reserve requirements (MRR III) is the positive difference between the average daily balance of funds collected from persons engaging in financial leasing and individual off-balance sheet items comprising guarantees and warranties for the account of non-residents in kuna and foreign currency and which serve as a basis for the foreign borrowing of domestic natural and legal persons in the calculation and initial calculation periods, with the initial calculation period being that from 1 to 30 November 2005.

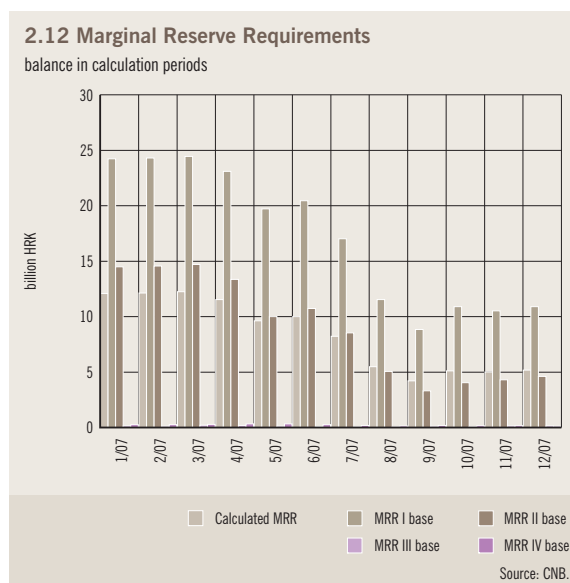
And finally, the fourth component of the base for the calculation of marginal reserve requirements (MRR IV) is the positive difference between the average daily balance of funds received from non-residents and legal persons in a special relationship with the bank which are used for financing domestic legal and natural persons in the form of syndicated loans or for domestic banks' placements to domestic legal and natural persons in the name and for the account of the mandator (mandated operations) with the mandator's funds received or placed not being shown on the bank's balance sheet but on a separate balance sheet (balance sheet of mandated operations) in the calculation and initial calculation periods, with the initial calculation period being that from 1 to 31 May 2006.

The rates of marginal reserve requirements applied to MRR I base and MRR II base are 40% and 15%, respectively, and that applied to MRR III base and MRR IV base is 55%.

Marginal reserve requirements are in their entirety allocated in foreign currency to foreign currency accounts with the CNB and are not remunerated by the central bank.

Total calculated marginal reserve requirements fell from HRK 12.1bn in January 2007 to HRK 5.2bn in December 2007, which is a decrease of 57.1%. Looking at their monthly dynamics, they rose visibly in the first quarter and fell in the next two quarters, with the exception of their June increase. At HRK 4.2bn, the calculated marginal reserve requirements were at their lowest in September 2007. Following their October increase, marginal reserve requirements reached, with minor fluctuations, HRK 5.2bn at the end of 2007.

Developments in the base for the calculation of marginal reserve requirements point to a similar dynamics as those in the calculated marginal requirements, with the most significant input to the base coming from the sources of funds of non-residents and legal persons in a special relationship with the bank, with their dynamics being therefore the most important factor affecting the dynamics of the calculated marginal reserve requirements.



In January 2007, total sources of funds from non-residents and legal persons in a special relationship with the bank were HRK 79.4bn. They grew steadily until March when they reached their maximum of HRK 79.6bn and shrank afterwards, with the exception of their June and October increase. The sources of non-residents rose again in December, reaching HRK 66.0bn which is a 16.9% fall compared with the beginning of the year. The base for the calculation of marginal reserve requirements fell from HRK 24.2bn to HRK 10.9bn, simultaneously with the fall in the relevant sources of funds.

The sources of funds of legal persons engaging in financial leasing rose from HRK 167.5m in January to HRK 172.1m in December, in contrast with guarantees and warranties for the account of non-residents used for foreign borrowing of domestic legal persons which declined from HRK 4.3bn to HRK 3.9bn during the same period. This caused an increase in the base for the calculation of marginal reserve requirements from HRK 131.4m in January to HRK 136.6m in December.

The funds received from non-residents and legal persons in a special relationship with the bank for financing domestic persons in the form of syndicated loans and mandator funds (mandated operations) for placements to domestic persons totalled HRK 2.4bn in January 2007, falling to HRK 1.8bn until December. The relevant base for the calculation of marginal reserve requirements fell from HRK 263.9m to HRK 110.2m during the same period.

### Special Reserve Requirements

In force since February 2006, special reserve requirements on liabilities of banks arising from issued securities are an instrument introduced by the central bank to slow down bank borrowing based on issued debt securities.

The base for the calculation of special reserve requirements is the positive difference between the average daily balance of issued debt securities in a certain calculation period and the average daily balance of funds of issued debt securities in the initial calculation period, with the initial calculation period being 1 to 31 January 2006. Separate calculation of the base is made for securities issued in kuna and for those issued in foreign currency. The balance of issued securities which is included in the calculation of the average daily balance of the sources of funds for the calculation of the base for marginal reserve requirements is not included in the calculation of the average daily balance of issued securities for the calculation of the base for special reserve requirements. Special reserve requirements are calculated every second Wednesday in a month, by applying a 55% rate to the prescribed base. The full amount of special reserve requirements is allocated to the accounts with the CNB, with the kuna component being allocated to the special reserve requirement account with the central bank and the foreign currency component in euro and American dollar to its foreign currency accounts. No remuneration is paid by the CNB on special reserve requirements.

According to data for the calculation period in December 2006, special reserve requirements were HRK 88.1m in January 2007 and HRK 97.7m in March 2007, their maximum in that year. In the remaining part of the year they fell steadily, reaching HRK 36.1m in December, for the November calculation period.

### Subscription of Compulsory CNB Bills

Decision on the subscription of compulsory CNB bills was introduced with the aim of directly restricting bank placements growth and indirectly reducing external debt growth and stabilisation of the current account deficit.

Under the said Decision, the maximum permissible growth of placements for the calculation period from 1 to 31 January 2007, relative to the balance of placements as at 31 December 2006 was initially 1%, with the permissible growth of placements in each subsequent calculation period, which always began on 1 January 2007 and ended on the last calendar day of each month, increasing by 1 percentage point. The maximum permissible growth of placements in 2007 was thus set at 12%.

The calculation of the subscription of compulsory CNB bills was to be done on the 20th day in a month by each bank which has exceeded the permissible growth of placements. The rate of subscription was 50% of the excess. The subscribed CNB bills matured in 360 days and were remunerated by the CNB at the same rate that is payable on the allocated kuna component of reserve requirements.

To accommodate the seasonal needs for the granting of placements, the CNB amended its Decision in February 2007, setting instead of a monthly permissible growth of placements, a uniform permissible growth of placements of 12% for all the calculation periods in a calendar year, relative to the previous year and setting 31 December of the previous year as the initial date. In early June 2007, the base for the calculation of compulsory CNB bills was divided into a balance sheet and an off-balance sheet component, and towards the end of that month the CNB issued a new decision, changing the initial period for the determination of the base for the calculation of subscription of compulsory CNB bills and tightening the permissible rate of placements growth after it had discovered that the growth of placements up to that point had been much higher than planned.

Under the new decision, the permissible growth of placements for the calculation period from 1 to 31 July, relative to 30 June 2007 was 0.5%, and additional 0.5 percentage points for all the subsequent calculation periods, with the calculation period always beginning on 1 July 2007 and ending on the last calendar day of each month.

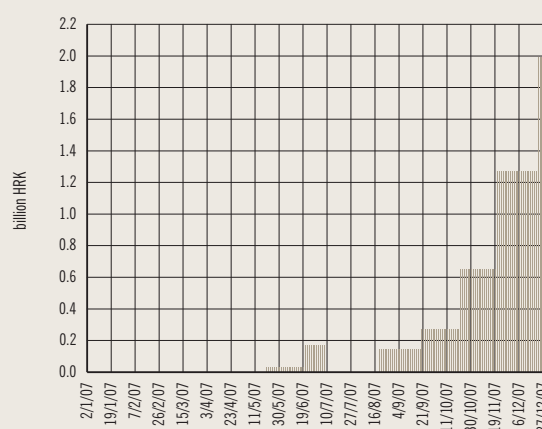
Under its September 2007 amendments, the CNB additionally tightened the conditions for the subscription of compulsory CNB bills by widening the basis for the calculation of their subscription through the inclusion in the calculation of placements the total amount of loans and credits granted to residents by legal persons with registered offices in the Republic of Croatia in which a bank or a qualifying holder in a bank, and which is a financial institution, has control in accordance with the provisions of Article 11, paragraph (2) of the Banking Act (OG 84/2002 and 141/2006) or a qualifying holding in accordance with the provisions of Article 8, paragraph (2) of the same Act. In addition to loans and credits placements also include receivables arising from loans and credits which bank-owned legal persons acquired by purchasing receivables or on the basis of another legal arrangement, pursuant to which they attained creditor status. Accordingly, the new initial date for loans granted by legal persons owned by a domestic or foreign bank was set at 30 September 2007 and the new calculation period began on 1 October 2007. The permissible growth of placements was again set at 0.5% relative to the first calculation period from 1 to 31 October 2007 and at additional 0.5 percentage points for each successive calculation period.

And finally in December 2007, the CNB issued a new Decision on the subscription of compulsory CNB bills, re-defining all the key elements of this Decision for 2008 and setting the initial date for the calculation of compulsory CNB bills at 31 December 2007 and the beginning of each calculation period at 1 January 2008. The permissible growth of placements for the first calculation period from 1 to 31 January 2008 was set at 1% and additional 1 percentage point for each successive calculation period. The compulsory CNB bills are purchased at the rate of 75% of the base and are issued at the interest rate of 0.25% annually.

In accordance with the calculation base, in the first three months of 2007 there were no purchases of compulsory CNB bills. Their first purchase following the adoption of this Decision took place on 20 April 2007 and totalled HRK 45.0 thousand based on the calculation base of HRK 90.9 thousand for the period from 1 January to 31 March. After that the calculation base rose until end-May when it stood at HRK 277.3m, while the cumulative purchase of compulsory CNB bills stood at HRK 167.4m on 20 June. After the June change in the initial calculation period, there were no purchases of compulsory CNB bills in the period from 9 July until 20 August when HRK 143.2m were purchased based on the calculation base of HRK 286.4m between 1 and 31 July 2007. The purchase of compulsory CNB bills rose steadily in the rest of the year, standing at HRK 2.0bn at the end of the year, with the calculation base ranging between HRK 252.8m and HRK 1.4bn during that period.

### 2.13 Purchased Compulsory CNB Bills

daily balances



Source: CNB.

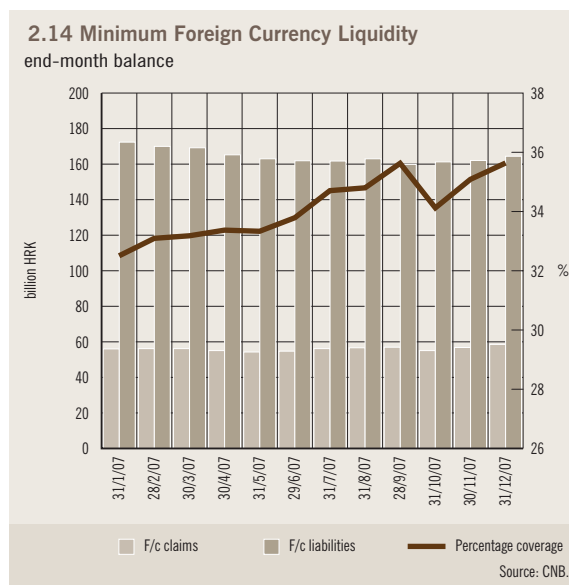
## 2.1.5 Other Instruments

### Minimum Required Foreign Currency Claims

Set at 32% of all foreign currency liabilities, the minimum required foreign currency claims are an instrument used by the central bank to maintain foreign currency liquidity of banks. The banks are obliged to meet the prescribed maintenance percentage on a daily basis, with liquid foreign currency claims being those (with the exception of those on loans) maturing in less than three months. Given uniform treatment of kuna liabilities with a currency clause and foreign currency liabilities since 2006, and the fact that a large number of banks was not able to meet the prescribed 32% ratio in the given time-frame, following the inclusion of kuna liabilities with a currency clause in the definition of foreign currency liabilities, an adjustment period had been set, with 31 March 2007 as its deadline, during which the banks were obliged to increase each month, starting from October 2006, their maintenance percentages by two percentage points, to attain the minimum 32% until 31 March 2007.

In July 2007, the central bank expanded the scope of foreign currency claims, and that exceptionally for the period from 5 July 2007 to 31 October 2007, to include under foreign currency claims an EUR 244.5m worth of syndicated domestic banks foreign currency loan to the Ministry of Finance.

At 31 January 2007, the coverage of foreign currency liabilities by foreign currency claims was 32.50%, the 2007 minimum. The ratio improved later in the year, reaching 33.37% on 30 April and after a slight fall in May, recovered to 35.63% on 28 September. At the end of October, the coverage fell back to 34.13%, but recovered until the end of the year, standing at its maximum of 35.64% on 31 December 2007.



### Croatian National Bank Bills in Kuna

Dematerialised negotiable 35-day kuna CNB bills are sold at auctions at a discount and with the same day settlement. The CNB determines the date of the auction while access to the primary market is open to domestic banks, foreign bank branches and the CBRD. The Central Depository Agency provides depository services for CNB bills. Though constituting a part of the operating monetary policy framework, CNB bills were not used in 2007.

### Short-Term Liquidity Loans

Short-term liquidity loans are loans granted to banks with liquidity problems after all other sources of liquidity available on the market have been exhausted. In 2007, there was no need for short-term liquidity loans. The interest rate on this type of loans is equal to the rate charged on the Lombard loan increased by 0.5 percentage points if the loan is used for a period up to three months, or increased by 1 percentage point if the loan is used for a period of over three months.

### Intra-Day Loans

Intra-day loans are a payment system instrument which serves to improve the flow of payment transactions during business hours. The banks may use intra-day loans on a daily basis in the form of a settlement account limit, with the limit being the permissible negative settlement account balance in the course of a clearing day within the CLVPS. The loan is collateralised and may be used up to 90% of the nominal value of pledged T-bills of the Ministry of Finance.

Any unpaid intra-day loan at the end of a business day is automatically considered to be an application for a Lombard loan to the amount of the negative settlement account balance. Denied granting of such loans, or restrictions on the amounts granted under Lombard loans, automatically implies identical restrictions on the use of intra-day loans. The CNB charges no interest on intra-day loans.

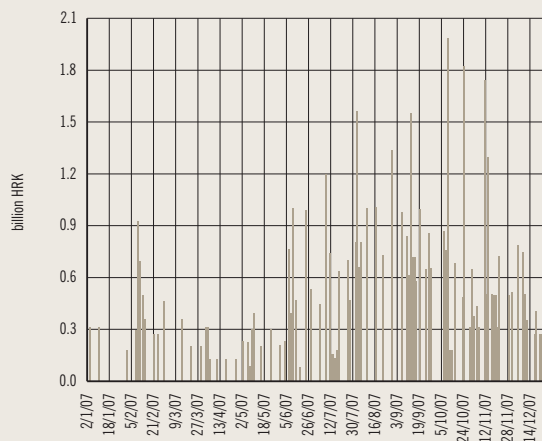
In 2007, intra-day loans were used for 99 days and their average amount was HRK 0.6bn, with individual daily amounts granted ranging from HRK 0.1bn to HRK 2.0bn. Compared with their 90 day use in 2006 and their average amount in that year (HRK 0.3bn), the frequency of use of this facility did not change much, though the average amount of the loan increased. As regards the use of intra-day loans on the days of regular operations, of the total of 49 reverse repo auctions held, the loan was used at 44 of them, or at 89.8% of all regular auctions in 2007. Average intra-day loans on these days were HRK 0.6bn, with the individual daily amounts granted ranging from HRK 0.1bn to HRK 1.6bn.

### 2.1.6 Croatian National Bank Interest Rates and Remuneration

Interest rates on standing facilities move within a range which sets a limit to the corridor of movements in overnight interest rates on the money market. The ceiling on the interest rate spread is the interest rate on the Lombard loan (7.5% annually) and the floor is the interest rate on overnight deposits with the CNB (0.5% annually). Interest rate spread and its ceiling and floor values remained unchanged throughout 2007.

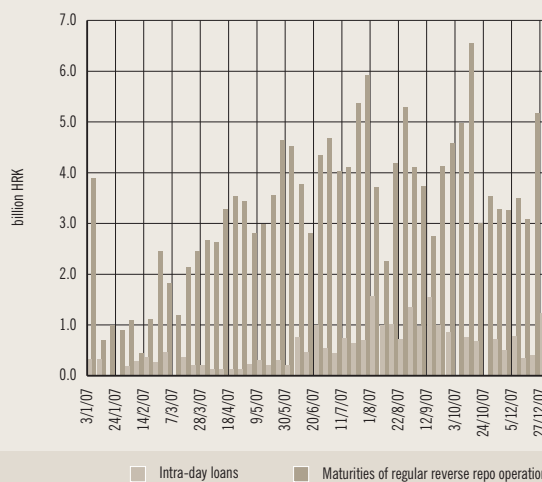
In the first three quarters of 2007, the repo rate, which is the rate at which the banks pay interest on funds borrowed at reverse repo auctions of the CNB, did not change. However, more active role assumed by the central bank in liquidity management, in terms of refusal to accept full bid amounts offered by banks at reverse repo auctions, prompted some banks in the last quarter of 2007 to participate in the auctions with several bids and different interest rates, thus causing a more pronounced diversification of the bid repo rates and of the weighted repo rate. The lowest bid repo rate ranged from 3.50% to 4.00% during the observed period and the highest bid repo rate ranged from 3.50% to 4.50%. Throughout the year, the weighted repo rate ranged from 3.50% to 4.18%, the amount achieved at the last auction in 2007. The marginal repo rate, i.e. the lowest acceptable repo rate, stood at 3.50% in the first ten months of the year, and in the last two months of the year ranged from 3.60% to 4.10%, the amount achieved at the last auction in 2007.

2.15 Use of Intra-Day Loans



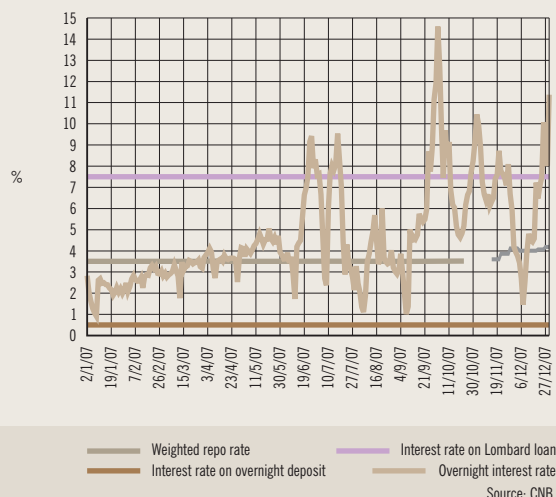
Source: CNB.

2.16 Use of Intra-Day Loans and Maturities of Regular Operations of Regular Operations



Source: CNB.

2.17 Interest Rate Spread, Repo Rates and Overnight Interest Rates in 2007



Source: CNB.

In early December, the central bank raised the rate at which it calculates and charges interest on Lombard loans from 7.5% to 9%. The increase in the Lombard loan rate, in force as of 1 January 2008, took place in the context of measures to restrict credit activities of banks.

Remuneration paid on the kuna component of reserve requirements was 0.75% while that paid on the foreign currency component of reserve requirements allocated in American dollars amounted to 50% of the US Federal Funds Target Rate, and for funds allocated in euro, 50% of the ECB Minimum Bid Refinance Rate.

The CNB raised its discount rate from 4.5% to 9% in December. In accordance with the provisions of Articles 26 and 29 of the Civil Obligations Act, the central bank is obligated to publish twice a year the discount rate applicable at the end of each half-year and since 1 January 2008, the amount of agreed and penalty interest have been linked to the CNB discount rate.

## 2.2 International Reserves Management

The Croatian National Bank manages the international reserves of the Republic of Croatia, which under the Act on the Croatian National Bank constitute a part of the balance sheet of the Croatian National Bank. The Croatian National Bank manages international reserves in accordance with the established monetary and foreign exchange policies and in a manner which ensures smooth settlement of international obligations of the Republic of Croatia. In managing the international reserves, the central bank is governed primarily by principles of liquidity and safety. International reserves of the Republic of Croatia comprise all claims and securities in a convertible foreign currency, banknotes and coins in a convertible foreign currency and special drawing rights (SDR).

### 2.2.1 Institutional and Organisational Framework, Principles of Management, Risks and Manner of International Reserves Management

#### Institutional and Organisational Framework of International Reserves Management

The Act on the Croatian National Bank governs the status, operations, ownership status, powers and organisation of the Croatian National Bank, and the relationship of the Croatian National Bank with the Republic of Croatia, banks and international institutions and organisations. As the central bank of the Republic of Croatia, the Croatian National Bank enjoys operational autonomy and independence and is accountable to the Croatian Parliament.

The Council of the Croatian National Bank is the body responsible for the implementation of the objectives and tasks of the central bank and the establishment of the operating policy of the Croatian National Bank. The Council of the CNB is also responsible for formulating the strategy and policies for international reserves management. It sets the strategic objectives and the principles of international reserves management and approves the framework for risk management.

International Reserves Commission is the body responsible for the development of strategies for international reserves investment in accordance with the objectives set by the Council of the CNB and the adoption of tactical decisions in international reserves management, while taking into account the market conditions.

International Reserves and Foreign Exchange Liquidity Department is responsible for operational implementation of international reserves management policy and strategy in accordance with decisions of the Commission and the Council. The Department is responsible for investment and maintaining of liquidity of international reserves on a daily basis, risk management and making reports for the Commission and the Council.

Internal Audit, as an autonomous organisational unit directly responsible to the Governor, conducts regular audit of the operations of the International Reserves and Foreign Exchange Liquidity Department. Financial statements

of the CNB, which cover international reserves management, are subject to regular annual external audits by authorised external auditors.

## Principles of International Reserves Management and Risks in International Reserves Management

In managing the international reserves of the Republic of Croatia, the central bank is governed by principles of liquidity and safety of investment (Article 17 of the Act on the Croatian National Bank). In that context, it maintains high liquidity of reserves and adequate risk exposure, and with the given restrictions, attempts to ensure favourable rates of return on its investments. Similar principles are observed by other central banks in their international reserves management.

Risks present in international reserves management are primarily financial risks such as credit, interest rate and currency risks though other risks such as liquidity and operational risks also play a role. The CNB can mitigate credit risk exposure by investing into government bonds with a high rating, collateralised deposits and non-collateralised deposits in banks with ultimate credibility. Interest rate risk, or the risk of a fall in the value of international reserves portfolio due to unwanted interest rate changes, can be controlled by means of the so called benchmark portfolios. Currency risk arises from cross-currency fluctuations between the kuna and the euro and the kuna and the American dollar. Currency structure of the international reserves of the CNB is determined in accordance with the currency structure of foreign liabilities of the Republic of Croatia and currency structure of goods and services imports. Liquidity risk can be controlled by investing reserves into easily marketable bonds and partly into short-term deposit instruments. Operational risk can be controlled by strict separation of functions and responsibilities, precisely defined methodologies and procedures and regular internal and external audits.

### Manner of International Reserves Management

As provided by a Decision on international reserves management, the Croatian National Bank manages international reserves in two ways: 1) actively, in accordance with its own guidelines and 2) passively, in accordance with the assumed foreign exchange obligations.

The CNB actively manages that part of international reserves which is formed through outright purchase of foreign currency from the banks and the MoF at foreign exchange interventions of the CNB, in accordance with the set benchmark portfolios, thus achieving an adequate risk-return profile. The other part of the reserves, formed on the basis of allocated foreign currency reserve requirements of banks, deposits of the MoF, repo transactions and special drawing rights (SDR), is managed passively by the CNB, depending on the assumed foreign exchange obligations, and with the aim of ensuring protection against currency and interest rate risks.

The terminology of reporting on international reserves of the CNB includes the terms of gross and net reserves. Gross reserves imply total international reserves. Net reserves imply the share of reserves actively managed by the CNB and SDR and foreign cash.

### 2.2.2 International Reserves in 2007

Total international reserves of the CNB rose by EUR 582.1m in 2007 or by 6.7% compared with 2006. On the last day of December 2007, total international reserves of the CNB were EUR 9.3bn, compared with EUR 8.7bn at the end of 2006.

**Table 2.1 Monthly Changes in Total CNB International Reserves**

end of period, in million EUR

Month	Total reserves
December 2006	8,725.14
January 2007	9,172.39
February 2007	9,565.23
March 2007	9,519.57
April 2007	9,488.24
May 2007	9,451.33
June 2007	9,170.18
July 2007	9,411.93
August 2007	9,222.84
September 2007	8,794.94
October 2007	8,973.60
November 2007	9,112.08
December 2007	9,307.21
<b>Change Dec. 2007 – Dec. 2006</b>	<b>582.08</b>

Note: Differences between balances shown in this Table and in Table H7 of the Statistical Appendix are due to a somewhat different coverage of international reserves, i.e. the exclusion of the reserve position of the Republic of Croatia in the International Monetary Fund from data shown in this Table.

Source: CNB.

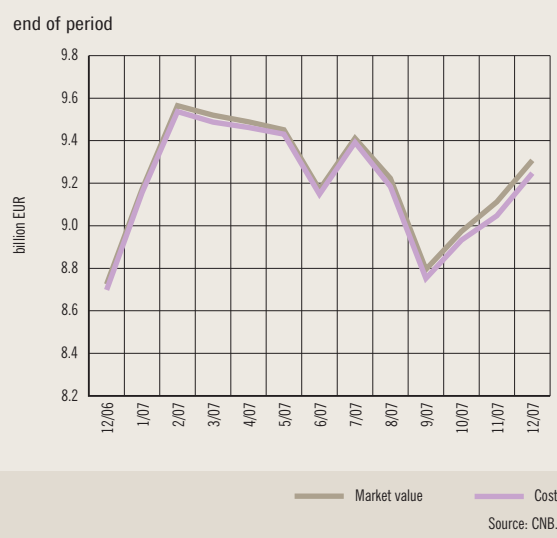
The main factors leading to changes in the level of total international reserves in 2007 on the inflow side were:

- EUR 839m in foreign exchange interventions involving purchases of foreign currency from the banks,
- EUR 364m in income from international reserves investment,

and on the outflow side:

- a fall of EUR 309.5m in total allocated foreign currency reserve requirements (with the marginal reserve requirements falling by EUR 369.6m while the reserve requirements rose by EUR 60.1m),<sup>1</sup>
- EUR 178.8m in foreign currency sale to the Ministry of Finance,
- EUR 138m in cross-currency changes arising from the weakening of the American dollar against the euro at the end of 2007, compared with the end of 2006.

**2.18 International Reserves of the CNB**



## Total CNB Turnover in the Foreign Exchange Market in 2007

In 2007, the central bank engaged in foreign currency purchase and sale transactions with domestic banks, the Ministry of Finance and foreign banks. These transactions led to a net increase in international reserves of the CNB of EUR 665.2m, and an issue of HRK 4.8bn in 2007.

<sup>1</sup> The fall in allocated foreign currency reserve requirements shown in the Monetary Authorities Accounts amounts to EUR 310.5m, while the increase in foreign currency reserve requirements shown in that Account amounts to EUR 59.1m. Differences between data shown in the Monetary Authorities Accounts and in this text can be attributed to differences in data coverage, i.e. inclusion of interest arrears under foreign currency reserve requirements in the Monetary Authorities Accounts.

**Table 2.2 Total CNB Turnover in the Foreign Exchange Market, 1 January – 31 December 2007**

at the exchange rate applicable on the value date, in million

	Purchase (1)		Sale (2)		Net (1 – 2)	
	EUR	HRK	EUR	HRK	EUR	HRK
Domestic banks	839.00	6,132.05	0.00	0.00	839.00	6,132.05
Ministry of Finance	5.12	37.32	178.81	1,321.18	-173.70	-1,283.86
Foreign banks	0.00	0.00	0.07	0.55	-0.07	-0.55
<b>Total</b>	<b>844.12</b>	<b>6,169.37</b>	<b>178.89</b>	<b>1,321.73</b>	<b>665.23</b>	<b>4,847.64</b>

Source: CNB.

At its foreign exchange transactions with domestic banks in 2007, the CNB purchased EUR 839m, creating HRK 6.1bn in kuna liquidity. The central bank intervened in the foreign exchange market four times in 2007 by purchasing foreign currency from the banks. Two interventions took place in July, one in October and one in December. It should be noted that the monetary effect of the end-December 2006 foreign exchange intervention followed in early 2007. There were no sales of foreign currency to the banks in 2007.

**Table 2.3 CNB Foreign Exchange Interventions with Domestic Banks, 1 January – 31 December 2007**

at the exchange rate applicable on the intervention date, in million

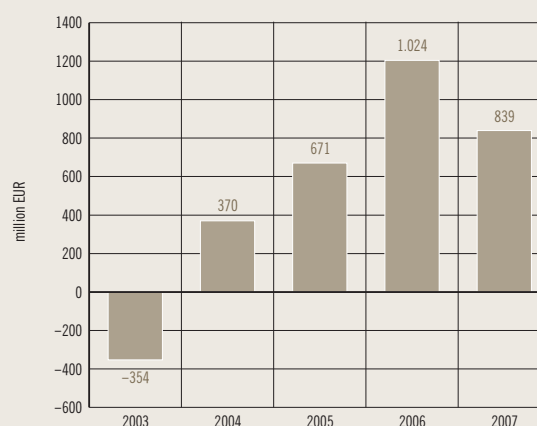
Month (number of interventions)	Purchase (1)		Sale (2)		Net (1 – 2)	
	EUR	HRK	EUR	HRK	EUR	HRK
January (1)	177.00	1,302.25	0.00	0.00	177.00	1,302.25
February	0.00	0.00	0.00	0.00	0.00	0.00
March	0.00	0.00	0.00	0.00	0.00	0.00
April	0.00	0.00	0.00	0.00	0.00	0.00
May	0.00	0.00	0.00	0.00	0.00	0.00
June	0.00	0.00	0.00	0.00	0.00	0.00
July (2)	139.00	1,014.25	0.00	0.00	139.00	1,014.25
August	0.00	0.00	0.00	0.00	0.00	0.00
September	0.00	0.00	0.00	0.00	0.00	0.00
October (1)	355.20	2,588.80	0.00	0.00	355.20	2,588.80
November	0.00	0.00	0.00	0.00	0.00	0.00
December (1)	167.80	1,226.74	0.00	0.00	167.80	1,226.74
<b>Total</b>	<b>839.00</b>	<b>6,132.05</b>	<b>0.00</b>	<b>0.00</b>	<b>839.00</b>	<b>6,132.05</b>

Source: CNB.

In 2007, the CNB sold to the Ministry of Finance EUR 178.8m, withdrawing HRK 1.3bn from the system, and purchased from the Ministry of Finance EUR 5.1m, thus creating HRK 37.3m.

**2.19 CNB Foreign Exchange Interventions with Domestic Banks**

in net amounts



Source: CNB.

## Risks in International Reserves Management and Structure of International Reserves Investment in 2007

### Credit Risk in International Reserves Management

Credit risk is the risk that a counterparty will not settle an obligation in full, either when due or at any time thereafter.

The CNB provides for three levels of protection against credit risk:

- the CNB invests international reserves only in financial institutions and countries with the highest credit rating. When evaluating credit worthiness, special attention is paid to ratings published by internationally recognised rating agencies;
- investments in individual financial institutions and countries are restricted. This ensures credit risk diversification; and
- a large share of investment is collateralised – the CNB requires that security be provided in the form of government bonds of the same or greater market value than the value of the funds placed.

**Table 2.4 Structure of International Reserves Investment According to Credit Risk as at 31 December 2007**

at cost, in million EUR

Investment	Net reserves	Reserve requirements	Marginal reserve requirements	Ministry of Finance	Total reserves	31/12/2007	31/12/2007
						As % of net reserves	As % of total reserves
Government bonds <sup>a</sup>	4,705.07	300.00	95.48	–	5,100.55		
Covered bonds	19.56	–	–	–	19.56	0.27	0.21
International financial institutions	149.69	–	–	–	149.69	2.05	1.62
Central banks	41.32	–	–	0.08	41.39	0.57	0.45
Banks	2,376.36	959.84	590.00	9.93	3,936.13	32.59	42.57
<b>Total</b>	<b>7,291.99</b>	<b>1,259.84</b>	<b>685.48</b>	<b>10.01</b>	<b>9,247.32</b>	<b>100.00</b>	<b>100.00</b>

<sup>a</sup> Also included are reverse repo agreements which are collateralised by government bonds and bonds of German federal states.  
Source: CNB.

According to the degree of credit risk exposure, total international reserves have been divided into funds invested in government bonds, covered bonds, banks, international financial institutions and central banks. In terms of the structure of total international reserves, as at 31 December 2007, investments in government bonds accounted for the largest share of the total (55.16%). These investments are least exposed to credit risk as they comprise investments in bonds of countries with the highest credit rating. The share of total international reserves invested in non-collateralised instruments with the banks stood at 42.57% at the end of 2007 while investments in international financial institutions accounted for 1.62% of the total international reserves. Of the total international reserves, 0.45% were invested in central banks and 0.21% were invested in covered bonds at the end of 2007.

In terms of credit rating, half of the total reserves in 2007 (EUR 4.7bn or 50.56%) were invested in securities of countries and banks with the highest Aaa rating (according to Moody's rating agency), while 23.91% and 19.35% were invested in the banks with Aa1 and Aa2 rating, respectively. Banks rated Aa3 and A1 accounted for a mere 4.57% of international reserves investment while the remaining share (1.62%) of total international reserves was invested in the International Monetary Fund and the Bank for International Settlements. Evidently, over 95% of all international reserves investments of the CNB involved investments in issuers from groups with one of the three highest ratings and the IMF and the BIS.

### Currency Structure of International Reserves

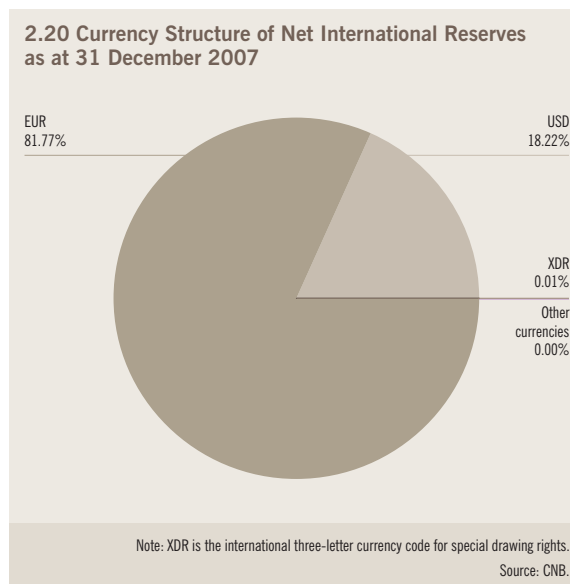
The CNB Council has defined precisely in its Decision on international reserves management the principles for the calculation of currency structure of net international reserves of the CNB as well as currency structure of the part of reserves passively managed by the CNB.

The currency structure of net international reserves is adjusted twice a year with the currency structure of the projected amounts of external debt repayments (principal and interest) of the Republic of Croatia for the following year and with the currency structure of goods and services imports in the past year. International reserves currency risk management by the CNB thus has to be observed in a broader context as the currency structure of international reserves of the CNB is used to reduce exposure to currency risk arising from foreign obligations of the Republic of Croatia.

As at 31 December 2007, the share of reserves in euro in net international reserves was 81.77% and the share of reserves in American dollars was 18.22%.

For the sake of comparison, the share of reserves in American dollars in net international reserves of the CNB stood at over 35% in early 2000 and has fallen steadily ever since. During that period, the dollar weakened against the euro almost 40%.

Part of the reserves generated by allocated foreign currency reserve requirements and marginal reserve requirements, funds of the MoF, repo transactions and funds in SDR are managed passively by the central bank, depending on the currency structure of assumed foreign exchange obligations.



### Interest Rate Risk in International Reserves Management

Interest rate risk is the risk of a fall in the prices of bonds, or the value of foreign currency portfolios of international reserves of the CNB due to unwanted interest rate changes in fixed income instruments. Interest rate risk of international reserves of the CNB is controlled by means of precisely defined benchmark portfolios. Benchmark portfolios meet the required risk-return profile, by reflecting a long-term investment strategy of the reserves.

### Results and Analysis of CNB Foreign Currency Portfolio Management in 2007

In 2007, the yield on net CNB euro portfolio was 3.88% and the yield on net CNB dollar portfolio during the same period was 6.11%. The average size of the CNB euro portfolio that was actively managed by the CNB in 2007 stood at EUR 5.5bn and the average size of the dollar portfolio was USD 1.7bn.

**Table 2.5 Realised Income in 2007 and Average Yields on Net CNB Foreign Currency Portfolios**

at market value, in million EUR and USD and %

Portfolio	Realised income	Average amount invested	Annual yield rate					
	2007	2007	2002	2003	2004	2005	2006	2007
EUR	213.86	5,508.13	3.79	2.58	2.66	2.15	2.42	3.88
USD	105.82	1,731.95	2.38	1.40	1.27	2.74	4.60	6.11

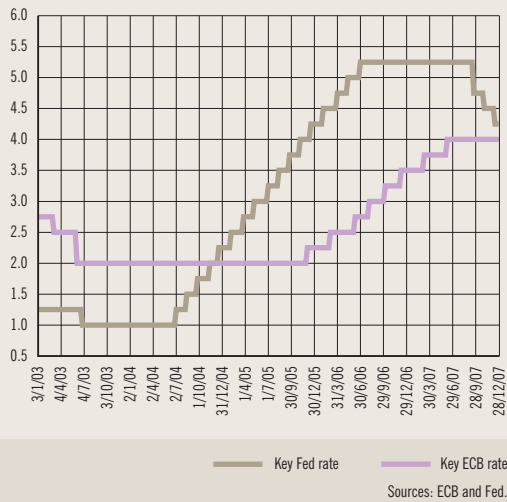
Source: CNB.

The European Central Bank raised its benchmark repo rate on two occasions in 2007, each time by 0.25%. As a result, ECB benchmark interest rate rose from 3.50% to 4.00% in 2007.

The Fed reduced its benchmark interest rate on three occasions in 2007 (by 50 basis points in September and 25 basis points in October and December), causing it to fall from 5.25% to 4.25% in 2007.

The yield on the CNB euro portfolio in 2007 was due to interest rates level in the eurozone and changes in eurobond prices. Bond prices fell in the first half of the year and rose in the second half of the year under the influence of the

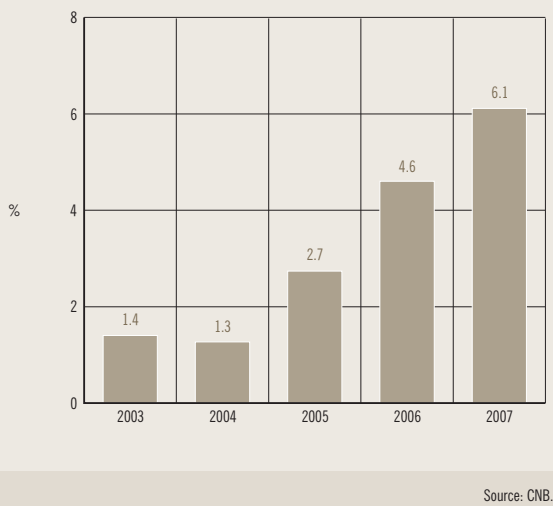
### 2.21 Changes in Key ECB and Fed Rates



### 2.22 Yields on the CNB Euro Portfolio



### 2.23 Yields on the CNB Dollar Portfolio



escalation of crisis associated with US subprime mortgage market. In such an environment, the yield on the CNB euro portfolio was 3.88%.

The yield on the CNB dollar portfolio had been growing for the third consecutive year. This is primarily the result of a sharp fall in yield to maturity on bonds in the second half of 2007. The crisis caused by US subprime mortgage market crash fuelled demand for safe investments such as government bonds, which, together with the reduced Fed key interest rate, led to a fall in yield to maturity and bond prices growth. In such an environment, the yield on the CNB dollar portfolio was 6.11%, the best result since the year 2000.