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Implementation of monetary policy and Central Bank instruments

The Central Bank's monetary instruments were reviewed in the first half of 1998. Since then they have remained unchanged. In effect, the 1998 review was the final stage in a process which began in 1984 when financial market restrictions gradually began to be lifted. The Bank's instruments have been tailored to match the building-up and evolution of financial markets over this period, and changed monetary goals have also had a decisive impact on their development. In addition, the 1998 review took into account the proposed instruments of the European Central Bank by virtue of Iceland's membership of the European Economic Area, and also the fact that these would become a kind of reference for other central banks, reflecting the state of the art in central banking.

Historical overview

Ever since the Central Bank of Iceland was established in 1961 its main instruments have been interest rates, for the initial period both the Bank's own rates and those of other credit institutions. Until 1986, the Central Bank was authorised by law to decide minimum interest rates for deposits and maximum rates for lending, as well as rates of interest in its own transactions. This authorisation was employed without exception until 1984, when interbank rates were deregulated. Following the review of the Central Bank Act in 1986, the abolition of the Usury Act in 1987 and the passing of the Interest Rates Act of 1987, the Central Bank's authorisation to determine the minimum and maximum interest rates of credit institutions was rescinded. This reform led to a major shift in monetary policy implementation, whereby the Central Bank had to rely on the impact of its own interest rates on those of credit institutions in order to exert the required influence on the level of domestic interest rates.

Another main monetary instrument during this period and in fact right through until 1993-1995 was restrictions on foreign exchange transactions. When the "Government of Restoration" took office in 1961 it deregulated foreign exchange transactions for goods and services, but other transactions, i.e. capital movements, remained subject to restrictions and government permits. Restrictions on capital movements supported the government's exchange rate policy, even though the external trade and services imbalance would eventually have an impact on the exchange rate of the króna.

Unlike many central banks, especially in the developing countries, the Central Bank of Iceland has never tried to target money supply. On several occasions the Central Bank attempted to impose restrictions on lending by deposit money banks (DMBs). The outcome was no better than in other countries. In general, the experience has been that restrictions on lending primarily produce short-term results and in an open financial environment they are futile, serving only to weaken the domestic financial system with respect to foreign competition.

Monetary policy goals over the period 1961-1986 were not always clear. Political restrictions on interest rate flexibility, a soft exchange rate policy and

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Box 1 The development of organised financial markets

Securities market: Iceland Stock Exchange established in 1985. In 1986 the Central Bank became the first market maker on the ISE. T-bills were listed on the ISE in 1987 with the Central Bank as their market maker. Housing bonds were listed in 1989, with Landsbréf Securities as market maker under an agreement with the then State Housing Fund. The first equities were listed in 1990. The Central Bank ceased market making for treasury bonds in 1996, when several market participants took over its role. In summer 2000 the Debt Management Agency and Housing Financing Fund invited tenders for market making for treasury bonds, housing bonds and housing fund bonds. The Treasury Debt Management Agency also invited tenders to act as main market maker for T-bills in October 2000, when the Central Bank plans to give up this function.

Foreign exchange market: A foreign exchange market was instituted in May 1993, operating under rules set by the Central Bank. The obligation of holders of foreign exchange permit holders to surrender currency was abolished at the same time. Initial market participants were the three commercial banks, Icebank (savings banks) and the Central Bank. The exchange rate of the króna was fixed at daily meetings at the Central Bank, with unrestricted interbank trading outside meetings. The forex market was restructured in spring 1997, when the participants, then numbering five besides the Central Bank, became market makers. An information system was introduced for quoting and transmitting two-way quotes for the USD, on which the Central Bank bases the official reference rate that it records between 10.45 and 11 every weekday morning. The number of participants in the forex market has dropped this year to five including the Central Bank.

Króna market: An interbank market for short-term deposits and lending between credit institutions. The market was set up in June 1998. It operates on the basis of rules set by the Central Bank in cooperation with market players. However, the Central Bank's role is solely to organise the market along similar lines to the stock exchange's organisation of the securities market. There are currently 7 market participants, i.e. the four commercial banks, two savings banks and Kaupthing investment bank. Trading takes place with maturities ranging from one day, one week, one month, 3 months, 6 months to 12 months. Market participants make live, indicative two-way quotes for all maturities within the course of the day in an on-line information system based on Reuters. Minimum bid amounts are defined and a maximum interest rate spread of 0.25 percentage points is set for lending with a duration longer than one month. Trading takes place through deposits in current accounts with the Central Bank, which settles trades in accordance with directives from market participants.

slack fiscal stance led to high inflation in both the 1970s and 1980s. The króna gave way and would be either devalued or allowed to slide, creating alternating periods of a firm exchange rate and depreciation.[2] In order to rebuild the financial system after the significant deterioration of financial stocks and assets following the inflation of the 1960s and 1970s, general indexation was authorised in 1979, initially on long-term instruments and soon afterwards on short-term deposits and lending. Indexation entailed greater interest rate flexibility, while the base rate for indexed liabilities remained subject to Central Bank decisions until 1986. Despite extensive indexation, imbalances therefore still remained in the financial markets.[3]

When legislation was reformed in 1986 there were still no active financial markets in Iceland apart from the traditional deposit and lending markets. Markets for money, securities and foreign exchange were non-existent. Admittedly, the Iceland Stock Exchange (ISE) had been established in 1985, but negligible trading had taken place there. To stimulate trading in treasury bonds, the Central Bank started acting as a market maker for them at ISE. This action by the Bank began to generate indications about the market yield for indexed treasury bonds[4] which soon

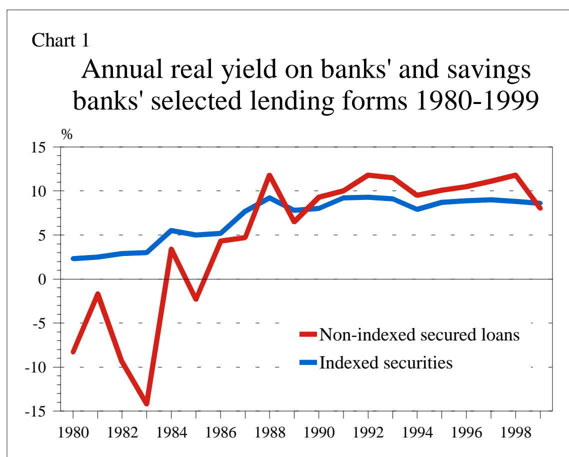
2. Described in Andersen, Palle S. and Már Gudmundsson (1998), "Inflation and Disinflation in Iceland", Working Papers, 1, Central Bank of Iceland.

3. See Jónsson, Bjarni Bragi (1998), "Verðtrygging lánsfjármagns og vaxtastefna á Íslandi", publication no. 3, Central Bank of Iceland.

became a reference for credit institutions in deciding interest rates on indexed borrowing and lending. Initially, the Central Bank did not intend to have a direct impact on treasury bond yields, although as a net seller or buyer it obviously could do so, given how shallow the market was at this time. Net Central Bank trading in treasury bonds has mainly been in equilibrium and the Bank has not aimed to exert an impact on yields apart from the period 1994-1995 when it attempted to consolidate a reduction in interest rates on indexed liabilities by buying bonds with treasury guarantees. The Bank's experience of such intervention was not encouraging. It transpired that the market had deepened so much that the Central Bank lacked the resources to have a permanent impact on yields there.

Evolution of monetary policy[5]

The sharp disinflation which took place around 1990 created new conditions for implementing economic policy. In part, the drop in inflation could be attributed to the changes that had taken place in the financial markets, probably headed by the fact that interest rates were now determined in the marketplace, since deregulation had led them to rise sharply. Other factors also had an impact, not least the slack that developed in total demand and generated sizeable unemployment. It has also been argued that indexation of financial obligations contributed to the gradual realisation by the labour movement that it was futile to insist on large nominal wage rises, which only led to a wage-price spiral. Household indebtedness had grown sharply in the 1970s with the indexation of an increasing part of credit system lending. Interest rates on unindexed lending also kept pace with inflation. Thus inflation exerted an increasing effect on the financial position of indebted households, raising their payments burden and dampening



Box 2 Exchange rate policy

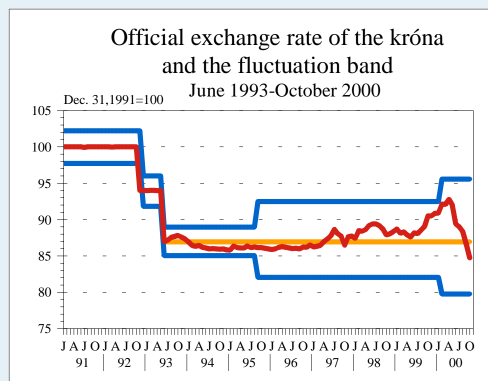
Under Art. 15 of the Central Bank Act, the Bank decides, after consultation with the government, how the value of the Icelandic króna against foreign currencies should be determined. Thus exchange rate policy is the joint decision of the government and the Central Bank.

The present exchange rate policy is based on a decision from February 11, 2000. Its main principles are:

Reference: A currency index based on the composition of external trade in goods and services in the preceding year. The index is reviewed annually and its composition is announced.

Central rate: The central rate of the currency index is 115.01.

Deviation bands: 9% to either side. Thus the upper limit of the currency index is 125.36 and the lower limit 104.66.



4. All Icelandic treasury bonds were indexed at this time. The issue of unindexed treasury bonds was not resumed until 1995.

5. Monetary policy and its framework in the 1990s are also discussed by Gudmundsson, Már and Yngvi Örn Kristinsson (1997) in "Peningastefna á Íslandi á 10. áratugnum", *Fjármálatíðindi*, 44, pp. 103-128.

the public's willingness to win nominal wage rises for which there was no economic justification.

What this situation did was to establish a firmer exchange rate immediately at the start of the 1990s. In fact, a firm exchange rate was one of the underlying principles in the wage agreements which catalysed disinflation. The króna remained stable from 1990 until November 1992 when it was devalued by 6%, primarily in response to devaluations by major trading countries.[6] The króna was devalued by a further 7.5% in June 1993 following a decision to cut back fishing quotas. Neither of these devaluations had any sizeable impact on domestic prices, since they were made in a climate of economic contraction. Since the devaluation of June 1993, the central rate of the króna has remained unchanged and its exchange rate has fluctuated around this rate depending on economic conditions and the tightness of the Central Bank's monetary stance. Exchange rate policy since May 1993 has involved maintaining the exchange rate of the króna within announced target bands which are decided in consultation between the Central Bank and the government. Initially the zone was 2.25% in either direction from the central rate. This was extended to 6% in autumn 1995 and finally to 9% early in 2000. The currency reference was reformed in autumn 1995 with the introduction of a basket weighted against external trade in goods, replacing the earlier basket comprised of the ECU (76%), US dollar (18%) and yen (6%).

Since 1993, the Central Bank has given growing emphasis to price stability as its main monetary goal and played down the importance of the exchange rate, which it defines as an intermediate goal towards the main goal of price stability. Central Bank interest rates, primarily those in its repo transactions[7] with credit institutions, became its main instrument, while the importance of open-market trading in securities has gradually diminished as the securities market has strengthened and other players now undertake the role handled there by the Central Bank in the market's early years.

The Central Bank has focused on reducing its operations in securities markets and divesting itself of the role of market maker for treasury bonds and notes. The reason is that the Bank considers frequent intervention undesirable since it could impair the credibility of interest rate formation in these markets. In turn, this could reduce secondary trading in these instruments and hinder primary sales. Furthermore, the Bank believes that the depth of the bond market in Iceland, as in other countries, prevents it from having a permanent impact on interest rates.

In order to divest itself of market making in treasury bonds, the Bank signed agreements in 1996 whereby several members of the ISE undertook to perform this role.[8] These agreements prefigured the decision by the four largest bond market players to undertake market making on their own terms in spring 1998.[9]

However, the Central Bank does not rule out the possibility of its own trading in treasury bonds on the ISE, although this would only happen following an ad hoc decision by the Bank and then in order to achieve specific monetary goals. In the present scenario it is difficult to see under what conditions this could prove necessary.

Monetary policy channels

Central Bank interest rates, or the repo yield, are its main instrument. These lending terms create the marginal credit yield for credit institutions and thereby impact their deposit and lending rates. Thus a change in Central Bank interest rates as a rule leads to comparable changes in interest rates within the credit system with some lag.[10] The impact of changes in Central

6. Linkage of the Finnish markka, Swedish krona, Norwegian krone and sterling with the ECU broke down in autumn 1992 and these currencies fell against it. The real change in exchange rate was less than 6%, since the above currencies weakened against the Icelandic króna too.

7. Repos (repurchase agreements) involve trading in securities with an agreement to repurchase them after a specified time at a prior negotiated rate. In effect they function like lending with collateral in the securities themselves, the difference being that the "lender" retains ownership of the securities during the contract period.

8. In formal terms these were custody agreements whereby the Central Bank assigned investment of part of its treasury bond portfolio to several market players, in return for their operating as market makers for specific categories of treasury bonds which were classified as benchmark bonds.

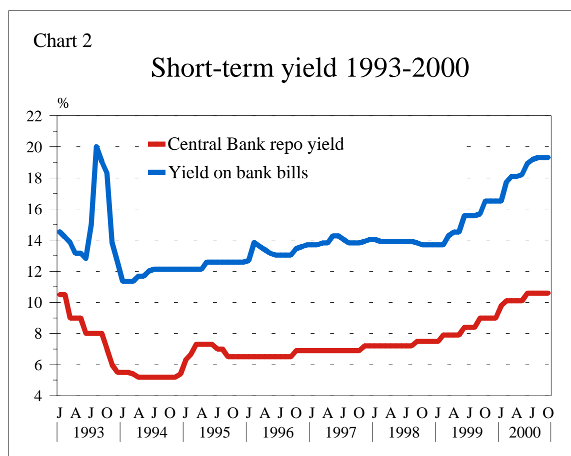
9. Two of the market makers ran into difficulties in spring 2000 and notified the ISE of their intention to cease market making for treasury bonds. The State Debt Management Agency and Housing Financing Fund reacted by inviting tenders for market making with their market bonds. Market makers under these agreements are paid a commission on turnover.

10. Credit market conditions can also mean that the Central Bank's changes in its interest rates are not transmitted to those of the credit institutions.

Box 3 Central Bank interest rate spectrum

	Nominal interest	Yield
Current accounts	6.9%	7.1%
Notes of Deposit	10.9%	11.5%
Required deposits....................	9.7%	10.1%
Repos	-	11.4%
Overnight lending	12.4%	13.1%

Bank rates is transmitted through two channels.[11] One is the impact caused by a change in interest rates on capital flows into and out of Iceland if external capital transactions are unregulated. This impact can be rapid, but its effectiveness is highly dependent on exchange rate expectations. All things being equal a rise in Central Bank rates contributes to an appreciation of the króna, which serves to tighten economic restraint. Secondly, a change in interest rates has an impact on consumption and investment, but experience shows that this is only felt after a fairly long lag. Iceland's twin interest rate spectrum, rooted in the widespread use of indexation in bond and deposit transactions, means that Central Bank interest rates do not have as straightforward an impact on domestic interest rates as in some other countries. The opening of external financial markets also reduces the effectiveness of



Central Bank rates,[12] due to substitution between domestic and foreign markets.

Central Bank instruments after the 1998 review[13]

Broadly speaking, the review of the Central Bank's instruments in 1998 was founded on three viewpoints. Firstly, the Bank was eager to shed its regular direct trading with treasury paper in the secondary market and see these markets able to operate without its day-to-day involvement. The Central Bank would primarily enter these markets on an irregular basis, in particular the market for T-bills on account of their importance for the credit institutions' liquidity. It announced the aim of abandoning market making for T-bills as soon as possible. This entailed that repos would replace direct trading in treasury securities as the main channel for the Central Bank's liquidity transactions with credit institutions. Secondly, the Bank was interested in basing its monetary policy measures above all on relaying clear messages about its policy rates to the financial markets. Consequently, it was necessary to create a Central Bank facility for credit institutions to reduce the fluctuations in money market interest rates resulting from fluctuations in their liquidity, for reasons including collection of treasury revenues. Heavy swings in money market rates could create uncertainty about the level of interest rates that the Central Bank was aiming for. Thirdly, the Bank wanted to contribute to the creation of an interbank domestic currency market, which was ruled out for as long as the credit institutions' had daily access to Central Bank repos. Fourthly, the Central Bank wanted to harmonise access by different credit institutions to trading with it, which until then had largely been confined to DMBs.[14] Finally, as mentioned earlier, the Bank wanted to harmonise its facilities as far as possible with those planned in the euro countries.

An important reform had been made to the foreign exchange market framework in spring 1997

11. The impact of Central Bank rates on other interest rates is discussed by Pétursson, Thórarinn G. (1996) in "Tímaróf vaxta og skammtímavaxtaspár", *Fjármálatíðindi*, 43, pp. 169-183.

12. In an ideal situation, i.e. an informed market with no trading costs and free capital flows, an individual central bank has no scope for an independent monetary policy if a fixed exchange rate policy is implemented.

13. Central Bank of Iceland annual report 1998, p. 20.

14. Facilities for market makers for treasury-guaranteed bonds was also open to securities companies.

when market players took over the informal role that the Central Bank had had as market maker. In effect the Bank had been the sole market maker there ever since the foreign exchange market was established in 1993, although this was an informal arrangement, and the introduction of new players substantially reduced Central Bank trading there. As a result of this reform, interbank market trading burgeoned and sharper intra-day and day-to-day fluctuations were seen. In the Central Bank's opinion this was a positive development and exchange rate movements reflected conditions in the foreign exchange market more effectively than before. Under the new framework, Central Bank trading in the foreign exchange market was entirely confined to two types of operation: direct interventions to impact the exchange rate of the króna and meeting the treasury's currency requirements.

The Central Bank has not revealed its policy for foreign exchange market operations except insofar as it is compelled to defend the target zone set for the currency index. Central Bank operations in the foreign exchange market can serve a dual purpose: defending specific exchange rate limits and dampening fluctuations in the exchange rate to prevent large movements from producing an exaggerated response on the part of market players, i.e. to prevent panic in the marketplace. Nor do central banks which target the exchange rate as a monetary instrument customarily jeopardise their exchange rate policies by revealing their policies for market operations. However, the Bank has immediately announced any action it has taken.

Survey of monetary instruments

Broadly speaking, Central Bank instruments can be divided into two categories: Standing facilities and open market operations. After the 1998 reform, the Bank has four standing facilities, i.e. current accounts, an overnight lending facility, certificates of deposit and required reserves. The open market operations available to the Bank involve outright transactions in the bond, T-bill and foreign exchange markets, and repo auctions.

As mentioned earlier, the Central Bank has hardly been active in the bond market since 1995 but is still a market maker for T-bills, although an end to this arrangement is now in sight. Trading by the Bank in the foreign exchange market has decreased substantially and has become rare after the 1997 reform.

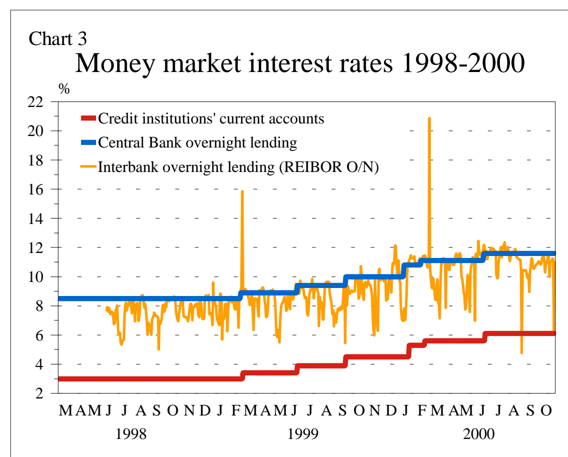
Credit institutions' current accounts

The credit institutions' current accounts with the Central Bank serve a dual purpose. One is to act as a depository for their liquid assets which are left over at the end of the day and cannot be invested more profitably for shorter or longer periods. The other is that they constitute settlement accounts for the credit institutions' transactions with the Central Bank. Netting between deposit institutions is handled through these accounts as well as settlements for trading between them and their settlements with the Central Bank. No overdraft is allowed on these accounts and institutions which overdraw have to borrow overnight with one-day retroactive penalty interest. Interest terms on these accounts set the floor for overnight deposit rates in the interbank market, since there is no need for players there to accept a lower rate of interest than is available on such accounts. Interest rates on current accounts are advertised and announced in advance.

Overnight borrowing

Credit institutions trading with the Central Bank are entitled to overnight credit against securities which the bank accepts as collateral. These securities are the same ones which qualify for repo transactions. No ceiling is imposed on overnight borrowing for as long as credit institutions have securities which can

Chart 3
Money market interest rates 1998-2000



Box 4 Overview of Central Bank instruments

Fixed trading formats:

Current accounts: Deposits of credit institutions' undisposed assets. Settlement accounts for netting between DMBs and in interbank trading, including trading with the Central Bank. Interest rates on these accounts form the floor for overnight interest rates in the interbank market.

Overnight lending: Provided on the request of credit institutions, guaranteed with the same collateral that qualifies for repo transactions. Overnight interest rates form the ceiling for overnight rates in the interbank market.

Certificates of deposit: Maturity 90 days. Sold on request of credit institutions. Unlisted securities but qualify for repo trading. Their role is to create a floor for three-month money market yields.

Required reserves: Obligatory for credit institutions which are not dependent on the treasury budget authorisation for their operations.

The required reserves base is the balance sheet total less equity, interbank liabilities and certain items. Based on the position at the end of the preceding month.

Required reserves ratio: The part of the required reserves base which is tied for one year or more: 1.5%. The remainder: 4%.

Maintenance period: From the 21st of each month to the 20th of the following month.

Fulfilment: The average deposit in the account shall reach the specified required deposit amount.

Interest: Rate advertised in advance by the Central Bank and posted monthly.

Market actions:

Securities market trading: Limited to treasury-guaranteed securities. The Central Bank is still the market maker for T-bills but rarely trades in treasury bonds.

Foreign exchange market operations: Irregular and not announced in advance, only afterwards. Their role is to back up the Central Bank's exchange rate policy.

Repos: Weekly auctions of 14-day repurchase agreements. Qualified securities are treasury-guaranteed paper with active market making on the ISE, according to a list advertised by the Central Bank. Auctions can be either for fixed prices or where the total amount of agreements on offer is announced. Fixed-price auctions have been the rule so far.

be accepted as collateral. Overnight interest rates are announced in advance. They form the ceiling for overnight lending in the domestic interbank market since credit institutions have no need to borrow overnight at a higher rate unless they have no securities which qualify as collateral.

Through the interest rates on its current accounts and overnight lending, the Central Bank establishes the floor and ceiling, or a corridor, for overnight rates in the interbank market and thereby prevents excessive fluctuations in them. Excessive interbank interest rate fluctuations could have a disruptive effect on credit and securities markets and create uncertainty about the Central Bank's monetary policy.

Certificates of deposit

Credit institutions trading with the Central Bank have the option of buying certificates of deposit from it. The certificates are non-standardised bonds carrying a fixed rate of interest and are not listed on the ISE. They are sold at the credit institutions' discretion but the Central Bank reserves the right to remove them from sale without notice. Certificates of deposit serve a dual purpose: to create a floor for yields on three-month money market options and to ensure the constant availability of treasury-guaranteed money market paper tied for three months.

Required reserves

Required reserves are an obligation on the part of credit institutions to maintain a specific amount in their current accounts with the Central Bank, relative to a given balance sheet aggregate for the institutions subject to this obligation.

Extensive changes were made to the required reserves framework in Iceland in 1998 in connection with the reforms to the Central Bank's instruments then. Until that time, required deposits only applied

to DMBs, entailed a demand for a specific deposit to be maintained on a blocked account with the Central Bank and only covered the DMBs' disposable domestic funds. The 1998 reform extended the scope of required deposits to include all credit institutions other than those which are dependent on treasury budget funding for their activities. Also, the required reserves base was extended to cover, broadly speaking, balance sheet totals less equity and interbank liabilities towards those domestic institutions which are also obliged to maintain required deposits. These two reforms aimed to level the field between credit institutions and prevented them from using foreign instead of domestic funds due more favourable treatment of foreign funds. Instead of having the required amount blocked in Central Bank accounts, institutions are now obliged to maintain a minimum average specified deposit during each period, from the 21st of each month to the 20th of the following month. Required reserves for each month are calculated on the basis of balance sheet figures at the end of the preceding month. The main purpose of allowing credit institutions to meet an average required deposit per period is to enable them to use this as a buffer to counter liquidity fluctuations, which otherwise would generate fluctuations in interbank market interest rates. In Iceland, the arrangement for collection of treasury revenues, for example, causes considerable fluctuations in the DMBs' liquidity positions from one month to the next. The reason is that VAT is collected every two months (with a due date on the 5th of the month).[15] Besides treasury collections, many other reasons can underlie liquidity fluctuations.

Two levels of required deposit are set: 1.5% for disposable assets with an original tied term of one year or more, and 4% for other disposable assets.

Interest rates on required deposits are advertised and announced in advance, and lie between the current account and overnight rates.

Repos

Following the 1998 reform, Central Bank repo transactions take place weekly – every Tuesday – and involve repurchase agreements with a maturity of two weeks. In effect the repos are auctioned and the Central Bank announces in advance whether it intends to buy or sell securities at these auctions. Furthermore, the nature of the auctions can vary depending upon whether the Central Bank fixes the yield or the volume of repos, in which case yield is determined by auction trading. In the former case, the total volume of agreements made depends on the bids placed by credit institutions. The institutions with access to repo agreements are the same ones subject to required reserves, which in fact is a rule in all credit institution trading with the Central Bank. Until now, the Central Bank has only used the fixed yield method in its auctions, with the advantage that this then signals a clear message about the level of interest rates. The other approach, i.e. fixing the volume of agreements offered, could create some uncertainty about the yield at the auction, making it crucial for the amount on auction to be correctly estimated in order to produce the interest rate outcome that the Bank aims for. On first impression it may appear rather risky to allow the total amount of Central Bank facilities to be determined by bids from credit institutions, but it should be remembered that the Bank attempts to manage short-term yields rather than money stock, with the aim of exerting an impact on other interest rates, currency movements, exchange rate and demand in the economy. Its ultimate goal is price stability. Theoretically it is irrelevant, assuming that demand for Central Bank facilities is a defined relationship, whether the interest rate or volume of repurchase agreements is fixed. This means that demand for Central Bank base money should not vary depending upon whether price or volume is determined. A specific degree of demand corresponds to specific rates of interest and if supply of repos were fixed these rates ought to be identical.

Conclusion

The next task in this area is to relieve the Central Bank of its function as market maker for T-bills. As mentioned earlier, agreements are under preparation between the Treasury Debt Management Agency and market players at ISE regarding their participation in primary sales of T-bills and secondary market making, i.e. a primary dealer arrangement. This will create conditions for the Central Bank to pull out as market maker of treasury bills. The system of facili-

15. The required deposit period was selected with the aim of placing the VAT due date midway between two halves of a deposit period.

ties which the Bank established in 1998 has functioned well. It appears to transmit the Bank's interest rate policy clearly to market participants and over the past two years the credit institutions' unindexed interest rate terms and money market interest rates have by and large kept pace with Central Bank policy rates. Currency flows and the exchange rate have generally shown the intended movements when the Central Bank has altered its interest rates. The impact of the Bank's policy rate on credit demand, however, appears less clear and is delivered with a greater lag. This is probably caused by the heavy weighting of indexation in the credit market, since real yield on indexed items does not follow the Bank's policy rate.

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