The Eurosystem's monetary policy framework – experience to date and measures to improve its efficiency

The Eurosystem's monetary policy instruments have served well in their first four years. They have enabled the Eurosystem to achieve its operational goal, the effective steering of short-term money market rates, and to signal its monetary policy objectives in a sufficiently precise and differentiated manner. The Eurosystem nonetheless carried out a thorough efficiency analysis of its monetary policy instruments during 2002 and presented suggestions for operational and technical improvements for discussion in a public consultation procedure. The principal aim was to avoid speculative underbidding in the main refinancing operations and to achieve some consolidation of the range of monetary policy instruments. To be more specific, the proposals included changing the timing of the reserve maintenance period, shortening the maturity of the main refinancing operations to one week and suspending the longer-term refinancing operations. Taking account of the numerous comments and suggestions made by the Eurosystem's monetary policy counterparties and by financial sector associations, the Governing Council of the ECB decided in January 2003 to implement the first two measures in the first quarter of 2004 but not to suspend the longer-term refinancing operations.

Functions of the monetary policy instruments

Interdependence of the instruments

The Eurosystem has a number of instruments which it can use to implement its monetary policy. This can be explained not least by the fact that in order to maintain continuity when the transition was made to the third stage of European economic and monetary union, it was decided to include instruments that had proved their worth in various participating member states in the set of monetary policy instruments. Nonetheless, certain instruments predominate. They are closely interrelated in operational terms and, to an extent, interdependent. In the public consultation procedure, the form of the minimum reserve system, the regular open market operations and the standing facilities were accordingly presented as a single discussion package.

Reserve requirements

All euro-area credit institutions have to comply with minimum reserve requirements, the aim being to create, or enlarge, a structural liquidity shortage at the banks vis-à-vis the Eurosystem. This ensures that the credit institutions are sufficiently dependent on refinancing through the Eurosystem and that their demand for central bank money is stabilised. This in turn lays the foundation for efficient money market management by means of regular, liquidity-providing open market operations. The credit institutions have to comply with their minimum reserve requirements only as an average of a reserve maintenance period lasting several weeks, the aim being for the institutions to attenuate the daily fluctuations in money market liquidity by varying their compliance profile. Average compliance thus curbs the volatility of the overnight rate, thereby stabilising money market interest rates. The institutions' holdings of required reserves are remunerated at the average marginal rate of allotment in the main refinancing operations over the reserve maintenance period concerned, with the result that the minimum reserve requirement represents virtually no cost factor for the credit institutions. Excess reserves, however, are not remunerated and shortfalls are subject to sanctions.

Standing facilities

The possible range of fluctuations of the overnight rate in the interbank market is restricted by the interest rates on the two standing facilities. The deposit facility can be used to absorb excess liquidity and the marginal lending facility can provide additional overnight liquidity – but only up to the level of the required collateral.

Open market operations

While the Governing Council of the ECB signals the general stance of monetary policy by the rates on the standing facilities, it uses the regular open market operations (main and longer-term refinancing operations) to steer the current interest rate and to manage the liquidity situation in the money market, in particular the evolution of the overnight rate. In addition to the minimum reserves, credit institutions' refinancing needs are geared to the market factors determining liquidity (such as the volume of banknotes in circulation, the Eurosystem's net foreign reserves and government deposits at the national central banks). Apart from the regular refinancing operations, the Eurosystem can draw on a range of further open market operations as and when required in order to affect liquidity or interest rates primarily on a short-term basis.

Main refinancing operations

The main refinancing operations are the key element in the Eurosystem's operational monetary policy approach. By changing the minimum bid rate (variable rate tenders) or the fixed interest rate (fixed rate tenders), the Governing Council of the ECB signals its monetary policy stance and steers the terms at the short end of the money market, the starting point in the monetary policy transmission process. The main refinancing operations cover most of the refinancing needs. They are offered on a weekly basis with a two-week maturity, meaning that at any given time, two overlapping main tender operations are outstanding. The main refinancing operations are carried out by the national central banks in the Eurosystem in a decentralised auction procedure in accordance with standard criteria. The allotment decision for the Eurosystem as a whole is taken by the Executive Board of the ECB in line with the monetary policy stance decided by the Governing Council of the ECB.

Longer-term refinancing operations

The longer-term refinancing operations are conducted once a month as variable rate tenders with no minimum bid rate and a maturity of around three months. These basic tenders are not used to give monetary policy signals. The market is therefore informed in advance of the volume of the allotment and the Eurosystem operates merely as a "rate taker". This type of operation is intended to provide, in particular, smaller credit institutions which are less active in the money market with longer-term basic refinancing directly from the central bank, reflecting one aspect of the Bundesbank's former, traditional rediscount credit. The allotment volume for the longer-term refinancing operations is generally determined for one year in advance in line with liquidity needs in such a way as to leave the Eurosystem sufficient room for manoeuvre in the main refinancing operations.

Efficiency of the monetary policy instruments

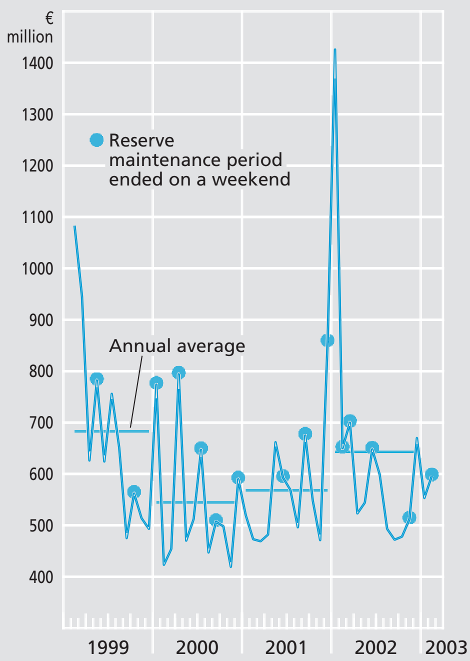
Experience since the start of monetary union ...

The Eurosystem's monetary policy framework has been shown to function well. First, the Eurosystem has sent the intended monetary policy signals promptly to the markets; second, the volatility of the overnight rate has been contained despite the low frequency of interventions in the money market; and third, as a rule the liquidity needs have been met and money market developments stabilised by the weekly main refinancing operations, with ultimately little use being made of the standing facilities and only very rare use of fine-tuning operations. Finally, cross-border liquidity transfers among the banks have also helped to keep money market interest rates at the European financial centres virtually identical, with the result that it was not inaccurate to speak of a well-integrated European money market.

... with the minimum reserves ...

Nonetheless, it became clear that the instruments did not function completely smoothly under all conditions and thus left scope for enhancing efficiency. For example, the timing of the reserve maintenance period – from the

Excess reserves in the euro area



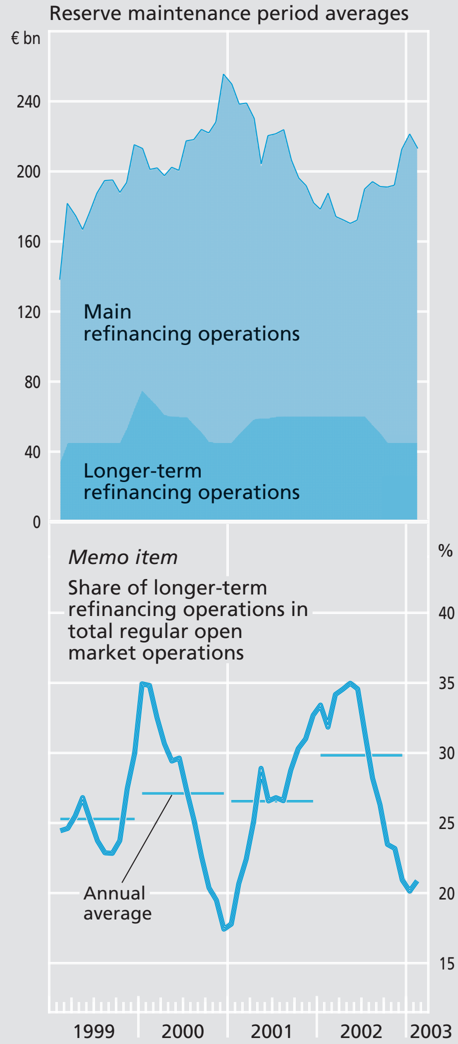
Deutsche Bundesbank

24th day of a month to the 23rd of the following month – sometimes proved problematic. The Italian tax payment date, which is accompanied by wide fluctuations of government balances at the Banca d'Italia that are difficult to forecast, systematically coincided with the last day of the reserve maintenance period. This meant that even after the final tender allotment of the period, fairly large risks for liquidity and interest rate developments persisted right up to the end of the reserve maintenance period. This problem became somewhat less acute from July 2002 onwards because from that date most tax payments to the Italian government's cash account at the Banca d'Italia have generally been made before the 23rd day of a month. Moreover, the credit institutions incur costs if the end of the reserve maintenance period falls on a weekend or on a TARGET holiday. In order to play safe and especially to avoid penalties for reserve shortfalls, credit institutions are inclined to hold higher credit balances at the national central banks on the last business day of a reserve maintenance period than are absolutely necessary. This results in larger, generally unremunerated excess reserves than when the end of the maintenance period falls on a business day. However, reserve management can also become expensive for the banks if the reserve maintenance period starts on a non-business day. In that case recourse to the standing facilities which is concentrated at the end of the maintenance period is carried forward into the new maintenance period. If the marginal lending facility is used, financing in the new period is relatively expensive. Resources which have been placed in the deposit facility at the end of the reserve maintenance period and thus withdrawn from reserve maintenance, generally have to be raised again in the new period – at greater cost – at the central bank or in the money market.

... and with the main refinancing operations

From 1999 to 2002, on average just under three-quarters of the banking industry's liquidity needs were met by main refinancing operations (around €149 billion), while the longer-term refinancing operations, amounting to an average of around €54 billion, covered just over one-quarter of the liquidity deficit. The volume of main tenders was thus – as intended – invariably sufficiently large to promptly offset even sizeable changes in the banks' liquidity needs. The number of bidders in the main refinancing operations has gone down sharply since the start of monetary union from an annual average of 777 credit institutions in 1999 to an annual average of 307 in 2002. This development is to be seen, first, in connection with the general pattern of consolidation in the banking industry and the concomitant centralisation of liquidity management; second, participation in the main refinancing operations turned out to be dependent on the tender procedure and on the interest rate expectations prevailing in the market. For example, from mid-2000 when the changeover was made from fixed rate to variable rate tenders, there has been a specially marked decline in tender participation, as smaller, risk-averse credit institutions, in particular, have been pulling out of the tender operations (see chart on page 20). The decline in bidder interest should be seen as related to the complexities of the variable rate tender, which make it difficult for the credit institutions to make an appropriate market-oriented bid decision. Expectations of a reduction in interest rates, which became more frequent from spring 2001 onwards, may also have led to somewhat lower bidder interest. Nonetheless, a large degree of competition was still evident in the tender operations and there were no signs of oligopolistic structures.

Volume outstanding of main and longer-term refinancing operations

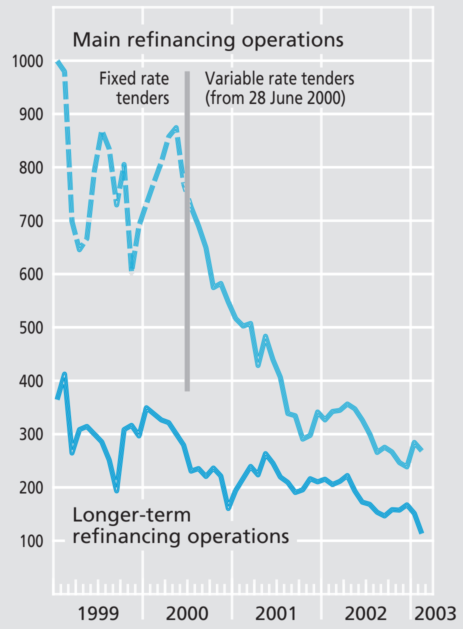


Deutsche Bundesbank

Overbidding in fixed rate tenders and changeover to variable rate tenders

From the point of view of the Eurosystem and the market players, the most important modification to date in the use of the monetary policy instruments was the changeover from fixed rate tenders to variable rate tenders with a minimum bid rate starting with the main refinancing operations in June 2000. The advantage of fixed rate tenders for monetary policy was that they enable an extremely clear signal of the monetary policy stance to be given. It also meant, however, that the counterparties could offer large amounts with relatively little risk, as the ECB has invariably geared the allotment amount to the liquidity need in order to stabilise money market rates. In the spring of 2000 market participants' expectations of an interest rate increase had become broadly entrenched, resulting in vast overbidding in the main re-

Number of bidders
in main and longer-term
refinancing operations



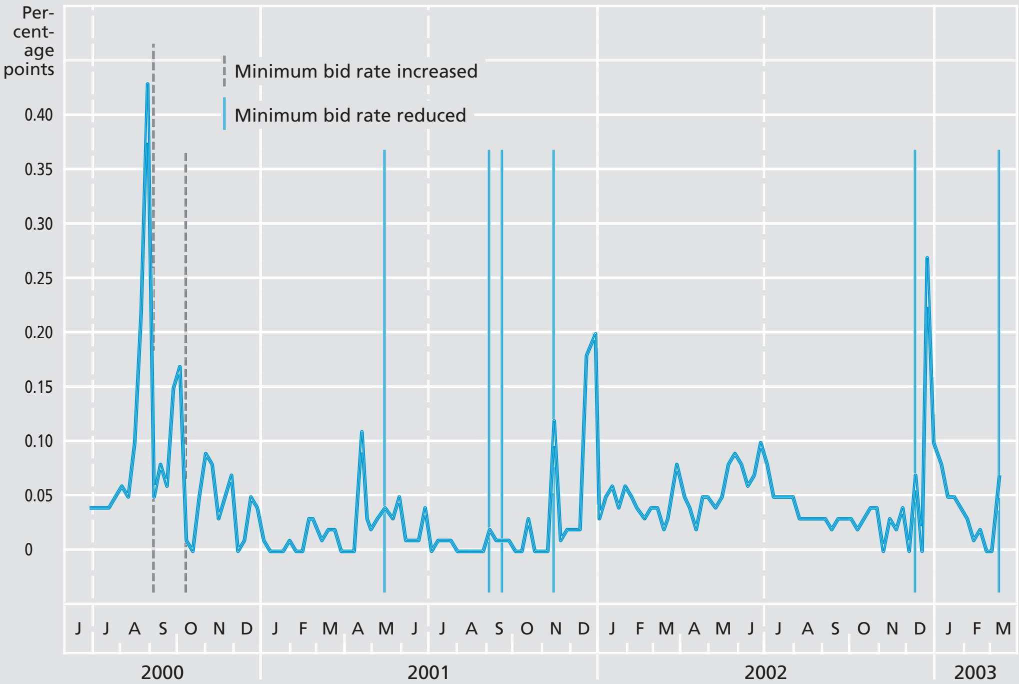
Deutsche Bundesbank

financing operations, which were still being offered as fixed rate tenders. The allotment ratio finally fell to below 1%. The changeover to variable rate tenders effectively eliminated the appeal of speculative overbidding. From the purely technical perspective of liquidity management, speculative overbidding was largely unproblematic; however, it does make higher demands of the banking system in managing its portfolios of eligible assets, which are required to collateralise central bank credit, and in redistributing central bank liquidity in the interbank market after the tender allotment. In the event of very high overbidding, it is almost impossible for the individual institutions to estimate the volume likely to be allotted to it as even small, unexpected changes in the allotment ratio lead to large changes in the allotment to individual banks.

Underbidding in the variable rate tender

Following the transition to variable rate tenders with a minimum bid rate, the first occurrence of the phenomenon of "underbidding" took place in February 2001, in an environment of high expectations of a cut in interest rates. In anticipation of an interest rate cut within the ongoing reserve maintenance period, bidding by the credit institutions in the main refinancing operation was so restrained that the total bid volume was insufficient to allow the amount which would have been appropriate from a liquidity policy perspective to be allotted. In the event of speculative underbidding, the Eurosystem has so far decided to tolerate the temporary rise in the volatility of money market rates (caused by a short-term liquidity shortage in the market) and to cover at least part of the remaining liquidity need only in the forthcoming main tender(s) in the current reserve maintenance period. This signalled to the counterparties that they also have to bear the cost risk of speculative behaviour. Although the rise in volatility was restricted to the short end of the money market, this can also impair the signals about the current monetary policy stance. Against this background, the Governing Council of the ECB decided in November 2001 to take decisions relating to the monetary policy stance only at its first meeting of the month. Opportunities for speculative underbidding, with ensuing distortions on the market for overnight money, were thus reduced considerably. All in all, the Eurosystem also gave an effective monetary policy signal by means of the variable rate tender with a minimum bid rate, but the marginal as well as the weighted allotment rate were generally close to the Eurosystem's bench-

Spread between marginal allotment rate and minimum bid rate



Deutsche Bundesbank

mark. Larger deviations were limited to periods in which there were clear expectations of a change in the interest rate.

Tender splitting

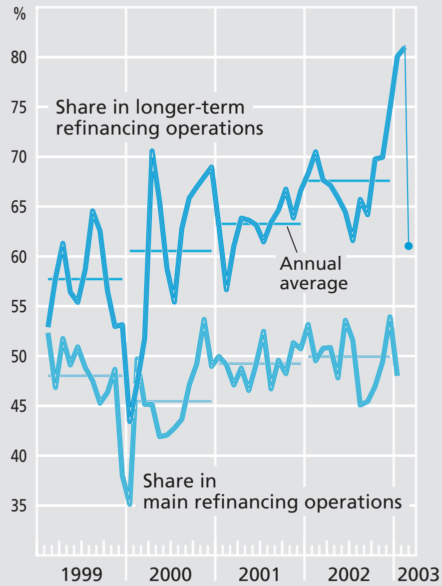
One of the side-effects of underbidding is a divergence in the volumes of the two outstanding main refinancing operations, which, from a technical and operational perspective, can lead to difficulties. Since April 2002 the seven-day operations (tender split operations) carried out singly at the same time as the two-week tender for the purpose of evening out the tender volumes are considered, also with regard to their form, to be main refinancing operations and are thus included in the calculation of the remuneration of minimum reserves.

Experience with the longer-term refinancing operations

Since the start of monetary union bidder participation in the longer-term refinancing operations has also declined, albeit less markedly than in the main tenders (see chart on page 20). Whereas an average of somewhat more than 300 credit institutions took part in the basic tenders in 1999, average participation in 2002 was only 186 institutions. However, the ratio of bid volume to allotment volume per auction has not changed significantly since mid-2000 (similar to the corresponding ratio for the main tender). It averages out at just under 2 (slightly less for the main tender). The group of banks which participate regularly in the longer-term tenders is extremely heterogeneous and participation by smaller credit institutions, ie the target group, has not yet been seen to be particularly significant. Since the start of monetary union

Bundesbank counterparties' share in open market operations

Reserve maintenance period averages



● = Tender settled on 27 February 2003.

Deutsche Bundesbank

German credit institutions have been among the most active bidders in the longer-term refinancing operations; this is also reflected particularly in their persistently large allotment share.

Basic tender comparatively expensive

With regard to the interest rates offered, a comparison of the marginal allotment rate in the longer-term refinancing operations and the three-month Eonia swap rate shows that basic refinancing is a relatively expensive way for the credit institutions to ensure that they have sufficient liquidity. While the average spread between the marginal allotment rate in the main tender and the two-week Eonia swap rate between April 2001 and February 2003 was relatively stable around zero, the corresponding spread for the longer-term refinancing operations averaged 2½ basis points. Furthermore, a slight broadening of the spread on three-month maturities has been observed since the second half of 2002, although at least part of this can be attributed to typical seasonal bidding behaviour relating to the credit institutions' end-of-year liquidity arrangements. All in all, these observations could be taken as an indication that credit institutions have recently been according greater importance to the provision of longer-term liquidity. Given the limited money market liquidity for longer-term funds, this assessment seems reasonable. The longer-term refinancing operations also had advantages in connection with the provision of liquidity for the millennium changeover; the tender volume was temporarily increased and a larger amount of basic liquidity supply was thus available during the millennium changeover period. This had a stabilising effect on bank balances and prevented a feared liquidity shortage.

Public consultation procedure

Suggested improvements to the efficiency of the monetary policy framework

Triggered by the aforementioned underbidding problem in the main refinancing operations, the Eurosystem's monetary policy framework was thoroughly reviewed last year. As a result, the Governing Council of the ECB formulated measures which seemed appropriate to remove the inefficiencies detected, and in autumn 2002 asked the credit institutions, banking associations and financial market groups in the euro area to indicate their views on the proposed operational and technical changes in a public consultation procedure. The following specific changes were put forward for discussion.

– The reserve maintenance period should be timed to coincide with the monthly monetary policy meeting of the Governing Council of the ECB and would thus begin on the settlement day of the main refinancing operation immediately following the first Governing Council meeting of the month. The adjustment of the interest rates on the standing facilities would likewise coincide with the start of a reserve maintenance period.

– In order to avoid the main refinancing operations hanging over into the subsequent reserve maintenance period, the maturity of the main refinancing operations should be shortened to one week.

– Suspension of the longer-term refinancing operations was also proposed because it had become apparent that the original target group (smaller institutions which were not active on the money market) had not been reached.

Changing the timing of the reserve maintenance period would mean that the maintenance period would always begin on a TARGET business day and that recourse to the standing facilities at the end of the maintenance period would no longer hang over into the new maintenance period. Furthermore, the maintenance period would generally end on a TARGET business day, making it easier to carry out the final fine-tuning of the reserve maintenance. As a rule, the central bank rate would not be changed during a reserve maintenance period, thus reducing the probability of speculative over or underbidding. Simultaneously reducing the maturity of the main tenders to one week would mean that interest rate expectations would be unlikely to continue to affect the bidding behaviour of the counterparties within a reserve maintenance period.

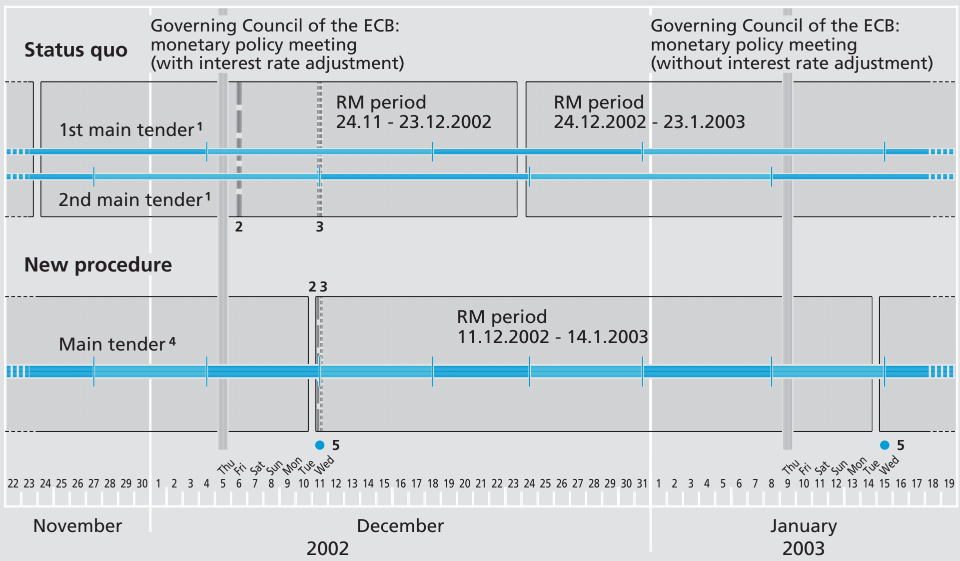
Responses to the public consultation procedure …

All market players welcomed the public consultation procedure, which was seen as making a positive contribution to transparency. The numerous responses received by the ECB and the national central banks conveyed a detailed and varied picture of the credit institutions' and banking associations' views and preferences. It also became clear that, despite the room for improvement of the monetary policy instruments noted by the Governing Council of the ECB, the financial sector did not think that the monetary policy transmission and the functioning of the money market had been seriously impeded by occasional over and underbidding.

… with regard to changing the timing of the reserve maintenance period

The vast majority of the euro-area institutions consulted were in favour of changing the timing of the reserve maintenance period. The German institutions and banking associations which took part in the consultation procedure also signalled their agreement with the suggestion to make the reserve maintenance period more flexible. However, views differed about the benefits of avoiding underbidding. Larger institutions which are active in the money market generally viewed speculative underbidding and the concomitant volatility on the overnight money market in a positive

Change in the reserve maintenance period and the maturity of the main refinancing operations*



* Status quo and new procedure over the period from November 2002 to January 2003. — **1** Two-week maturity. — **2** Interest rate on standing facilities adjusted. — **3** Minimum bid rate adjusted. — **4** One-week maturity. — **5** Settlement of first main tender after monetary policy meeting of the Governing Council of the ECB; reserve maintenance period also starts.

Deutsche Bundesbank

light as this ultimately also opens up opportunities to make gains. Otherwise, underbidding, as opposed to using money market derivative instruments, was felt to be a less efficient and professional means of speculating on the interest rate decisions of the Governing Council of the ECB. The main advantage for smaller institutions was the reduced volatility on the overnight money market, as this enhances their liquidity management. The overall positive response to the proposal, including from German institutions, seems to have had more to do with expected cost reductions arising from the fact that the reserve maintenance period will no longer start or end on a weekend or on TARGET holidays. By far the majority of the respondent credit institutions did not expect any major technical problems to be caused by changing over to reserve maintenance periods of varying length, although it was suggested that the Eurosystem publish a "reserve maintenance calendar" (similar to the tender calendar) in good time.

... the time span between decision and interest rate adjustment taking effect ...

The long time span between an interest rate decision and its taking effect was seen as critical. The six-day time span between the meeting of the Governing Council of the ECB on the Thursday and the start of the new reserve maintenance period on the following Wednesday was considered exceptionally long, especially as changes to the interest rates on the standing facilities only take effect on the value date of the main refinancing operation immediately following the monetary policy meeting of the Governing Council. In addition, with regard to the Eurosystem's liquidity management, it was noticed that the last main tender in the reserve maintenance period is always settled six days before the end of the period. As the quality of the liquidity forecasts tends to decline the longer the forecasting horizon, the view was that there would be greater risk of sub-optimal allotments in the main tender and of money market rates being systematically more volatile at the end of the reserve maintenance period.

... shortening the maturity of the main refinancing operations ...

The proposed shortening of the maturity of the main refinancing operations to one week as a complementary measure to the change in the reserve maintenance period was approved by the euro-area banks with some reservations. Most of the institutions saw the shortening of the main tender maturity as a logical complement to the changed timing of the reserve maintenance period, helping to prevent speculative underbidding in the future. The concerns expressed by the credit institutions had mainly to do with the additional operational risks associated with the move away from overlapping main refinancing operations and the effect of greater uncertainty on liquidity management. If the Eurosystem or individual bidders were to run into major technical difficulties during the tender procedures, a far greater proportion of the total refinancing volume would be affected than in the case of two overlapping operations. Moreover, concern was expressed that if only one main refinancing operation were outstanding, the institutions might be inclined to make price-boosting safety bids in order to avoid being given an underallotment or a zero allotment. This could lead to a "structural" increase in the marginal and weighted allotment rates and make refinancing more expensive overall. In changing over to a single one-week main refinancing operation, it should also be borne in mind that an institution which is given a zero allotment – owing to the resultant higher volume to be raised via the market – might find it more pertinent to have recourse to the money market. As a possible means of offsetting the shortening of the main tender maturity, various market players suggested introducing a monthly "maintenance period tender", which would make basic liquidity available for the duration of the maintenance period.

... and suspending the longer-term refinancing operations

Besides the German institutions, which traditionally take an active part in basic refinancing, virtually all other credit institutions which participated in the consultation procedure were against the suspension of the longer-term refinancing operations. Basic refinancing was said to play an important role for the institutions in balancing the maturity structure of their refinancing. In addition, the importance of basic tenders as part of forward-looking liquidity planning was stressed, this having been promoted in the BIS recommendations "Sound practices for managing liquidity in banking organisations".

Broad approval of the basic tender owing to a lack of alternatives on the interbank market

Most credit institutions did not consider unsecured longer-term money market operations, or the interbank repo market, to be entirely viable substitutes for longer-term central bank refinancing. The view is that longer-term, unsecured money market lending has never had the necessary depth of liquidity. The eligible assets for a general collateral repo operation[1] differ from those which can be used for central bank refinancing; longer maturities are also not very liquid. Basic tenders thus offer banks the opportunity to build up a broader refinancing basis which is diversified in terms of maturity; they therefore represent an important, stabilising element in their liquidity management.

Request for increase in basic tender

As a counterweight to the planned shortening of the maturity of the main refinancing operations, the credit institutions frequently asked for the volume of basic refinancing to be increased. The view was that this could counter a reduction in the average refinancing maturity. In particular, an increase in the volume of longer-term refinancing operations could mitigate the higher operational and liquidity management risks associated with the planned consecutive one-week main tenders.

Decision of the Governing Council of the ECB

At its meeting on 23 January 2003 the Governing Council of the ECB decided to change the timing of the reserve maintenance period, as suggested, to coincide with the monthly monetary policy meeting of the Governing Council of the ECB. Changes to the interest rates on the standing facilities will also take effect at the start of the reserve maintenance period and the maturity of the main refinancing operations will be shortened to one week. Given the strong support for retaining the longer-term refinancing operations, it was decided not to suspend them. The two approved changes will be implemented in the first quarter of 2004. This will ensure that the Eurosystem and its counterparties will have enough time to make the technical adjustments that have become necessary as a result of changing the timing of the reserve maintenance period and shortening the maturity of the main refinancing operations.

Changes in the first quarter of 2004

1 Whereas a special collateral repo operation is executed in order to attain a particular security, the general collateral repo operation has to do primarily with obtaining liquidity. A comparatively broader range of assets (in particular, euro-area government bonds) are accepted as collateral for a general collateral repo operation.