András Rezessy: Considerations for setting the medium-term inflation target

The medium-term inflation target set in summer 2005 and taking effect in January 2007 brings fundamental changes in the Hungarian inflation targeting mechanism. Whereas formerly the government and the central bank used to set a new inflation target each year, a 3-percent medium-term target will enter into effect from the above date onwards. The transition to the new mechanism was not self-evident, as both the former and the new regimes have their specific drawbacks and benefits. This article discusses these issues, arguing that the advantages of the new regime are far more important than its drawbacks and exceed the benefits of the old regime. In the current state of the Hungarian economy, a 3-percent inflation target can be deemed optimal on the medium term. The reason why it is slightly higher than the inflation targets of the countries with advanced economies is the catching-up nature of the Hungarian economy. The Hungarian inflation target is reviewed every three years, since the optimal level of inflation may change, and will probably decrease in Hungary over time. Another important date, when the inflation target will again be reviewed, will be Hungary's prospective entry into the common European exchange rate mechanism (ERM-II). The article also explains that the inflation target has been defined as a point target, which, given the situation of Hungary, is more favourable than a target band, which is employed by many other countries.

INTRODUCTION

The monetary policy of the Magyar Nemzeti Bank (MNB) has been operated within the inflation targeting regime since the summer of 2001. Under this monetary policy regime, the central bank endeavours to achieve the inflation target defined and announced publicly together with the government, subordinating the interest rate and exchange rate policies to the fulfilment of this target.

Up to the end of 2006, the MNB and the government set the inflation target on an annual basis. By 2005, the rate of inflation had been reduced to a low level, which has enabled the government and the central bank to fix the inflation target for a longer period at a level consistent with price stability.

As of January 2007, this continuous 3 percent target enters into effect, which brings about substantial changes in the operating environment of monetary policy. The essential difference between the two regimes is that while the previous one allowed the central bank to take into account new considerations each year due to the changing situation when setting the new target, the continuous regime represents a longer-term (but not necessarily endless) commitment of monetary policy. The two regimes would therefore differ even if the numerical values of the targets coincided for a given period of time.

This article discusses the background of the transition to the continuous target and explains the most important features of the new regime and the major considerations related to these features. The transition to the new mechanism was not self-evident, as both the former and the new regimes have their specific drawbacks and benefits. This article discusses these issues, arguing that the advantages of the new regime are far more important than its drawbacks and exceed the benefits of the old regime. The second part of the article investigates some important issues such as the numerical value of the target, the validity of the target, the horizon of monetary policy (i.e. the period within which the target is to be achieved) and the definition of the target either as a band or a point.

BENEFITS AND DRAWBACKS OF VARIABLE AND CONTINUOUS TARGETS

In the theoretical literature, there are relatively few references regarding the benefits and the drawbacks of these two different inflation targeting strategies. The issue is normally discussed together with the choice of the horizon of the monetary policy. The basic idea behind the comparison of the two regimes is a trade-off between the credibility and the flexibility of the regime, i.e. you can only increase credibility at the expense of flexibility, and vice versa.

An advantage of the annual target is that it ensures flexibility regarding the handling of any major inflation shocks (in particular at a shorter monetary policy horizon), as the central bank can determine the speed of the stabilisation process following the shock by setting the targets for sub-

sequent years. Flexibility may also be useful for the fulfilment of the Maastricht inflation criterion,[1] if the rate of inflation must be reduced below the price stability level defined by the MNB for the reference period.

However, the flexibility of the annual targets involves greater uncertainty for the future. The higher uncertainty of inflation expectations hinders the consolidation of the credibility of monetary policy with regard to price stability. A further drawback is that as the targets refer to specific dates (which used to be December in Hungary), the horizon of monetary policy is changing constantly. It is unclear when monetary policy switches from a specific end-of-the-year target to the next one in its the interest rate policy, which reduces the transparency of the regime.

On the other hand, the continuous target has the benefit of increasing the predictability and transparency of monetary policy. Therefore, it can help to stabilise inflation expectations and consolidate the credibility of the central bank. A continuous target is better able to guide long-term inflation expectations than a variable target, and it also reduces long-term uncertainty. This may help reduce the stickiness of inflation (i.e. the phenomenon that inflation can move away from a given level only slowly and gradually), making it easier for inflation to return to a level of price stability quickly, at a low real economic cost and with low interest and exchange rate volatility.

It is worth noting that in the past fifteen years central banks which have achieved price stability have all switched to a continuous target.[2] Other inflation targeting central banks have all started to operate the regime using a continuous target consistent with price stability. The continuous target can thus be considered the international best practice. A fixed target introduced following the completion of disinflation also conforms to the law on the central bank in Hungary (achieving and *maintaining* price stability). Finally, a credible, continuous inflation target may be more effective in preventing deflation and a liquidity trap than a variable target (Svensson, 2000).

Theoretically, however, the lack of flexibility may cause problems in the case of a continuous target. According to Bernanke et al. (1999), for example, if a major supply-side shock occurs, maintaining a fixed target may be too expensive over the short and medium term. Although in many countries the target has remained the same for a long time after price stability has been achieved, it would be mistaken to believe that the target has become fixed and will never change, as such peaceful periods may not necessarily last forever. Therefore, the authors suggest that the inflation target be reviewed annually even if the long-term inflation target is consistent with price stability. It should be noted that this problem can be reduced considerably by choosing a longer horizon (e.g. 5 to 8 quarters), as the central bank is then able to tolerate the shocks over such periods, provided that they are of a transitory nature. Looking at the international practice, the United Kingdom is the only country where the target is reviewed on an annual basis[3].

As far as the circumstances of the application of the two regimes are concerned, employing a variable target is practical if the country is on a disinflation course or if a major shock has diverted the economy from price stability (Yates, 1995). As for the situation in Hungary, since inflation had been reduced to a level approaching price stability by 2005, disinflation no longer necessitated the annual target. It should be noted that in the international practice, inflation shocks are handled with methods other than variable targets, such as a longer-term (app. 5 to 8-quarter) horizon or not specifically defined horizon and escape clauses, which allow temporary deviations from the target in certain cases.

WHY IS 3 PER CENT THE NUMERICAL VALUE OF THE CONTINUOUS TARGET?

Since, on the basis of the best international practice and the Hungarian law on the central bank, which follows this practice, the objective of monetary policy is to achieve and subsequently maintain price stability, it is obvious that the definition of price stability of the government and the central bank is crucial in the definition of the numerical value of the continuous target. According to an MNB study, the optimum long-term rate of inflation is currently between 2.3 and 3.2 percent in Hungary (Kiss and Krekó, 2004). This value is higher than the price stability definition of the European Central Bank, the natural point of reference for Hungary, which defines the preferred medium-term rate of inflation for the euro area at a level "close to but below 2 per cent". The fact that the optimum level in Hungary is

[1] This is one of the 'Maastricht criteria' concerning the introduction of the euro, which requires that the 12-month average of the domestic inflation rate does not exceed the average of the inflation figures of the three EU member states with the lowest positive inflation rates by more than 1.5 percentage points.
[2] An exception is Slovakia, where the targets are derived from the convergence process and thus the Maastricht criteria.
[3] See the section on the validity of the target below.

Table 1

International practice in setting inflation targets

	Target value (per cent)	Term of validity	Horizon of monetary policy	Definition of the target
Czech Republic	3	Until the adoption of the euro	Medium term	Point target with a tolerance zone
Poland	2.5	Until entry to the ERM-II	Medium term	Point target with a tolerance zone
Slovakia	2	Annual targets	n.a.	Point target with a tolerance zone
Chile	2-4	n.a.	4 to 8 quarters	Target band
UK	2	Annual review	Medium term	Target point
Sweden	2	n.a.	4 to 8 quarters	Point target with a tolerance zone
Canada	1-3	Reviewed every five years	6 to 8 quarters	Target band
New Zealand	1-3	Until the expiry of the mandate of the governor; can be reviewed any time	Medium term	Target band
Australia	2-3	n.a.	The average of a business cycle	Target band
Israel	1-3	n.a.	4 quarters	Target band

higher than that is due to the catching-up nature of the Hungarian economy.[4] This factor will probably be relevant for a long time, although its importance may gradually decrease.

Taking into account that inflation targets are normally set at integer or half a percent levels, the estimated optimum range offered a choice between 2.5 and 3 percent. In setting the target, the government and the MNB took into consideration that the choice of 2.5 percent as the fixed target posed the risk of a potential loss of output over the longer run. In comparison with the international practice, the Hungarian inflation target is in line with the targets applied by similar emerging economies, though it is slightly higher than in countries with more advanced economies (see Table 1).

THE TERM OF VALIDITY OF THE CONTINUOUS TARGET

While the term of the validity of annually fixed targets was self-evident, the validity of a continuous target is a less clear-cut issue. It should be emphasised that in the international practice, many central banks avoid making the impression that they have taken an eternal commitment. As Table 1 shows, the target is in force for a pre-defined period in the practice of a number of central banks:

- In our region, until adoption of the euro, entry into the common exchange rate mechanism (ERM II) or expiry of the mandate of the decision-making body of the central bank.
- In Canada, until expiry of the 5-year agreement between the central bank and the government.
- In New Zealand, until expiry of the office of the President (Governor) of the central bank. The government or the central bank may initiate the amendment of the agreement on the target and a review of the definition of price stability, which has in fact occurred several times.
- In the UK, the definition of price stability is reviewed each year and the possibility of its adjustment is explicitly upheld. Since the introduction of the current regime in 1992, however, the target has only been modified once, due to a change in statistical methodology.

[4] The phenomenon is due primarily to the 'Balassa-Samuelson effect', which essentially says that in a country where the growth rate of the tradable sector productivity is permanently higher than that of its trade partners, a substantial difference in the rate of inflation will occur between the domestic non-tradable and the tradable sectors. If the inflation target is too low, the tradable sector may be forced to reduce prices permanently. On the basis of practical experience, however, businesses may be unwilling to reduce their prices, instead, they often respond by cutting back on production. Therefore, an unduly low inflation target may result in a loss of output. It should be noted, however, that the importance of this phenomenon may change over a longer period of time, e.g. as the catching-up process advances, the speed of economic convergence may slow down.

In Hungary, the inflation target was also set with a definite term of validity: the target is reviewed in three years' time. The necessity of a review of the target and the definition of price stability is due to the catching-up nature of the Hungarian economy and the fact that the resulting excess inflation may change (probably decreasing) over time. Another important date for Hungary is the country's prospective entry into the ERM II regime, when the inflation target is again to be reviewed.

WHAT IS THE HORIZON OF MONETARY POLICY WHEN MAKING ITS POLICY DECISIONS?

Since monetary policy is only able to influence inflation at with a certain lag, inflation-targeting central banks make their decisions on a forward-looking basis, taking into account the anticipated inflation in the future. The period within which monetary policy aims to return inflation to the target following a shock is called the horizon of monetary policy.

There is a difference in the horizon of monetary policy as far as strategies based on annual targets and continuous targets are concerned. Under the previous regime, the end of the term of the inflation target was fixed in time, i.e. a given level of inflation had to be reached by that date. Therefore, the length of the horizon of monetary policy was permanently shifting with time; the forward-looking nature of policy was ensured by the fact that targets were set for two years ahead. A continuous target, however, remains in effect continuously from a specific initial date. Therefore, the length of the horizon of monetary policy is constant in time, and the horizon keeps rolling forward in a moving window fashion.

In order to determine the length of the horizon for the continuous target, one needs to take into consideration the trade-off between the credibility/transparency of the target and the flexibility of the regime. While a very distant target is probably less able to guide inflation expectations, the achievement of an unduly early target may cause difficulties, involving a higher fluctuation in monetary conditions and output. A longer horizon allows greater flexibility in terms of responding to sudden shocks. A longer horizon, however, also leads to higher the uncertainty in the forecasts.

In addition, given the fact that the target is defined as an annual inflation indicator, the existence of base effects requires the horizon to be longer than 12 months, since the first-round effects of an inflation shock are only eliminated from the index after 12 months. It is therefore useful to opt for a medium-term horizon (5 to 8 quarters), which is long enough to enable the assessment whether a given shock is transitory or long-lasting and how the second-round effects emerge.

A study by Várpalotai (2005) employs various model calculations in order to examine the optimal horizon of monetary policy in Hungary. According to his findings, it is appropriate from the point of view of social welfare that the central bank makes its interest rate decisions on the basis of the evaluation of anticipated inflation trends 1.5-2 years ahead. Such a horizon leaves sufficient time for the central bank to return inflation to the targeted value in an optimal manner from a welfare point of view for most prospective shocks. However, the study emphasises that some shocks may be of such magnitude that inflation may deviates from the target for longer than 1.5-2 years if the central bank responds to such shocks in a welfare optimising manner.

Finally, practical considerations related to the methodology of forecasting must also be taken into account for determining the optimum horizon of monetary policy. The relevant information content of forecasts of a horizon shorter than four quarters is relatively low, as they are dominated by extreme values and base effects carried over from the previous year. On the other hand, the maximum horizon is around 8 quarters, as forecasts for periods longer than that are not sufficiently reliable due to uncertainty. Consequently, the values forecast for 4 to 8 quarters ahead should be taken into consideration by monetary policy.

In the international practice, central banks setting a continuous inflation target typically employ a medium-term horizon. It can be a definite one (e.g. 6 to 8 quarters), but a number of central banks operate without specifically defining the horizon. Instead, they state that their goal is to achieve the target in the 'medium run' (see Table 1).

Considering all the above factors, the horizon of the Hungarian monetary policy has been defined as 5 to 8 quarters. The Monetary Council thus makes its interest rate decisions looking forward to that period, i.e. always considering the expected inflation trend for the forthcoming 5 to 8 quarters.

This horizon enables the decision-makers to take into consideration that certain factors divert inflation from the 3-percent target only temporarily (such as the indirect tax measures of the government or the modification of certain officially regulated prices). While the effect of such factors alone does not affect longer-term inflation trends, it has the risk of adversely affecting inflation expectations. Should that happen, this would have a long-lasting effect on infla-

tion, which must be prevented by the central bank. However, as the offsetting of such temporary factors may result in substantial and undesirable fluctuations of the real economy, the MNB formulates its monetary policy in a way that while it does not counteract one-off inflation impacts, it tries to prevent the emergence of spillover effects with a view to ensuring the long-term stability of inflation.

TARGET POINT OR TARGET BAND

As shown in Table 1, central banks can choose between defining their inflation target as a specific numerical value (e.g. 3 per cent), called target point or as a range. If a target point is adopted, a 'tolerance band' is also used in most cases. This is typically ±1 percentage point wide and has its role at the ex-post assessment of the fulfilment of the target. Inflation within the tolerance band is considered as the achievement of the target. In the past, the target used to be defined as a point target in Hungary (3±1%), but with the switch to a continuous target the question arose whether it is more advantageous to define a target range.

It should be emphasised that a point target with a tolerance band is different from a target range, as the former has a central value that is better able to anchor inflation expectations, which is missing in the latter. Therefore, the two alternatives have different consequences for interest rate policy: in the case of a point target, the central bank tries to keep inflation close to it; the tolerance band only has a role in retrospect, at the assessment of the achievement of the target. In the case of a target range, however, the central bank is declared to be indifferent to the movements of inflation within the given range.

The trade-off between transparency and flexibility described above is also valid with regard to the two types of target definition: while the point target is more transparent and is likely to guide expectations more effectively, a target range theoretically offers a more flexible regime. But while a broad range does not anchor expectation, a range that is sufficiently narrow from this respect is not much easier to meet than a point target. Missing a target range, however, results in a greater loss of credibility than missing a point target, as a point target is almost impossible to attain. Consequently, it is better to target a point and regularly explain to the public the reasons behind any deviation from the target (see, for example, Mishkin, 2001 and Bernanke et al., 1999).

In this sense, there would be a marked difference between setting a target band of 2 to 4 percent or a 3-percent target with a tolerance zone of ±1 percentage point. Since the inflation targeting regime was in operation for a relatively short time in Hungary before the adoption of the continuous target, the credibility of the central bank regarding the maintenance of price stability had not been fully established. Therefore, the changeover to the continuous target may play an important role in establishing and consolidating credibility. The price stability and target definition declared by the central bank plays a significant guiding role in this respect. Defining the target as a 2 to 4-percent range may have the risk of being less able to guide long-term expectations, as a result of which inflation may be permanently stuck at the upper half of the target band, which would later make it difficult to fulfil the Maastricht criterion.

On the basis of the above factors, the continuous target has also been defined as a point target in Hungary. In order to take into account fluctuations due to unforeseen effects in the ex-post assessment of the fulfilment of the inflation target, a ±1 percentage-point tolerance zone has also been adopted. Therefore, a ±1 percentage-point deviation of the consumer price index from the 3-percent target is admissible in terms of price stability, i.e. it does not mean that the central bank has missed its inflation target.

CONCLUSIONS

During the first five years of the inflation targeting regime (between 2001 and 2006), the MNB and the government set the inflation target annually for a period of at least 24 months in advance. By 2005, the rate of inflation had been reduced to a low level, which allowed the government and the central bank to set the inflation target for a longer period at a level corresponding to price stability, starting from 2007.

The essential difference between the former annual and the new medium-term regimes is that while the previous regime allowed the central bank to take into account new considerations each year due to the changing situation for setting its inflation target, the continuous regime represents a longer-term (though not necessarily eternal) commitment of monetary policy. This explains the benefits and the drawbacks of the two regimes. While variable targets allow greater flexibility, this also involves greater uncertainty for the future, which makes it more difficult to establish the credibility of the commitment to price stability. The constraints resulting from the continuous target have the benefit of increasing the predictability of monetary policy and thus help establish credibility. The practical importance of the credibility effect is demonstrated by the fact that a continuous target is employed by inflation targeting central banks in those countries where the rate of inflation is around price stability.

Since, on the basis of the best international practice and the Hungarian law on the central bank, which follows this practice, the objective of the monetary policy is to achieve and subsequently maintain price stability, it is obvious that the definition of price stability by the government and the central bank is crucial for the definition of the numerical value of the open-ended target. Taking into account the results of research conducted in the MNB, the medium-term inflation target has been defined as 3 percent of the consumer price index in Hungary.

It should also be emphasised, however, that, similarly to the practice of many other central banks, the medium-term inflation target has been set for a definite period: the target is to be reviewed in three years' time. The necessity of the review of the target and the definition of price stability is due to the catching-up nature of the Hungarian economy and the fact that the resulting excess inflation may change (probably decreasing) over time. Another important date for Hungary is the country's prospective integration into the ERM II regime, when the inflation target will again be reviewed.

Since monetary policy is only able to influence the inflation trends with a certain lag, the MNB makes its decisions taking into account anticipated future inflation throughout the forthcoming period of 5 to 8 quarters. This horizon enables the assessment of whether specific shocks are transitory or long-lasting and how the second-round effects emerge. As offsetting temporary factors may result in substantial and undesirable fluctuations of the real economy, the MNB formulates its monetary policy in a way that it does not counteract one-off inflation effects, while it tries to prevent the emergence of spillover effects with a view to ensure the long-term stability of inflation.

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