Reflections on inflation targeting

Speech by Athanasios Orphanides, Governor of the Central Bank of Cyprus, at the 6th Norges Bank Monetary Policy Conference on Inflation Targeting Twenty Years On

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Starting with the Reserve Bank of New Zealand, over the past twenty years a large number of central banks have adopted inflation targeting as their framework for monetary policy. As the second decade of inflation targeting comes to a close, a retrospective assessing how well it has worked, what lessons have been learned and what challenges may lie ahead is most appropriate. During much of the past twenty years I have observed the introduction and practice of inflation targeting at various central banks around the world with great interest. But throughout this period, I have been affiliated with central banks that did not espouse the inflation targeting approach and have thus observed its practice as an outsider. I would like to thank the Norges Bank for giving me the opportunity to be part of this event and I am especially thankful to Deputy Governor Jan Qvigstad for the invitation to offer my personal reflections on inflation targeting. Before I proceed, I should note that the views I express are my own and do not necessarily reflect those of the Governing Council of the European Central Bank.

What is inflation targeting? There are several and sometimes competing or conflicting definitions, reflecting the numerous variations encountered in policy practice and the evolution of the framework itself. In a thorough study of the first experiences with inflation targeting, Bernanke et al (1999) suggested the following description:

> "Inflation targeting is a framework for monetary policy characterised by the public announcement of official quantitative targets (or target ranges) for the inflation rate over one or more time horizons, and by explicit acknowledgement that low, stable inflation is monetary policy's primary long-run goal. Among other important features of inflation targeting are vigorous efforts to communicate with the public about the plans and objectives of the monetary authorities, and, in many cases, mechanisms that strengthen the central bank's accountability for attaining those objectives" (Bernanke et al. 1999, p. 4).

In my view, inflation targeting, as originally developed and practiced, is a robust way of achieving and maintaining price stability. It is certainly not the only way of achieving

this goal. That said, inflation targeting can be more effective than other alternatives in achieving price stability under some circumstances. If so, it would be useful to identify what these circumstances may be. At the same time, judging from the experience of the past two decades, one can conclude that several central banks around the world, including banks that characterise themselves as inflation targeters and others that do not, have had similarly good macroeconomic performances overall, and similar success in achieving and maintaining price stability. A pertinent question, then, is to identify what are the commonalities among alternative strategies that best contribute to good policy practice.

A distinguishing characteristic of inflation targeting is that it is a monetary policy framework that focuses maximum attention on the ultimate objective of price stability, and indeed forces close monitoring of current and prospective developments in aggregate prices both as a means to guiding current policy and as means to evaluating past policy actions. By encouraging an ongoing open dialogue between the central bank and the government, the public and financial market participants, the inflation targeting approach leaves little room for neglecting price stability, further reinforcing its unique focus. For these reasons, inflation targeting may be particularly effective as a monetary policy framework for central banks that are institutionally challenged in some way, for instance because they lack a history of political independence or because they have an impaired credibility in pursuing monetary stability oriented policies. The intrusion of politics into monetary policy decisions as well as the pursuit of multiple and possibly conflicting objectives are potential sources of such impaired credibility with regard to a central bank's commitment to achieving and maintaining price stability. Inflation targeting helps guard against these forces.

Ensuring the stability of a currency's value has long been recognised as a prerequisite for the efficient working of a capitalist economy. As early as the late 19th century, Knut Wicksell (1898) proposed that monetary policy should aim at maintaining a stable price level. Achieving and maintaining price stability, however, has been elusive over the short history of monetary policy practice with a fiat currency, with deflation and inflation frequently undermining price stability over time. Highlighting the common understanding of the destructive potential of an unstable currency among both supporters and opponents of our economic system, John Maynard Keynes attributed to Vladimir Ilyich Lenin the remark that "the best way to destroy the Capitalist System was to debauch the currency". Keynes continued: "Lenin was certainly right. There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of

destruction, and does it in a manner which not one man in a million is able to diagnose" (Keynes, 1919, pp. 148-149). In a similar vein, Irving Fisher argued that it was imperative to find a way to maintain monetary stability, concluding: "It is not too much to say that the evils of a variable monetary standard are among the most serious economic evils with which civilization has to deal" (Fisher, 1922, p. ix). As Allan Meltzer (2003) documents in his history of the Federal Reserve, for much of the 1920s, price stability as a goal of monetary policy became a recurrent issue for discussion in the United States. However, the central bank opposed focusing on price stability as a policy guide and the approach was never adopted. During the 1930s, Sweden offered a unique example of a price level targeting monetary regime, but that experience only lasted for a few years (Berg and Jonung, 1999).

Although price stability had been considered as a worthwhile objective for macroeconomic policy to varying degrees throughout the course of the 20th century, this would have been rather hard to infer from observing price developments. Price instability instead of stability seems to have been the norm throughout much of the 20th century.

A useful starting point for understanding the origins of inflation targeting is to comprehend the sources and magnitude of the failure in some of the countries that adopted it. The case of New Zealand, the pioneer of inflation targeting, is instructive. As Don Brash, the Governor who first implemented the new approach explained in a retrospective on inflation targeting, prior to the mid-eighties New Zealand had one of the worst inflation rates in the OECD, exceeding 10 percent per year for virtually a whole decade. Why was that? Wasn't low inflation *one* of the aims of the Bank? Apparently, one problem was exactly that. Price stability was merely *one* of multiple goals. Brash explained the multiple-goal oriented approach pursued by the Reserve Bank before adoption of inflation as follows: "The legislation under which we operated required us, in formulating our advice, to have regard for the inflation rate, employment, growth, motherhood, and a range of other good things" (Brash, 1999, p. 36). Another problem was that the Reserve Bank's role was to provide advice to the Minister of Finance on monetary policy decisions, instead of having the power to implement the decisions themselves. This lack of operational independence allowed the possibility of short-term political considerations to creep into the implementation of policy.

The Reserve Bank of New Zealand Act of 1989 corrected both of these shortcomings. First, in place of the multiple-goal orientation, section 8 of the Act clarifies the primacy of price stability as the Bank's objective: "The primary function of the Bank is to formulate

and implement monetary policy directed to the economic objective of achieving and maintaining stability in the general level of prices". Second, section 9 of the Act stipulates that the Minister of Finance and the Governor enter into a Policy Target Agreement that defines the numerical objective to be pursued during the Governor's term, and section 10 provides the Governor with complete operational independence to pursue the agreed policy targets.

Thus, the Reserve Bank of New Zealand Act of 1989 described two defining characteristics of the canonical inflation targeting approach it originated: first, defining a hierarchical mandate for the central bank with price stability as the primary objective; and second, providing the central bank with the operational independence to pursue this objective. The approach quickly succeeded in bringing inflation down and captured the attention of other central banks.

Not all inflation targeting central banks have an explicit mandate defining price stability as the primary objective. Nonetheless, the primacy of price stability may be implicitly recognised in practice. One example is the Reserve Bank of Australia, where adoption of inflation targeting was an evolutionary process influenced by the New Zealand experience. The Bank's legislated mandate, dating back to 1959, is multiple-goal oriented and directs it to set monetary policy so as to "best contribute to: (a) the stability of the currency of Australia; (b) the maintenance of full employment in Australia; and (c) the economic prosperity and welfare of the people of Australia" (Reserve Bank of Australia, 1959, pp. 6-7). However, following the adoption of inflation targeting in 2003, the Bank and the Government signed a letter of agreement recognising that price stability is the main contribution that monetary policy can make to sustained growth in output and employment. This helps mitigate the possible tension between the multiple goals in the Reserve Bank Act and the practice of inflation targeting (Debelle, 2009). In principle, an independent central bank with a legislative mandate that mentions multiple goals but is not clear on the primacy of price stability could choose to interpret its mandate in a hierarchical manner if it espouses the inflation targeting policy framework. However, a legislated hierarchical mandate would be superior as without it there is always the risk of backsliding away from the primacy of price stability towards the pre-inflation targeting multiple goal orientation.

Conversely, not all central banks with a mandate specifying price stability as the primary objective and having operational independence to pursue this objective are inflation targeting central banks. An example in this category is the European Central Bank (ECB), part of the European System of Central Banks (ESCB). The ECB's monetary

policy framework identifies price stability as its primary focus. Indeed, both the independence of the ECB as well as its price stability mandate are enshrined in the Treaty establishing the European Community. According to the Treaty: "The primary objective of the ESCB shall be to maintain price stability". However, the ECB is also instructed to do whatever else it can to enhance the welfare of European citizens. This is why the Treaty continues: "Without prejudice to the objective of price stability the ESCB shall support the general economic policies in the Community". But the mandate is explicitly hierarchical, with emphasis on the primary nature of price stability as the Bank's objective.

Against this background, it may be of interest to understand key elements that are not unique to inflation targeting but may be seen as contributing to good policy practice. I would like to focus on three such elements.

The first, and arguably the most fundamental element of inflation targeting is the announcement of an explicit quantitative definition of price stability and the acknowledgment that the achievement of this target over time is the primary objective and responsibility of the central bank. Typically, the quantitative definition of price stability is specified as a low inflation rate or a narrow range. There is considerable variation in the exact specification but annual inflation rates around 2 percent are compatible with most definitions. Some central banks focus on an exact point target, e.g. 2 percent, while others focus on a zone target, e.g. 1-3 percent, with or without special emphasis on the midpoint. There is also variation regarding the specificity of the time horizon. Early implementations specified a rather rigid horizon for achieving the objective, e.g. 2 years, but other implementations are more flexible, e.g. specifying the objective as 2-3 percent inflation over the business cycle (what is sometimes referred to as a "thick" target in the case of the Reserve Bank of Australia).

Recognising price stability as the overriding objective of monetary policy does not imply that the central bank is blind to other policy goals. Nor does it replace the policymaker with an automaton in the manner that adoption of a rigid policy rule would. Inflation targeting central banks retain considerable discretion in policy implementation and remain sensitive to other objectives that are important for economic welfare, including stability of real economic activity and employment as well as financial stability. As suggested by Bernanke et al (1999), inflation targeting is not a policy *rule* but rather a *framework* that allows policy to operate in an environment of "constrained discretion". In practice, the flexibility aspect of inflation targeting is exercised by deciding how to deal with shocks to the economy and how quickly to plan to bring inflation back to its target

in response to destabilizing shocks. This flexibility has tended to increase somewhat over time, as inflation targeting central banks accumulated credibility that their focus on price stability was meaningful. With increased confidence that policymakers would not backslide to the days of a multiple-goal oriented approach, expectations are more likely to stay well-anchored in the face of shocks, thereby enabling greater flexibility in policy. In practice, inflation targeting can be more or less flexible, depending on the circumstances and the success of the central bank in establishing and maintaining a high degree of credibility.

A commitment to price stability as the key operational objective of a central bank is by no means unique to inflation targeting. Rather it is a characteristic common to all monetary policy frameworks that may possibly be identified as broadly consistent with good policy practice. Avoiding both prolonged inflation and deflation, and safeguarding price stability, is now widely understood as contributing to high levels of economic activity and employment.

Price stability facilitates better planning by businesses and households preventing an arbitrary redistribution of wealth and income as a result of unexpected inflation or deflation. It also improves the transparency of the price mechanism, raising efficiency.

As already mentioned, the monetary policy framework of the ECB also identifies price stability as the primary focus of the institution. In implementing this mandate, the ECB uses an explicit quantitative definition of price stability which, since 2003, is stated as corresponding to a rate of increase in consumer prices of below but close to 2 percent over the medium-term.

Among non-inflation targeting central banks, it is of interest to mention that the Federal Reserve is also, as would be expected, committed to price stability in a manner not dissimilar to that of an inflation targeting central bank. Indeed, the case of the Federal Reserve is quite close to that of the Reserve Bank of Australia mentioned earlier. The Federal Reserve Act (as amended in 1977) directs the Federal Reserve to pursue policies that promote "maximum employment, stable prices, and moderate long-term interest rates". One of the most significant changes in Federal Reserve policy following Chairman Volcker's 1979 reform can be identified with the reaffirmation of price stability as the most important operational objective for monetary policy, and as a means of achieving the Federal Reserve's other objectives (Lindsey et al, 2005). Although the Federal Reserve does not have an explicit numerical objective for inflation, in January 2009 the Federal Open Market Committee provided some pertinent guidance. In particular, the

Committee decided to disclose its members' assessments of the appropriate long-run inflation rate. A large majority of the Committee indicated that their assessment was close to or equal to 2 percent. Interestingly, according to the minutes of the January meeting, the Committee considered adopting a numerical target but made no decision on the matter. Some members noted that providing information on the appropriate long-run inflation rate would likely yield the benefits of a more formal declaration. In light of these developments, the Federal Reserve policy framework is now quite close to inflation targeting with respect to providing explicit numerical guidance on its price stability objective.

Why is an explicit numerical objective helpful, beyond a general commitment to price stability. Specification of an explicit quantitative definition of price stability--in the form of a numerical inflation target--can be particularly helpful in facilitating long-term planning. Critically, it facilitates the public's formation of more accurate expectations and helps anchor longer-term inflation expectations with its well known benefits to the overall effectiveness of monetary policy and success in promoting greater overall stability (Orphanides and Williams, 2005).

The second key element of the inflation targeting framework is a forward-looking policy orientation and the associated monitoring of inflation forecasts and inflation expectations. As long and variable lags are an inherent feature of monetary policy, the latter should exhibit a forward-looking approach. Central banks pursuing inflation targeting regularly publish extensive reports on economic conditions and the outlook for inflation, including their projections for these variables. Similarly, since the public's inflation expectations can provide valuable information about the outlook for inflation, their evolution receives special emphasis in any forward-looking policy approach. Monitoring short-term inflation expectations is valuable because expectations are important determinants of actual price and wage setting behaviour and thus actual inflation over time. Expectations over longer horizons are particularly useful for gauging any possible reversal in the central bank's credibility regarding its commitment to price stability. They are also embedded in asset prices and long-term interest rates and thus, importantly, influence economic decisions with long-term outcomes such as investment in capital, housing and durable goods. Monitoring the stability of inflation expectations is also important to gauge the extent to which a central bank can accommodate real economic disturbances without compromising its price stability mandate. When private inflation expectations become unmoored from the central bank's objectives, macroeconomic stabilization can be considerably harder to achieve. Well-anchored inflation expectations facilitate the monetary policy response to adverse supply shocks,

thereby enabling central banks to better stabilize economic fluctuations. For these reasons, inflation targeting central banks place particular emphasis on inflation forecasts and inflation expectations. But the same applies to *any* policy framework focused on achieving price stability, and indeed the forward-looking policy orientation and close monitoring of inflation forecasts and inflation expectations is also common to other policy frameworks, including those of the ECB and the Federal Reserve.

The third element of inflation targeting is a transparent communication strategy which aims at explaining to the markets and the public at large the mandate of the central bank and its actions towards achieving this mandate over the medium-term. The opacity which accompanied monetary policy in the past, has been replaced by transparency. The merits of this transparency have been understood and incorporated into other strategies as well. Increased transparency in monetary policy has been espoused by both inflation and non-inflation targeting central banks over this period. I believe that although an increase in transparency may not have been an integral part of the framework followed by non-inflation targeting central banks, its value was recognised, in part because of the early success of inflation targeting. As a result, today the public is in a better position to comprehend the rationale for policy decisions. A better educated public regarding the systematic component of monetary policy, implies a smaller element of surprise and increased effectiveness of monetary policy actions.

All in all, when considering crucial aspects of policy strategy, such as recognition of the primacy of price stability, the forward-looking policy orientation, the emphasis on maintaining well-anchored inflation expectations and transparency in communications, there are many similarities between the frameworks of the ECB, the Federal Reserve, and inflation targeting central banks. Differences in the practices of these central banks should not be exaggerated.

Although it is straightforward to identify some key elements of inflation targeting, modelling this policy approach has not been as straightforward. One strand of the academic literature identifies inflation targeting with the solution to a central bank optimisation problem in a linear rational expectations model of the economy. To capture the flexibility aspect of inflation targeting, a quadratic loss function with multiple objectives is imposed on a linear model of the economy and sufficient assumptions are imposed so that the solution can fit within the confines of the familiar linear-quadratic optimisation framework. Typical assumptions include perfect knowledge of the underlying structure of the economy and complete transparency and credibility of multiple objectives for the central bank. In that context, inflation targeting is seen as

the policy that implements the linear first-order conditions obtained from the related optimisation problem (see for example, Svensson, 2002, Svensson and Woodford, 2005, Giannoni and Woodford, 2005).

Such models can certainly be useful for advancing macroeconomic theory but I question their practical usefulness for formulating policy under inflation targeting. By rendering inflation targeting observationally equivalent to the earlier approach of optimal control monetary policy, this modelling approach fails to appreciate and does not adequately reflect some of the special features of inflation targeting (Faust and Henderson, 2004). Indeed, the optimal control approach misses the central focus that inflation targeting places on price stability as well as the rationale for this focus.

An optimisation problem based on a quadratic loss function with multiple goals hardly reflects the hierarchical nature of the objectives of an inflation-targeting central bank. When this difference is acknowledged, to distinguish this modelling approach from inflation targeting the term "flexible" inflation targeting is often used. In my view, this is an unfortunate and confusing use of terminology. A more accurate term would be "multiple-goal targeting" to distinguish the parallel emphasis on multiple goals as opposed to the unique focus that inflation targeting places on price stability. Recalling Don Brash's description of the multiple-goal orientation of the Reserve Bank of New Zealand before adopting inflation targeting also suggests that the multiple-goal targeting modelling approach is more suitable for modelling monetary policy prior to the adoption of inflation targeting than monetary policy under inflation targeting.

A danger in using such models for policy analysis is that they may suggest the feasibility of misleadingly ambitious outcomes. Under the imposed assumptions of rational expectations with perfect knowledge, inflation expectations are always well-anchored and central bank communication loses any meaningful independent role. Economic shocks have more benign consequences and fine-tuning policy appears able to deal with them more easily than is feasible in practice.

To better appreciate the effectiveness of the inflation targeting approach, Orphanides and Williams (2007) argue that it is essential to acknowledge economic agents' imperfect understanding of the macroeconomic environment within which the public forms expectations and policymakers formulate and implement monetary policy. This requires relaxing the assumption of perfect knowledge in our models and accommodating learning dynamics to better approximate how economic agents update their beliefs and form expectations based on incoming information.

In models that introduce such additional layers of complexity to better approximate reality, implementation of the inflation targeting policy can be approximated with simple policy rules that specify how the central bank adjusts its interest-rate policy instrument in response to deviations of inflation projections from the inflation target. Certainly, no simple rule can accurately capture the constrained discretion of inflation targeting. However, macroeconometric policy evaluations of simple rules in various models can usefully help identify those factors that are most important for guiding policymakers in achieving the robust stability results inflation targeting central banks seek (see for example, Batini and Haldane, 1999, Levin, Wieland and Williams, 2003, Orphanides and Williams, 2007).

Another reason for utilizing simple policy rules as descriptive devices for implementing inflation targeting, is their value in communicating the simplicity of the framework. An outline of the implementation of monetary policy under inflation targeting could be simply stated in terms of the deviation of inflation projections from a central bank's target over time. A rule of thumb could be: If it appears that inflation will be notably higher than the target for a considerable period, the policy rate should be raised. If it appears that inflation will be notably lower than the target for a considerable period, the policy rate should be eased. I find it remarkable how similar this rule of thumb for inflation targeting appears to be to Knut Wicksell's suggested rule for achieving and maintaining a stable price level:

> "If prices rise, the rate of interest is to be raised; and if prices fall, the rate of interest is to be lowered; and the rate of interest is henceforth to be maintained at its new level until a further movement in prices calls for a further change in one direction or the other" (Wicksell, 1898).

In closing, I would like to highlight the methodological challenge I see in modelling inflation targeting. I am not convinced that we have reached a good equilibrium in the allocation of modelling resources to capture the essence of the approach. I am concerned about the appeal of relying on optimal control techniques to construct multiple-goal targeting models that are then used for policy analysis regarding inflation targeting. As has been the case in the past, I see a risk of overpromising on what monetary policy can do and losing our focus on inflation. The search for ever increasing flexibility in implementing inflation targeting should not tempt policymakers towards the tendency to overreach much beyond what inflation targeting can deliver.

To conclude, the key elements of inflation targeting, namely the public announcement of a numerical inflation target along with the recognition of the primacy of price stability, the forward-looking policy orientation with emphasis on maintaining well-anchored inflation expectations and transparency in communications, lie at the centre of what constitutes good monetary policy practice more generally. As originally formulated and practiced, inflation targeting appropriately respects the limits of our knowledge and should help avoid major monetary policy mistakes. Inflation targeting has contributed to improved policy practice over the past twenty years. Importantly, I believe that it has had a positive influence on policy even among central banks that have chosen not to adopt it. The increased transparency in monetary policy that has been espoused by both inflation and non-inflation targeting central banks is confirmation of this. But with the success of inflation targeting and other frameworks in maintaining price stability, new challenges have appeared. At present, we are dealing with an extreme episode of financial instability and a truly globalised economic downturn. I hope that over the next two decades we are as successful in dealing with these new challenges as we have been in dealing with the problem of price instability over the past twenty years.

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