
Monetary Policy in a Low-Interest-Rate Environment: A Checklist

Huw Pill, *European Central Bank*

Both historical and recent experience suggest that periods of low interest rates are associated with financial distress. Indeed, low interest rates often stem from the monetary policy response to financial crisis. In this context, central banks simultaneously face two challenges. First, as the lower bound on nominal interest rates approaches, the scope for conventional monetary policy easing to counter deflationary pressures diminishes.¹ Second, the effectiveness of monetary transmission may be threatened by disruptions to financial markets, institutions, and infrastructure arising from the crisis itself. As their room for maneuvering is narrowed and the transmission of their policy decisions becomes impaired, how should central banks act in order to achieve their objective of price stability?

Broadly speaking, three lines of action exist. Central banks can (a) steer private sector expectations of future interest and inflation rates, (b) adopt nonstandard monetary policy instruments (other than short-term interest rates) to circumvent the lower bound,² and (c) attempt to strengthen monetary transmission by intervening to support the functioning of financial markets and institutions. These three courses of action are not mutually exclusive; on the contrary, important interactions and complementarities exist among them. Nor are they limited to a low-interest-rate environment, even if their importance may be magnified in that context. In what follows, I first discuss these three channels and then, on that basis, develop a checklist for the conduct of monetary policy in these testing circumstances.

I. Steering Private Sector Expectations

In the face of a deflationary shock, the lower bound on nominal interest rates implies that a central bank's ability to stimulate demand—and

thereby offset the deflationary pressures—is circumscribed. In meeting the resulting policy challenge, first and foremost the central bank must credibly anchor longer-term private sector inflation expectations at levels consistent with price stability. This will serve to stabilize the economy. Should long-term inflation expectations start to drift downward, the resulting rise in real rates will weigh on spending and, as expectations of deflation become entrenched, may threaten a self-sustaining deflationary spiral.

How can longer-term inflation expectations be stabilized when the conventional policy instrument is constrained? Reifschneider and Williams (2000) shed light on this question. When private behavior is forward-looking, central banks able to influence private expectations of the future path of short-term interest rates can ease financial conditions by flattening the yield curve. Simply put, a central bank that can credibly promise to keep interest rates low in the future can lower longer maturity yields now and thereby stimulate the economy to the extent that long rates are those that influence spending decisions. Other things equal, such stimulation will stabilize inflation expectations and thus reduce real interest rates, thereby further supporting economic activity and offsetting deflationary pressure (Eggertsson and Woodford 2003).

This much is well known. Such thinking has underpinned advice that short-term interest rates should be reduced aggressively in the face of a deflationary shock so as to preempt the threat of a deflation trap. What I emphasize here is the distinction between the *ex ante* and the *ex post* implications of such policy advice.

Figure 1 illustrates this point on the basis of simulations of a variant of the European Central Bank's area-wide model.³ The figure shows model responses to a deflationary shock, which—under a standard Taylor-like rule specification of monetary policy—would imply a path of policy rates that violates the lower bound constraint (here normalized to zero). This path is labeled “unconstrained.”⁴

One approach to addressing the deflationary shock would be to continue to follow the standard Taylor-like rule response while simply respecting the lower bound constraint (i.e., setting policy rates at zero whenever the rule would imply negative rates). The implications of such an approach are captured by the responses labeled “LB-constrained.” Note two characteristics of these responses. First, following the shock, the policy rate is reduced more aggressively than in the “unconstrained” case (see the first panel of fig. 1). This is because forward-looking agents in the model anticipate the macroeconomic impact of the lower bound constraint. Since policy rates cannot be lowered to engineer lower real

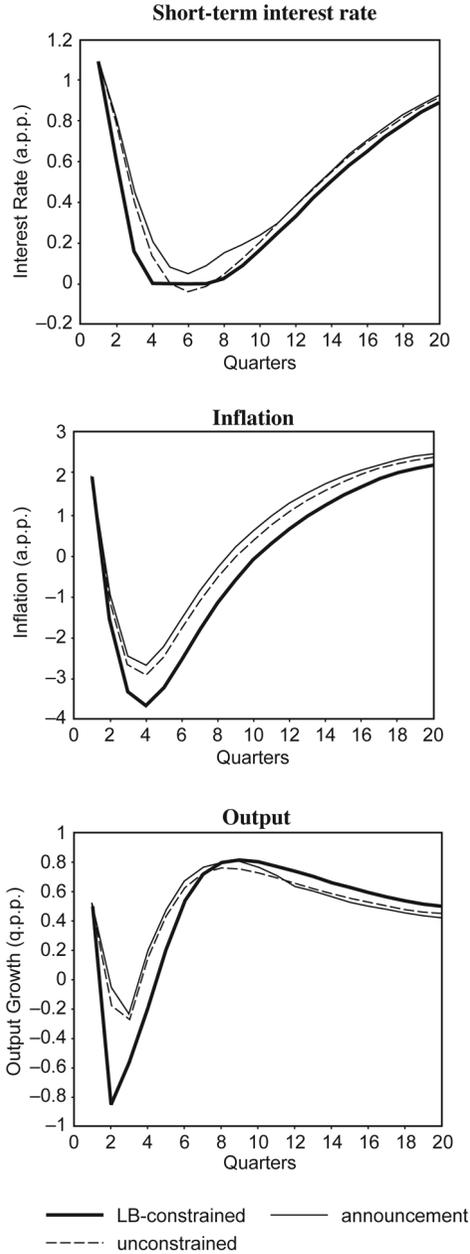


Fig. 1. Impact of a deflationary shock close to the lower bound on nominal interest rates

rates and thus stimulate the economy, agents foresee lower inflation (and thus higher real rates) in the future. Owing to the forward-looking behavior embodied in the model, this implies lower inflation and lower activity now and thus—via the standard Taylor-like rule response—lower policy rates. Second, notwithstanding the “more aggressive and prompt” response of policy rates in this scenario, the LB-constrained paths of both inflation and output growth (shown in the second and third panels) fall well below those achieved in the benchmark unconstrained case.

Contrast these results with the responses labeled “announcement.” These paths are generated by a central bank response to the deflationary shock that credibly commits *ex ante* to keep policy rates somewhat below the path that would be implied by the standard Taylor-like rule.⁵ Because this announcement to be “easier than normal” is credible, private agents anticipate higher inflation than would otherwise be the case in the future and thus, other things equal, lower real interest rates. Through channels that are the mirror image of those developed above for the LB-constrained simulation, the expectation of lower real rates supports both current inflation rates and economic activity and thus acts to contain the direct impact of the deflationary shock. In fact, the paths followed by inflation and output growth closely mimic those achieved in the unconstrained case, where the implications of the lower bound were simply ignored. Moreover, since the paths of inflation and output growth are higher than otherwise, the actual path followed by the policy interest rate also shifts up (and, in the example shown, never hits the lower bound). In other words, the credible *ex ante* commitment to keep rates “lower than normal” results in an *ex post* path of policy rates following the deflationary shock that is smoother and less aggressive than would have been the case in the absence of that commitment.

If its policy rate is not lowered immediately and aggressively in response to a deflationary economic shock, a central bank is often criticized for being “behind the curve.” The (admittedly somewhat artificial and stylized) exercise presented above illustrates that judging the timeliness and effectiveness of the monetary policy response on the basis of the *ex post* behavior of policy rates can be very misleading. Through acting in a credible, forward-looking way, a smoother path of policy rates can achieve greater stability in terms of price developments and economic activity in the face of deflationary shocks. To emphasize: by steering private expectations, a central bank can “do more” (in terms of inflation and output stabilization) by “doing less” (in terms of changing the policy rate).

II. Central Bank Communication

The key role of expectations implicit in this analysis places a premium on effective central bank communication. Communication is the lever through which monetary policy makers can guide private expectations and thus exploit the transmission channels described above.

Approaches to communication of interest rate intentions can be placed along a spectrum. At one extreme, a hard and fast precommitment to a specific future path of policy rates could be announced and adhered to mechanically. At the other extreme, one could eschew all attempts to consider or signal future interest rates, formulating monetary policy exclusively on the basis of what policy rate to set now. Neither approach is desirable. By its nature, the latter fails to exploit the key expectational channels that can address deflationary risks in the face of a lower bound. Yet the former is unlikely to be credible (and thus effective) since it precludes responses to new information and shocks as they emerge.

Central banks therefore place themselves somewhere between these two polar extremes. In the literature, the notion of “conditional commitment” has been developed to capture the need to offer forward-looking signals about future policy while avoiding precommitment to a predetermined interest rate path. With the context of a well-specified model, this approach makes sense. Policy can be made conditional on the incidence of shocks defined by the model and their impact on the evolution of endogenous variables.

In practice, making “conditional commitment” operational is more difficult. Ahead of time, no central bank can offer a complete description of how it would react to all contingencies. Such a listing would be encyclopedic and incommunicable. Indeed, in a world frequented by so-called black swan events and/or Knightian uncertainty, making a comprehensive list of contingencies would be impossible. Nonetheless, the need to steer private expectations, especially in the vicinity of the lower bound constraint, implies a need for the central bank to “signal” what—on the basis of the information currently available—its assessment of the economic situation is and what implications that has for the conduct of monetary policy.

All central banks engage in such signaling to a greater or lesser extent. The mechanisms vary: some central banks publish a quantified (and probabilistic) view of the future path of policy rates consistent with their objectives over their forecasting horizon, while others rely on a verbal description of the economic conjuncture and its implications for rate setting. Central bank communication always embodies elements of both

science and art. Rather than evaluating communication in terms of its aesthetics (artistic or otherwise), the focus should remain on its effectiveness, where effectiveness is understood in terms of the contribution made to the achievement of central bank objectives. Facing the special challenges of a low-interest-rate environment, central bank communication that stabilizes private inflation expectations at levels consistent with price stability and supports the steering of longer maturity rates is therefore key.

To be credible and effective, communication must be grounded in reality. Actions must follow words: central bank communication is not an independent instrument of monetary policy, but rather an important channel for its transmission. In a low-interest-rate environment, which, as we have seen, places a premium on steering longer rates, two aspects of the conduct of monetary policy can prove very helpful in maintaining this necessary connection between words and deeds: medium-term orientation and steady-handedness.

A central bank with a reputation for acting in a medium-term-oriented manner and with a steady hand is not expected to respond precipitately to every piece of “news” in a volatile environment. As a result, interest rate decisions will be seen by market participants as more persistent than otherwise. A reputation for steady-handedness therefore enhances the ability to flatten the yield curve as the lower bound on nominal short-term rates approaches (Goodfriend 1991). Moreover, persistent changes in policy and market rates are more likely to be passed through to bank lending rates, a crucial channel of transmission in a bank-centered financial system. Through both these channels, steady-handedness maintains the effectiveness of monetary policy, even when rates reach very low levels. By contrast, a central bank lacking a reputation for steady-handed behavior, one with a focus on reacting to the latest news, will have less traction in steering the relevant market and longer-term interest rates.

Adopting such a steady-handed approach does not imply that the central bank’s assessment of the conjunctural situation should not be fully “up-to-date.” On the contrary, central banks should always strive to be comprehensively informed about the latest economic and monetary developments. Nor does it imply that a central bank cannot react to new information. As the response to the financial crisis in late 2008 demonstrates, in the face of a large enough shock, significant and rapid changes to the policy stance can and should be implemented. Rather, a steady-handed approach—understood as imparting persistence to interest rates—builds the effectiveness of monetary policy in pursuit of its objective of price stability. Transmission to financial markets, the real economy, and, ultimately, the price-setting process is strengthened.

III. Nonstandard Measures

In the face of deflationary pressures, monetary policy makers can also resort to so-called nonstandard measures. In other words, policy makers can employ instruments other than the short-term nominal interest rate to ease the stance of monetary policy. By its nature, the set of nonstandard measures is potentially very broad. The only meaningful definition is the set of those measures that are not standard.⁶ Several classifications have been offered in order to facilitate discussion of the various possible approaches. None of these has proved particularly useful since, in practice, many of the policies introduced by central banks in response to the financial crisis span the inevitably rather arbitrary dividing lines drawn between categories.

Against this background, it may be more informative to distinguish nonstandard measures on the basis of their intent. One set of measures aims at maintaining the normal channels of monetary policy transmission, from interest rate decisions to price-setting behavior. By their nature, such measures are natural complements to the conduct of conventional policy: the two elements work together. Another set of measures aims at exploiting additional channels of monetary policy transmission, going beyond the conventional channels. This latter set of nonstandard measures is thus a potential substitute for conventional monetary policy should the lower bound on nominal interest rates bind and/or traditional channels of transmission be blocked.

A. *Maintaining Conventional Transmission Channels*

To maintain monetary transmission through conventional channels at times of stress, central banks provide support to the private sector so as to maintain the functioning of financial markets, institutions, and infrastructures. There is a natural complementarity between providing this support and contributing to the maintenance of financial stability: indeed, the two go hand-in-hand.

As the fulcrum for the implementation of monetary policy, the money markets represent a crucial link in the transmission chain and thus deserve special attention. Experience since August 2007 demonstrates as much. Beyond the money market, the direction of support will depend upon the specific incidence of market failure and thus the location of identifiable blockages in transmission, the structure of the financial system, and the broader flexibility of the economy. These factors will vary from one country to another. The form of support offered by central banks will

thus also vary. Measures implemented in the face of the recent financial crisis include provision of “liquidity insurance” to the short end of the money market, provision of intermediation services between banks, acting as a market maker for certain securities, and targeted interventions in specific markets designed to reduce abnormal spreads and stimulate private trading.

Given that the evidence is far from complete, it is premature to form a definitive judgment on the effectiveness of these measures. Yet the conclusion that such support has proved decisive in avoiding a deeper financial calamity is hard to avoid. If central bankers learned one lesson from the Great Depression, it was that one should not let the financial system collapse. The nonlinearities involved in such a dynamic are profound: once financial markets, institutions, and infrastructures cease to function, restarting them is difficult, costly, and time consuming. The intervening erosion of confidence is catastrophic. Efforts made over the past 2 years demonstrate that this lesson has been fully incorporated in central bank policy decisions.

Yet central banks must also recognize the limitations of their policy. In the face of crisis, they may need to be innovative in their approach. But central banks should be very wary of assuming responsibility for goals that they do not have the instruments to pursue. Reestablishing normal market functioning ultimately relies on the behavior of market participants. The central bank can support this process, but in the end it is the private sector that creates and maintains the market. Moreover, while central banks can provide liquidity, they cannot provide solvency support to financial institutions. This remains the responsibility of the fiscal authorities. Central banks also have to guard against taking excessive risk on their balance sheet as future losses have fiscal implications.

More fundamentally, central banks must ensure that their support of the functioning of the financial sector does not morph into a dependence of the financial sector on central bank support. Such support should not blunt the incentives for governments, regulators, and the private sector to address the underlying structural problems in the financial system and the economy more broadly. Creation of such dependence and consequent lack of action on the underlying problems will not only prolong stagnation in the economy as a whole but also complicate central banks’ necessary exit from its exceptional measures. Ensuring that such an exit strategy exists is crucial for the preservation of the central bank’s independence and its ability to focus on its primary objective of price stability, as well as for the avoidance of moral hazard among other economic agents, including the government.

B. Exploiting Nonconventional Transmission Channels

Measures can also be taken to exploit so-called nonconventional channels of transmission. Orphanides and Wieland (2000) note that, by their nature, the empirical properties of such measures are uncertain: they are nonconventional because they are rarely used and therefore hard to analyze. Recourse to such measures may therefore need to be cautious. But that does not mean that such measures are ineffective (even if the debate over their efficacy in recent Japanese experience remains intense).

One such measure is the deliberate expansion of the monetary base. This can influence the economic outlook through a number of channels. First, on the basis of quantity theoretic considerations, an expansion of monetary liabilities can raise inflation expectations directly. Second, an accumulation of monetary base by central bank counterparties may lead to a portfolio balance effect as banks attempt to restructure their balance sheets by buying financial assets or making loans. While such activities are ultimately self-defeating for the banking sector as a whole—since holdings of central bank reserves represent a closed system—the chain of transactions triggered by individual banks' attempts to rebalance their portfolios may lead to a bidding up of asset prices and a revival of bank lending. Third, to the extent that the central bank conducts transactions with the nonbank private sector (e.g., through outright purchases of securities), broader portfolio balance effects may operate. Households and firms may attempt to shed monetary assets (defined more broadly than the monetary base) in favor of longer-term and riskier securities and/or goods and services. In turn, such attempts may drive up asset, goods, and factor prices, offsetting deflationary pressures.

As someone who has argued in the past—often in the face of considerable academic skepticism—for the importance of monetary and credit mechanisms in transmission (Pill and Rautanen 2006; Fischer et al. 2009), I find these channels both important and plausible. Central banks should certainly be wary of suggesting that their armory is exhausted when policy rates reach their lower bound, since this statement is neither true nor helpful. Such an assertion both risks creating deflationary dynamics through a self-fulfilling prophecy and denies the ultimately monetary origins of price level developments. The scope for such mechanisms to be understood and exploited when the need arises would be enhanced if a consistent and continuous assessment of money and credit developments were properly and prominently embedded in the overall monetary policy framework.

IV. Concluding Remarks: A Checklist

Drawing on the preceding discussion, by way of concluding remarks I would offer the following checklist for the conduct of monetary policy in a low-interest-rate environment. While many—indeed most—of these observations apply in general, as reflected above, their import becomes particularly acute as the level of the interest rate falls.

- First and foremost, do not lose sight of the objective of price stability. Recognize the necessarily medium-term orientation and symmetric nature of this objective and communicate accordingly.
- Second, in pursuing achievement of this objective, recognize the need to ensure that monetary policy transmission remains effective. A deep understanding of monetary and credit developments and their impacts on economic behavior is required, as well as knowledge of conventional interest rate effects.
- Third, be innovative in addressing the challenges thrown up by exceptional and/or crisis periods, but always remain aware of the limits of central bank policy. In particular, do not take on or accept responsibilities that you do not have the appropriate instruments to pursue.
- Fourth, do not store up problems for the future. Above all, avoid creating a dependency of other economic agents—governments, regulators, banks—on your support.
- Finally, have a credible exit strategy.

Endnotes

The opinions expressed in this note are those of the author and do not necessarily reflect the views of the European Central Bank or the Eurosystem. Thanks are due Oreste Tristani and Günter Coenen for helpful comments, as well as to Gianni Lombardo for input related to the model simulations. The responsibility for all remaining errors is that of the author.

1. An interesting discussion exists on the feasibility of various schemes—proposed by Gesell (1916/1958) and Eisler (1932), among others—to overcome the lower bound on nominal interest rates. Moreover, the level of the lower bound on nominal rates is a subject of contention. In the interest of brevity, these important issues are not addressed here.
2. For example, by implementing monetary policy through quantitative measures, such as controlling or targeting the monetary base.
3. This is a medium-sized dynamic stochastic general equilibrium open economy model of the euro area, embodying forward-looking behavior on the part of firms and households (Christoffel, Coenen, and Warne 2008).
4. The nature of the shock is illustrated in the first panel of the figure. The path labeled “unconstrained” shows how policy rates evolve in a simulation that assumes away the lower bound; they fall below the lower bound of zero.
5. More precisely, the “announcement” approach involves reducing (in each quarter, for the first six quarters after the incidence of the deflationary shock) the policy rate by 20 basis points relative to what the Taylor-like rule would prescribe given inflation and output developments. Obviously, this represents a very stylized representation of a policy in the Reifschneider and Williams (2000) tradition, but it is sufficient to illustrate the point

made here. As shown in fig. 1, the choice of 20 basis points, while arbitrary, results in paths for inflation and output growth that mimic the unconstrained case.

6. Note that this implies that the nature of nonstandard measures will vary across central banks according to the flexibility and breadth of their operational framework for the implementation of monetary policy in normal times. In particular, the European Central Bank's operational framework at the outset of the financial crisis in 2007 embodied a number of features (broad set of eligible counterparties, broad definition of eligible collateral, large volume of the liquidity deficit and thus of outstanding monetary policy operations, longer-term refinancing operations with 3-month maturity, remuneration of reserves, etc.) that were helpful in addressing tensions in the money market and that were mimicked by the introduction of nonstandard measures in other jurisdictions (e.g., the term auction facility [TAF] in the United States).

References

- Christoffel, Kai, Günter Coenen, and Anders Warne. 2008. "The New Area-wide Model of the Euro Area: A Micro-Founded Open Economy Model for Forecasting and Policy Analysis." Working Paper no. 944, European Central Bank, Frankfurt am Main.
- Eggertsson, Gauti B., and Michael Woodford. 2003. "The Zero Bound on Interest Rates and Optimal Monetary Policy." *Brookings Papers on Economic Activity* 34, no. 1:139–235.
- Eisler, Robert. 1932. *Stable Money: The Remedy for the Economic World Crisis*. London: Search.
- Fischer, Björn, Michele Lenza, Huw Pill, and Lucrezia Reichlin. 2009. "Monetary Analysis and Monetary Policy in the Euro Area, 1999–2006." *Journal of International Money and Finance* 28, no. 7:1–27.
- Gesell, Silvio. 1916/1958. *Die Natuerliche Wirtschaftsordnung*. Published in English as *The Natural Economic Order*. London: Owen.
- Goodfriend, Marvin. 1991. "Interest Rates and the Conduct of Monetary Policy." *Carnegie-Rochester Conference Series on Public Policy* 34, no. 1:7–30.
- Orphanides, Athanasios, and Volker Wieland. 2000. "Efficient Monetary Policy Design Near Price Stability." *Journal of the Japanese and International Economies* 14, no. 4:327–65.
- Pill, Huw, and Thomas Rautanen. 2006. "Monetary Analysis: The ECB Experience." Paper presented at the eighth conference on The ECB and Its Watchers, Centre for Financial Studies, Frankfurt, May 5.
- Reifschneider, David, and John C. Williams. 2000. "Three Lessons for Monetary Policy in a Low Inflation Era." *Journal of Money, Credit and Banking* 32, no. 4: 936–66.