

Frederic S Mishkin: Comfort zones, shmumfort zones

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It's a genuine pleasure to address the Virginia Association of Economists here at Washington and Lee University on an important issue in monetary policy. Some of you may be wondering about the meaning of my speech title – "Comfort Zones, Shmumfort Zones." Well, putting the "shm" before a word is a way to cast a bit of skepticism on it. Thus, if your friend tells you that you are "fancy, shmancy," then you might be overdressed for the occasion. And if you exclaim, "Email, shmemail!" then you've just found your inbox overloaded. Of course, there's also a significant distinction between the expressions "shlemiel" and "shlimazel," but that's more-advanced material that I will defer until another speech.

Although this speech has a somewhat humorous title, my remarks will address a serious and important topic, namely, how central banks promote the stability of prices and economic activity and how this policy framework is communicated to the public. More specifically, I will consider whether central banks should describe price stability in terms of a desired range of inflation outcomes – often referred to as a "comfort zone" for inflation – or in terms of a specific numerical value at which the inflation rate is expected to settle down over some reasonable time horizon.

After a brief review of the academic literature regarding the level of inflation that best promotes longer-run economic growth and employment, I will discuss several conceptual issues regarding the pitfalls of comfort zones and the benefits of specifying a point objective for inflation. Finally, I will move from theory to practice and consider the experiences of other major industrial countries.

As usual, my remarks reflect only my own views and are not intended to reflect those of the Federal Open Market Committee (FOMC) or of anyone else associated with the Federal Reserve System.¹

What is the optimal level of the inflation rate?

Research in monetary economics usually specifies monetary policy objectives in terms of stabilizing both inflation and economic activity.² Those two goals are related: Maintaining price stability promotes stronger economic activity in the long run.

What do we mean by price stability? A widely cited definition is that the inflation rate is sufficiently low so that households and businesses do not need to take inflation into account

¹ I'd like to thank Etienne Gagnon, Steven Kamin, Linda Kole, Andrew Levin, and David Lopez-Salido for helpful comments and assistance with this speech.

² Indeed, this specification of monetary policy objectives is exactly what is suggested by the dual mandate that the Congress has given to the Federal Reserve to promote both price stability and maximum employment (Mishkin, 2007a, 2008).

in making everyday decisions.³ Broadly speaking, I believe this definition of price stability is a reasonable one, and in practice, central banks around the world have chosen average levels of inflation between 0 and 3 percent as consistent with this criterion. However, this range can be narrowed a bit further by considering the implications of economic theory and empirical evidence about the average inflation rate that produces the best economic outcomes. In particular, the literature on the optimal inflation rate not only bolsters the case for low inflation but also highlights the risks of maintaining an excessively low inflation rate.

The case for low inflation

All economists agree that hyperinflations, such as the one in Germany in the 1920s, are particularly damaging due to the resulting distortion of economic incentives and the waste of valuable resources. Even rates of inflation far short of hyperinflation appear detrimental to economic performance, as evidenced by the double-digit inflation rates of the 1970s. And over the past decade or so, central bankers and academic economists have reached a remarkable degree of consensus about the desirability of low and stable inflation – and as you know, arriving at a consensus is quite rare for economists.

The average rate of inflation distorts the efficient allocation of resources through three main channels. First, because some firms face costs in changing their prices, a rise in the general price level tends to generate undesirable movements in relative prices, thereby leading to an inefficient allocation of resources. This relative price dispersion increases with inflation, and the desirability of minimizing these relative price distortions provides a key rationale for price stability.⁴

Second, inflation is an implicit tax on capital. In an imperfectly indexed tax system, inflation seriously distorts saving and investment because investment income is taxed on the basis of its nominal rather than inflation-adjusted or real value. In those circumstances, price stability may considerably improve the efficiency of the economy.⁵ Third, a higher average inflation rate tends to generate distortions by raising the cost of holding currency and other non-interest-bearing assets.⁶

Can inflation be too low?

While the benefits of low inflation are now widely recognized, somewhat less attention has been given to the pitfalls of maintaining inflation rates very close to zero, so I will now discuss

³ For example, former Federal Reserve Chairman Alan Greenspan (2002) stated that "price stability is best thought of as an environment in which inflation is so low and stable over time that it does not materially enter into the decisions of households and firms."

⁴ Over the past couple of decades, an extensive literature has analyzed the benefits of low average inflation in a so-called New Keynesian framework. These studies generally start from a neoclassical model and incorporate two key features: monopolistic competition and costly price adjustment. Refer, for instance, to Goodfriend and King (1997) and Woodford (2003).

⁵ Interestingly, the larger the burden coming from the interaction of inflation and the capital income tax, the more government tax revenues will fall when inflation is reduced. Feldstein (1997, 1999) provides a quantitative assessment of the benefits of price stability based on the interaction of inflation and the tax system, showing that a lower average inflation rate stimulates investment by reducing the effective tax on capital income.

⁶ Because real money balances bear no interest, the opportunity cost of holding them is the nominal rate of interest. Higher inflation then leads to higher nominal interest rates, and hence lowers real balances, which causes a welfare loss because the social cost of producing real balances has remained substantially unaffected. In the absence of other frictions in the economy, inflation is viewed in this class of models as a tax on real balances (Bailey, 1956; Friedman 1969). However, the costs from higher holdings of real money balances has arguably become much less relevant as our economy has become more financially sophisticated. Households hold only modest amounts of cash, so these "shoe leather" costs are likely to be fairly trivial.

this issue in somewhat greater detail. Specifically, if the average inflation rate is too low, then the economy faces a greater risk that a given adverse shock could distort labor markets, induce debt deflation, or cause monetary policy to become constrained by the zero lower bound on nominal interest rates. These risks imply that undershooting a zero inflation objective is potentially more costly than overshooting that objective by the same amount, and that setting the inflation objective at a rate a bit above zero provides some insurance against these risks.

Downward nominal wage rigidities. Inflation at rates close to zero might create nonnegligible costs to the economy because firms may be relatively reluctant to cut nominal wages.⁷ Sticky nominal wages can prevent labor markets from reaching the optimal equilibrium. However, empirical evidence from Switzerland and Japan indicates that in an environment of deflation or very low inflation, downward nominal wage rigidities become less prevalent.⁸

Debt deflation. Keeping the average inflation rate close to zero increases the likelihood that the economy will experience occasional episodes of deflation. Deflation can be particularly dangerous for an advanced economy, in which debt contracts often have long maturities. As described by Irving Fisher (1933), an episode of deflation can lead to "debt deflation," that is, a substantial rise in the real indebtedness of households and firms, because the nominal values of debt obligations are largely predetermined whereas the nominal values of household income and business revenue are falling together with the general price level.⁹ Indeed, the deterioration of the balance sheets of households and firms can result in financial turmoil that contributes to further deflation and greater macroeconomic instability.

The zero lower bound. With a very low average inflation rate, monetary policy is also more likely to encounter circumstances in which short-term interest rates are constrained by the so-called zero lower bound on nominal interest rates.¹⁰ Specifically, investors will never choose to lend money at a negative nominal interest rate because they always have the option of simply holding cash at a zero interest rate; thus, nominal interest rates cannot fall below zero.

A number of researchers in the Federal Reserve System and elsewhere have analyzed the implications of the zero lower bound in estimated dynamic rational expectations models.¹¹ If the economy faces a large contractionary shock, the optimal monetary policy response is to

⁷ Akerlof, Dickens, and Perry (2000). The main idea can be described as follows: During periods of low productivity growth and no inflation, firms that need to cut their relative wages can do so only by cutting money wages. In the presence of downward nominal wage rigidities, firms will keep relative wages too high and employment too low. Hence, very low rates of inflation might prevent real wages from adjusting downward in response to declining labor demand in certain industries or regions, thereby leading to increased unemployment and hindering the re-allocation of labor from declining sectors to expanding sectors. Research by staff at the Federal Reserve Board has found evidence that downward nominal wage rigidities exist in the United States (Estevao and Wilson, 1998; Lebow, Saks, and Wilson, 2003). However, the evidence for the mechanism through which low inflation raises the natural rate of unemployment is not at all clear cut. Inflation not only can "grease" the labor market and thus allow downward shifts in real wages in response to a decline in demand along, but it can also put friction in the system ("sand") by increasing the noise in relative real wages (Groshen and Schweitzer, 1999). The noise reduces the information content of nominal wages and hence the efficiency of the process by which workers are allocated across occupations and industries.

⁸ See Kuroda and Yamamoto (2003) for analysis of the Japanese experience, Fehr and Goette (2005) for analysis of the Swiss experience, and Kim and Ruge-Murcia (2007) for macroeconometric analysis of the implications of downward nominal wage rigidity for the United States.

⁹ The fact that the deflation is anticipated does not completely rule out a negative effect on balance sheets: If the debt is sufficiently long-lived, there still is some redistribution from debtors to creditors.

¹⁰ Although these considerations are important for the design of monetary policy, a central bank can make use of other policy tools if the policy rate does become constrained by the zero lower bound (Bernanke, 2002).

¹¹ See Reifschneider and Williams (2000), Eggertsson and Woodford (2003, 2004), Coenen, Orphanides, and Wieland (2004), Wolman (2005), and the citations therein.

push the short-term nominal interest rate below the level of expected inflation, thereby reducing real interest rates enough to mitigate the impact of the shock. But if the central bank has an inflation objective very close to zero, the zero lower bound can prevent the full implementation of this policy response, and hence the economy will tend to exhibit greater volatility of economic activity and inflation.

In contrast, given shocks like those seen over the past several decades, an average inflation rate higher than about 1 percent substantially reduces the frequency with which the economy hits the zero lower bound. An inflation objective of about 2 percent implies that monetary policy is rarely constrained by the zero lower bound and thereby minimizes the adverse consequences for macroeconomic stability.

Why comfort zones?

These considerations provide the foundations for a broad consensus among academic economists and monetary policymakers around the world that the optimal inflation rate is in the range of about 1 to 3 percent; that is, an average inflation rate outside this range would be detrimental to longer-run health of the economy. In light of that consensus, it might seem natural to specify price stability in terms of a range of acceptable outcomes for inflation. Indeed, several present and past FOMC participants have used the term "comfort zone" and specified a 1 to 2 percent range, thereby providing valuable information regarding their views about what levels of inflation are consistent with the Federal Reserve's dual mandate.¹²

The analytical case for a point objective

Nevertheless, while a "comfort zone" approach may seem appealing, analytical considerations reveal some disadvantages of that approach as well as some significant benefits of specifying and maintaining a point objective for inflation.

The pitfalls of comfort zones

In particular, I would like to highlight three specific pitfalls associated with the "comfort zone" approach.

Confusion about objectives. First, when the price stability objective is formulated in terms of an acceptable range of inflation outcomes, the policy implications may be difficult to interpret. For example, if the comfort zone spans a range from 1 to 2 percent, does that mean that policymakers are equally comfortable with inflation rates of 1.1 percent and 1.9 percent? Furthermore, confusion about inflation objectives might make it harder for a committee of policymakers to decide on the appropriate course of monetary policy. When one member advocates a more accommodative policy stance than other members, it may not be clear whether that reflects a more negative outlook for the economy or a greater willingness to allow inflation to settle in or near the top of the comfort zone. Thus, the comfort zone approach might lead to greater confusion in policy deliberations and hence produce a less effective decisionmaking process.

Perverse expectations dynamics. Second, framing price stability in terms of a comfort zone could lead to perverse expectations dynamics and thereby generate larger fluctuations in economic activity, especially if policymakers maintain a neutral stance regardless of where the inflation rate falls within the comfort zone.

¹² The term "comfort zone" appeared in the headline of a September 2002 New York Times interview with former Federal Reserve Governor Laurence Meyer (Stevenson, 2002) and has subsequently been used by Federal Reserve officials on numerous occasions, including prominent speeches by Bernanke (2005) and Yellen (2006).

For instance, a negative shock to aggregate demand that brought inflation near the bottom end of the range might cause long-run expected inflation to fall, which would raise the real interest rate if the nominal interest rate remained unchanged. This rise in the real interest rate would exert a further drag that could exacerbate the adverse impact of the original negative shock on the economy. Similarly, a positive shock to aggregate demand that raised inflation to the upper end of the range might cause a rise in expected inflation and thus a decline in the real interest rate, which would provide further stimulus to the economy. The result would then be more pronounced swings in economic activity.

Nonlinearities and macroeconomic stability. Third, if a central bank places a high degree of emphasis on the boundaries of the comfort zone, then these threshold effects imply nonlinearities in the conduct of monetary policy that are likely to produce less desirable economic outcomes (Orphanides and Wieland, 2000). For example, the stance of policy would remain roughly neutral in response to a shock that leaves inflation just below the upper end of the comfort zone, whereas a slightly larger shock that pushes inflation just above that boundary would cause an abrupt shift to a contractionary policy stance. Such a "stop-start" approach is likely to cause greater uncertainty in financial markets and would also tend to generate greater volatility of the macroeconomy.

The benefits of maintaining a point objective

In contrast to the various pitfalls associated with comfort zones, there are a number of significant benefits to maintaining a point objective for inflation.

Clarity in communication. First, as I have emphasized in several previous speeches, communication plays a crucial role in the success of monetary policy (Mishkin, 2007b and 2007c). And in this regard, it seems virtually self-evident that communicating about a single numerical value for the inflation objective is more straightforward than communicating about an interval or range of numbers. Of course, regardless of whether the central bank has a point objective or a comfort zone, it is inevitable that the inflation rate will fluctuate in response to various shocks; that's why it is also crucial for policymakers to communicate clearly about the outlook for the macroeconomy and about the central bank's strategy for promoting the stability of prices and economic activity.

Anchoring inflation expectations. An explicit point objective anchors inflation expectations more effectively than a comfort zone. If the comfort zone is considered to be a zone of indifference, then the inflation rate might well exhibit highly persistent fluctuations inside the zone, perhaps even looking like a random walk within that range. In that case, if inflation drifts up to the top of the comfort zone, then the private sector could take the view that inflation might remain at that rate for an extended period of time, especially if policymakers are not taking any action to bring inflation back toward the midpoint of the range. Thus, the comfort zone might then generate somewhat larger fluctuations in longer-run inflation expectations, which would in turn tend to contribute to wider fluctuations in actual inflation. In contrast, with a transparent and credible point objective, longer-run inflation expectations will be firmly anchored at that rate.

The insurance motive. Even if policymakers are relatively indifferent about the level of inflation within a comfort zone, research on the optimal design of monetary policy indicates that they shouldn't be: The central bank should actively seek to bring inflation back to the midpoint of its comfort zone, thereby minimizing the probability that inflation wanders outside the boundaries of that zone. In effect, the optimal policy strategy takes into account the benefits of insurance, and hence the midpoint of the zone becomes the point objective for inflation (Mishkin and Westelius, 2006).

The empirical case for a point objective

Now let's turn to the international experience.¹³ As shown in table 1, a number of major industrial economies have adopted explicit inflation objectives. In 1990, the newly independent Reserve Bank of New Zealand became the first central bank to establish such an objective. Many governments have followed in New Zealand's footsteps, and the inflation objectives have been variously expressed in the form of a point, a range with a preferred midpoint, or a comfort zone (that is, a range of indifference).

In some cases, the inflation objective was adopted in part as a way to lock in the benefits of recent disinflation and to prevent the return of adverse inflation outcomes. New Zealand, whose inflation performance in the 1970s and 1980s was the worst among the industrialized economies, is arguably one such example. In other instances, inflation had already been kept low and stable for some time, and the adoption of an explicit inflation objective followed from extensive research and debate on issues such as the benefits of low and stable inflation, the presence of biases in the measurement of inflation, and the importance of central bank communications.

Although the mix of reasons and circumstances that led to the adoption of an explicit inflation objective varies across economies, there is a remarkable degree of similarity in the characteristics of these policy frameworks, from which three broad conclusions can be drawn. First, there is a fairly general consensus among central banks throughout the world that the average inflation rate should be somewhere between about 1 percent and 3 percent. Second, point objectives have proven more effective than ranges in anchoring inflation expectations. Third, when the inflation objective is formulated in terms of a range, the implied degree of nonlinearity in the central bank's policy actions can be alleviated by placing increased emphasis on the midpoint of the range.

New Zealand

The monetary policy objective of the Reserve Bank of New Zealand is to "keep future CPI inflation outcomes between 1 and 3 per cent on average over the medium term." The narrowness of this range may seem surprising, especially given the historical volatility of inflation in New Zealand. After all, New Zealand is a small open economy with a large commodity-producing sector, and as a result the economy is particularly subject to external shocks that can have a relatively large impact on consumer prices. In this context, the use of a narrow comfort zone would increase the odds that inflation would fall outside the band at certain times. Some observers have argued that such outcomes may undermine the public's trust in the central bank's ability to deliver inflation outcomes in line with its stated objective, and hence that the inflation band should be widened.¹⁴ Nevertheless, a wider band would hinder the anchoring of inflation expectations, which is pivotal to the successful pursuit of an explicit inflation objective.

As the previous discussion has illustrated, expressing an inflation objective in terms of a range makes it more difficult for a central bank to anchor inflation expectations, especially in the absence of any explicit emphasis on the midpoint. A related issue is that the boundaries of the range may be seen as "hard edges," that is, inflation outcomes inside the range may be seen as qualitatively different from those outside the range. The nonlinear policy reactions implied by this approach can lead to greater variations in interest rates, exchange rates, and output. The international experience indicates that even when inflation bands with hard

¹³ This section focuses on the major industrial economies. Mishkin (2000) considers the experiences of a number of emerging market economies that have adopted explicit inflation objectives.

¹⁴ Bernanke and others (1999) countered this line of reasoning by noting that "missing an entire range may be perceived by the public as more serious failure of policy than missing a point, or even a narrow band, (which happens almost inevitably), leading to a possible loss of credibility."

edges have been introduced, subsequent changes in the central bank's policy framework and communications have tended to soften the edges of the inflation band.

The experience of New Zealand is particularly instructive in this regard. The Reserve Bank Act requires that price stability be defined in a specific and public contract, negotiated between the Minister of Finance and the Reserve Bank of New Zealand. Under the act, the Governor of the Reserve Bank is personally accountable for keeping inflation in line with the stated objective. (Indeed, the Governor could be fired for failing to do so.) Since 1990, price stability has been defined in terms of a band for the inflation rate. Over the following decade, the Reserve Bank treated this band as having hard edges, both in its conduct of policy and in its communications with the public; indeed, the boundaries of the inflation band were occasionally referred to as "electric fences" (Sherwin, 1999). However, it became increasingly evident that the Reserve Bank's vigorous attempts to keep inflation within the band tended to generate destabilizing fluctuations in nominal interest rates and undesirable outcomes for the broader macroeconomy.

Given the dissatisfaction with that approach, the Reserve Bank's mandate was refined significantly in 1997, namely, in seeking to keep inflation within the band, the Reserve Bank should avoid "unnecessary instability" in output, interest rates, and the exchange rate (Sherwin, 1999). This refinement allowed the Reserve Bank to lengthen the time horizon for achieving the inflation goal, thereby reducing the need to respond to transitory price fluctuations and providing greater flexibility in promoting the goal of macroeconomic stability. And since the edges of the inflation band have been softened, the Reserve Bank has placed greater emphasis on the policy actions needed to bring inflation toward the midpoint of the band over the forecast horizon.¹⁵

United Kingdom

The desire to anchor inflation expectations more firmly led the United Kingdom to move from a range to a point objective for inflation. Three weeks after the United Kingdom departed from the European Exchange Rate Mechanism in the fall of 1992, the Chancellor of the Exchequer announced an inflation objective of 1 to 4 percent, which was to be achieved by the middle of 1997. The use of a range for the inflation objective was interpreted by many as a way of limiting the extent of discretionary policy and of acknowledging the extent of imperfect control over inflation (Bernanke and others, 1999, p. 154). The initial target range of 1 to 4 percent was often perceived as a range of indifference, which implied that inflation just outside the range would be viewed as qualitatively different from inflation just inside the range. As a consequence, inflation tended to stay near the upper border of the range.

Dissatisfaction with that outcome motivated the subsequent decision in mid-1997 to move to a framework with an explicit point objective of 2-1/2 percent, with deviations in either direction treated symmetrically. This modification of the policy framework was well received by financial markets and the general public, and surveys of households and professional forecasters indicated that inflation expectations converged fairly quickly to the Bank of England's point objective.¹⁶

¹⁵ Since the early 1990s, the Reserve Bank of Australia's objective has been to keep the average inflation rate within a range of 2 percent to 3 percent; thus, when the edges of New Zealand's official inflation band were softened, the Reserve Bank of New Zealand described the move as a transition in the direction of an Australian-style "thick point" (Sherwin, 1999).

¹⁶ From 1992 through 2003, the Bank of England's inflation objective was defined in terms of the retail price index excluding mortgage interest (RPIX). In October 2003, the U.K. government announced that the official inflation objective would henceforth be defined in terms of the consumer price index (CPI) and that the target would be set at 2 percent, a choice reflecting the fact that the recent average for CPI inflation had been about 1/2 percentage point lower than that of RPIX inflation.

The euro area and Canada

The importance of anchoring expectations helps explain why other central banks that initially adopted an inflation objective stated in terms of a range – even a narrow one – increasingly emphasized a single value in their communications or have replaced the range with a point objective. For example, in May 2003 the European Central Bank (ECB) clarified that in implementing its mandate of price stability, monetary policy would be aimed at maintaining inflation "below, but close to, 2 percent in the medium term" (European Central Bank, 2003). That clarification was welcomed by market participants and likely made it easier for the ECB to anchor inflation expectations.

As a final example, consider the evolution of the monetary policy framework in Canada. In the late 1990s, this framework was well described as a range with relatively hard edges because statements by Bank of Canada officials had consistently indicated that the boundaries of the target zone (which ranged from 1 to 3 percent) were to be taken more seriously than the midpoint (Bernanke and others, 1999). Over the past decade, however, the conduct of monetary policy has evolved in the direction of placing greater emphasis on the midpoint, while the range has been used mainly as a communication device rather than as an objective in itself.

Conclusion

I have argued today that the science of monetary policy provides a strong rationale for framing the inflation goal in terms of a specific point objective rather than as a range or comfort zone.¹⁷ First of all, I've argued inflation should be low but not too low. Second, I've provided a brief review of lessons from economic theory that can inform policymakers in their choice of inflation objectives. Third, I've outlined what we can learn from the practical experiences of other industrial economies; indeed, in recent years, a number of foreign central banks have moved toward emphasizing the midpoint of an inflation range or have provided a specific point objective for inflation.

Finally, you may have noticed that I haven't said much about the United States in this speech. Nevertheless, the issues that I've discussed today have potentially important implications for the ongoing process of refining the Federal Reserve's policy framework and of enhancing our communications. Indeed, as Chairman Bernanke has recently indicated, our communication strategy is "a work in progress," and the Federal Reserve "will continue to look for ways to improve the accountability and public understanding of U.S. monetary policymaking" (Bernanke, 2007). And I certainly hope that my remarks will be helpful in contributing to the continuation of that process.

¹⁷ Further discussion regarding the scientific approach to monetary policy is in Mishkin (2007b).

Table 1: Major industrial economies with explicit inflation objectives

Economy	Starting date	Current objective
Australia	April 1993	2% to 3%
Canada	February 1991	2% ± 1%
Euro Area	January 1999	Below but close to 2%
New Zealand	March 1990	1% to 3%
Norway	March 2001	2 1/2%
Sweden	January 1993	2% ± 1%
Switzerland	January 2000	Above 0 and below 2%
United Kingdom	October 1992	2%

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