Inflation Targeting Dilemmas
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Abstract: this paper poses, and then attempts to answer, eleven questions about the principles and practice of inflation targeting under contemporary conditions.

JEL category: E52. Keywords: inflation targeting.

Lecture given on June 3, 2011, to the seminar “Inflation Targeting at the CNB”, 30 May to June 3, at the Czech National Bank.

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This lecture will first pose, and then attempt to sketch answers, to eleven questions that seem highly pertinent, particularly in the light of recent tumultuous events, for policymakers in inflation targeting central banks – and indeed others as well.

Here is a list of my eleven questions:

1. Is price stability primarily a matter of achieving low inflation, or steady inflation – or does it (and should it) connote both?
2. Should inflation targeting always be forward looking, or should it make adjustments to the target in the light of experience of transgressions - and if the latter, in which direction?
3. Should the target relate to core or to headline inflation?
4. Should the relevant target and index include housing, and if so, how?
5. Should the monetary policy rule respond to asset prices?
6. What should the target be: positive, zero or negative?
7. Is zero really a bound for the policy rate?
8. How long should the policy rate time interval be?
9. Is there an absolute standard dose of monetary policy medicine?
10. Should the policy rate be slashed in a credit crunch?
11. Should monetary policy be relaxed after a serious financial crisis?

None of these questions is entirely novel. Some are old chestnuts. But all are controversial. And current events may have a bearing on how we can best answer them.

Question 1

When pondering the first question, it is helpful to imagine how we should compare the inflation records in two hypothetical cases. Say countries A and B both target inflation, and set their target rates at 3% per annum. In A, annual inflation oscillates, reaching 4 % in
even years and 2% in odd years. In B, inflation is rock-steady at 3.5% each year. We survey ten years’ worth of data for the two countries.

The contrast between the two countries is illuminating, and brings out the distinction between steadiness and average speed very clearly. Country A does best at holding the average rate of inflation close to target: while no single year succeeds in attaining it, the long run average does so exactly. Country B minimizes fluctuations in inflation: it is brilliant at that. But its average performance is less good.

Economists are used to expressing a monetary policy maker’s objective as minimizing the sum of squares of off-target deviations, subject to relevant constraints, which we assume to be linear. Suppose we enlarge our purview to include the sum of squares of output gaps, and imagine, for simplicity, that countries A and B have the same record in that, and also that there is no discounting. The quadratic set-up has the very helpful feature that the first order conditions for the maximization problem are linear. But the sum of squares approach tells us that country B is the winner. Its deviation, expressed in units of 1%, is always +0.5, and that gives the sum of squares for the decade at 2.5. A’s deviations undulate between +1 and -1. So we get a sum of squares for the ten years of 10. If we ignore the output gaps, which are similar anyway, it looks as if B has done four times better than A. B is surely the winner.

But is he? Suppose we take two-year deviations from target, expressed at an annual rate, and square them, and then add up the resulting numbers over the five two-year periods. The annualized average deviation from target is 0.5 for B, which after squaring and summing gives 1.25. Yet A’s two year average inflation rate is spot on target; his deviations are all zero; so now A is the winner, with the lower total. And had A’s quarter by quarter inflation record within each calendar year been entirely flat, while B’s bounced around quite sharply, a quarterly judgement might also have declared A the winner.
What this example tells us is not just that price stability has (at least) two dimensions, steadiness and proximity to target, but that the length of the periods over which these are measured can make quite a big difference. So might there be an optimum period for which to measure inflation performance? Unfortunately, no: nominal contracts are drawn up for a wide variety of different intervals. There are invoices requesting payment with one, two or three months, for example. And there are also individuals in their 20s saving for a retirement that may not start for almost half a century, usually through an intermediary such a life insurance company, and using different financial instruments, including long term government bonds. All that can definitely be said is that a one year interval does not fit all needs; it reflects a vanishing agricultural past when farmers needing credit planted crops in one year and harvested them in another. Uncertainty about inflation will worry both lenders and borrowers if they are risk-averse; and if indexed financial instruments are essentially unavailable, the case for attempts by the monetary authorities to reduce that uncertainty, by doing their best to adhere to inflation targets, is a very powerful one. There are two arguments for placing some substantial degree of emphasis on the long run. For one thing, many countries possess (or grant access to) a rich variety of liquid forward and futures markets which may help to combat some of the effects of inflation uncertainty among traders and producers. For another, wage contracts are typically both nominal and annual, so that workers have some opportunity of recovering losses from unexpectedly rapid inflation in one year through higher pay in the next.

**Conclusion:** in a word, both. And persistently one-sided deviations are more worrying than deviations that tend to cancel out over longer periods.

**Question 2**
These observations lead us directly to the case for enhancing inflation targeting with an element of long term price level targeting. An annual inflation target of 3%, held over a decade, adds up to a price level target at the end of the ten years some 35% higher than at the beginning. A ten year price level target expressed this way, if it is to be retained throughout and taken seriously, imposes a kind of automatic penalty for errors. If inflation is above its 3% annual target in the first five years as a whole, averaging say 4%, then in the second half of the decade, the annual inflation target drops - tightens - to just over 2%.

There is also an argument to the contrary. The authorities presumably did their best to keep annual inflation close to target in the first quinquennium. Yet they failed. They must have failed for a reason. Whatever gremlin it was that caused the overrun might still be at work. If it is, and it would surely be very odd for it to suddenly switch into reverse, the inflation target ought perhaps to be raised a little. Maybe the old 3% target was inappropriate; or even infeasible.

Inflation targeting regimes currently in force around the world may occasionally get revised, and now and then the target number or range gets modified. But they are typically fully forward looking, in the sense that past overruns or underruns are just forgiven and forgotten. Woodford (2000) queries this feature, and argues in favour of some automatic penalty: the target should be lowered somewhat when it has been overshot, he recommends, and raised a bit when undershot.

An argument in favour of Woodford is the fact that inflation expectations may float adrift from the target unless there is at least some element of history dependence in the way the rules are expected to be followed (which is tantamount to some element of price level targeting). If the target appears to be systematically overshot, and with no attempt to compensate at all for such errors later on, the regime will itself cease to be credible in the eyes of all relevant agents. Inflation targeting works if it is expected, more or less, to succeed. Central bank credibility is a tree: it takes years to grow, and can be cut down in
minutes. And the output gains from letting inflation exceed previous expectations may well be far smaller than the output losses associated with the long fight back to restore credibility once it has been lost.

Ambler (2009) gives an excellent survey of price level targeting, citing various other relevant arguments, most of them in favour of it. Prominent among these are the points that it can substitute for commitment, help with the zero bound problem (see below) and reduce output losses.

An argument the other way, advanced by several authors but never quite as lucidly as by Batini and Haldane (1999), is that any attempt to offset deviations from target relatively quickly is almost bound to be destabilizing for output, and possibly very seriously so. So that makes price level targeting better suited to a longer horizon. And in the case of large transgressions, it must be right that an inquest should be held into why inflation targets were missed – one consequence of which might occasionally, and only for compelling reasons, be to adjust the target towards the past average, rather than away from it.

Moreover it is quite possible to have a system of partial penalties for persistent errors, so that if extrapolating the current five year trend would imply a 20% overshoot of the price level after five more years, the average annual inflation target would be lowered by, say, just 1% over that period. Alternatively, anything within 10% of a ten year price level target would be regarded as a hit, with only greater deviations calling for remedial action.

Conclusion: very useful if, in practice, poor tracking leads inflation expectations to detach themselves from the inflation target. But best partial and gradual, and perilous if neither. And only worth employing when cumulative deviations are substantial. De minimis non curat lex.
Question 3

Headline inflation is meant to capture all the elements in the consumer price index; core inflation omits erratic elements, typically food and fuel. There are two arguments in favour of basing targets on the core. One is rather weak, and one is stronger. The thinner argument is based on the observation that core inflation is steadier, and that off-target deviations should be smaller – which may assist in the building, or retention, of credibility. The second one is due to Aoki (2001). In a Calvo world, where firms’ products are differentiated and the opportunity to adjust prices comes randomly in any period, Aoki shows that changes in core inflation could tell one a great deal about the evolution of price-setters expectations about the evolution of inflation in the further future.

The case for headline inflation targeting has two strands. One is that it comes closer to everyday experience. One would like ideally to measure, and then to target, the proportionate increase in a representative consumer’s nominal income, that would keep her utility unchanged in the face of all the (quality-adjusted) price changes, up and down, for the goods she buys. Core spending (and hence inflation) refers to a mere subset of headline spending (and hence inflation): less relevant to the individual’s welfare, and bound to generate distrust whenever- as, crucially, in recent years - inflation for the erratic items seriously outpaces the rest. The second strand is no more than a testable claim, namely that headline inflation tends to lead core inflation statistically – to “Granger cause” it – and more so than the reverse. No doubt we shall soon have first rate international econometric evidence about whether this is true or not. Buiter (2009) finds that over 50 years, US evidence points to headline “Granger causing” core, and more so than the opposite, although in the last 20 of those years, the relative strengths of causal patterns are reversed.

Fuel and metals in the ground are assets, which can be extracted at different dates. This makes them differ from agricultural crops. Crops are typically harvested annually. The major driver of their price changes is random, and in the main serially uncorrelated,
movements in the weather. That will make for white noise in food price series. Short run demand and supply are inelastic for fuels and metals in the short run, which, when coupled with white noise shocks, may create similar types of price disturbance. But the option to store, or to bring extraction forward, is always there. This means that fuel and metals price series will be overlaid by something closer to random walks. News about discoveries, for example, or about demography, preferences or technology that can exert enduring influences on real interest rates, should therefore lead to sharp jumps, up or down, in their prices – which have some tendency to drift\(^2\) or stick quite close to their new levels until another piece of relevant news comes along.

What this logic implies is that current food prices are liable to be less useful in forecasting future inflation than current fuel and metal prices. Both price series will be contaminated with white noise, but the latter one should also exhibit some random walk properties. And both series should display the effects of unanticipated changes in monetary policy with little if any time lag. Unlike money wage rates, and the prices for many services and manufactures, they are flexible prices. If and when monetary policy is apt to change rapidly and by large amounts, this flexibility will make give them something of the status of early warning devices about changes in inflation later on.

**Conclusion:** the balance of arguments supports targeting headline rather than core inflation.

**Question 4**

Most consumer price indices pay scant attention to the cost of housing. This is an item that absorbs a quarter or more of household budgets of tenants, and also for owner-occupants or mortgagors when imputed rent is added in. Its exclusion may be best explained by the

\(^2\) In the case of oil, prices should - in the absence of shocks, an important qualification - tend to drift upwards over time at a rate linked to rates of interest on alternative assets.
Herculean challenges statisticians face in calculating depreciation, interest cost, whether explicit or based on opportunity cost, and any anticipated revaluation when computing imputed rent – as well as the difficulties involved in quantifying rental rates in new leases. In an ideal world with perfect competition, and no capital market imperfections or taxes at the margin, the flow cost of housing would equal the capital cost of the dwelling, multiplied by the rental rate, which would add rates of depreciation and interest, minus the rate of net expected capital gain. But in the real world, these calculations are fraught with problems of definition and quantification, and the heterogeneity of the stock of dwellings is a further issue. But pricing services, on which rich country consumers now spend half their incomes or more, is in practice no less difficult. But that is no reason for limiting the price index to manufactures.

The total cost of a dwelling, whether expressed as flow or stock, is a composite: the bricks and mortar, but also the land beneath. In an economy where aggregate real income is growing over time, and the trick of building taller runs into diminishing returns, the fixity of the land element imparts an upward trend to the cost of housing. So excluding housing tends to mean underestimating inflation.

**Conclusion:** housing costs, hard as they are to calculate, are better included in measures of inflation and in inflation targets.

**Question 5**

There has been hot debate for over a decade on whether monetary policy makers react to asset prices. The seminal contribution is perhaps by Brio and Lowe (2002), which formalizes the notion of macroprudential policy.\(^3\)

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\(^3\) See also Galati and Moessner (2011) for a meticulous review.
Here is a simple way of expounding the case for a positive answer. Suppose that house prices and credit aggregates are well above their normal relationship with GDP, and that on the latest data, house prices are rising really fast. History tells us that such episodes are quite likely to be followed by a crash in the property markets. Real estate markets appear to display a bubble; we must revise upwards the set of probabilities that it will burst in years to come, followed by a large negative output gap. An unexpected policy rate rise at this point may trim house prices, and if that happens, the distribution of future output gaps becomes more favourable. Usually a policy rate rise is thought of as something that makes an output gap less positive (or more negative) in the near future. But here it makes expected future output gaps less negative, not more.

Markets for real estate are predominantly local, not international. So a national central bank can surely influence them. When it comes to equity prices, however, the close linkage between stock markets across the world and the paucity of restrictions on international capital markets mean that a typical country on its own could do next to nothing to prick a global bubble – even if this could be ascertained for sure. The Fed or the ECB might be able to influence share prices, but no smaller central bank could do so on its own.

Furthermore, detecting whether any asset market displays a bubble is not easy. The mere fact that real estate prices are historically high, and have risen strongly, might testify equally well to a sequence of favourable news about fundamentals, for example. And knowing how much – if at all – to change policy interest rates, to achieve an asset price deflation of given magnitude, is harder still. This said, that may constitute a case for leaving policy rates unchanged, but it does not add up to a case for inaction. Financial stability and monetary stability are distinct objectives. So it is most unwise to think of a single instrument, like a policy rate, as capable of achieving both. Another instrument – or set of instruments – is needed. These include responding to signs of real estate price overheating by altering capital ratios imposed on financial institutions, or by stiffer progressive taxes on
increased incremental lending, high loan-to-value ratios, or lengthy amortization mortgages\(^4\). And “open mouth” operations – public warnings about a build up of excessive debt against an apparently overpriced asset – may well be useful.

**Conclusion:** provided the relevant inflation indices are broad enough to encompass housing adequately, no special significance should be attached to asset prices in the formulation of monetary policy. But this does not justify ignoring asset prices. Other instruments should be employed to bring real estate prices back on track when it appears high likely that they have strayed far from it. Very large changes in equity prices, to levels far removed from measures of fundamental equilibrium, might call for internationally coordinated action by many countries, including interest rate changes.

**Question 6**

Friedman (1969) argued for price deflation at the real interest rate. That way money (the non-interest bearing paper liabilities of the state) could be a free good, its opportunity cost, the nominal interest rate, set at zero. Money would then be priced at zero, its assumed marginal cost in an otherwise perfect economy. A positive nominal interest rate was tantamount to a distorting tax. Lagos and Wright (2005) is one of several papers extending Friedman’s argument to search models.

Side-stepping Friedman’s case, an overall inflation rate of zero would minimize the distortions due to temporary discrepancies in the relative (and somewhat sticky) prices of monopolistic competitors’ goods. Woodford (2003) argues this. Furthermore, if there are menu costs, real costs of changing nominal prices, and Friedman’s argument can be evaded on the ground that cash holdings are now a negligible component of wealth, it would seem best to aim at a zero rate of inflation. That way these costs would seemingly be minimized.

\(^4\) Of the kind espoused by Sinclair (2011).
But in fact Diamond shows that menu costs under monopoly provide a case for extremely low but strictly positive inflation. This is because, with real interest positive, what a monopolist loses from overpricing in the early stages of an interval when his nominal priced is fixed has a higher discounted present value – at the time the price is changed – than what he loses from underpricing later on.

There are other second best arguments against Friedman’s call for price deflation at the real rate. One of the most intriguing – and topical – relates to the zero lower bound to which policy rates are believed to be constrained. Aiming for positive nominal rates in normal times gives insurance. There is room for cutting policy rates if an adverse shock hits. If the policy rate were zero, and couldn’t be reduced further, the standard route for relaxing monetary policy (a rate cut) would be blocked. You could squeeze – but not expand. Unlike Diamond, this insurance argument does not itself call for inflation to be positive, however – merely, at the minimum, for less deflation than the Friedman rule implies.

Whether the zero lower bound actually exists is the topic of the next question. Since that question is moot, insurance against the possibility of brushing against it still has value. There are other arguments against Friedman, all of them of a second best character. In a recent paper McCallum (2011) argues forcefully any increase in inflation targets in practice – targets which are all in strictly positive territory, and thus far removed from the Friedman rule. But he does not go so far as to advocate their reduction. Both he and Billi (2011) pay special attention to the zero bound, and recognise that it may weaken the case for (mild) deflation.

Conclusion: for a variety of second best reasons, optimal inflation rates in most countries are probably slightly positive.

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Sinclair (2003) explores them.
The case for viewing zero as an effective lower bound to policy rates in practice is based on substitution. Cash carries a zero nominal return by definition. So if a treasury bill, which is a claim on cash at a specified future date, were to trade at a current price above its future nominal redemption value, who would ever wish to hold it if they could hold cash instead?

Cash and treasury bills are clearly good substitutes. But are they perfect substitutes? Unless cash takes the form of very high denomination bank notes, bundles of it have to be counted. That takes time. And time is money. Then there is the problem of security. Treasury bills may be safer. They may occupy less space. They may be less scruffy. And another substitute for cash from a commercial bank’s standpoint – deposits with the central bank – may well carry noticeably lower costs of maintenance than vault cash. These points suggest that imposing slightly negative nominal returns on treasury bills or central bank deposits would not be likely to destroy the demand for them completely. Sweden’s Riksbank recently set a negative nominal return on commercial banks’ deposits lodged with it for a while, and those deposits did not vanish.

Then there is Gesell device, yet to be implemented anywhere yet clearly implementable at presumably modest cost, of requiring a bank note to be revalidated at regular intervals by a stamp, for which a fee would be charged. This was first adumbrated in Gesell (1891). The tamp would impose a negative nominal return on cash, opening the door for a negative nominal return even if they were perfect substitutes for cash.

These are the arguments for disbelieving in a zero lower bound to policy rates. Nonetheless, there is very little evidence of enduring life for financial instruments that bear a negative nominal return. And Gesell’s stamp remains a concept, not a reality. Perhaps, if tried, the stamp and the negative return on central banks’ deposits could reinforce each
other; this is what theory would predict. Nonetheless, zero is surely an obstacle confronting the possibility of negative nominal rates, and possibly a prohibitive one. How much of an obstacle, we could only learn from experiment.

**Conclusion:** achieving negative nominal interest rates for a while might not be impossible. But it does constitute unknown territory. Risk averse policy makers will not be keen to gamble upon their feasibility.

**Question 8**

Central banks’ policy rates are often repo rates. But the time horizon varies: it may be overnight, for example, or weekly, or fortnightly. Conventional wisdom has it that setting and holding a price on a bond becomes progressively harder as the term to maturity increases. This is partly because the sensitivity of the capital value to a general change in all interest rates increases directly with term. And partly it reflects the view that longer term bond prices and yields depend crucially upon what financial market participants believe about the future course of inflation and real rates of interest. The longer end of the maturity spectrum is seen as terrain governed by Fisher’s notion that, risks and tax complications aside, market equilibria for nominal rates must mesh with inflation expectations and market equilibria for real rates.

Nonetheless, towards the shorter end, within some limits, the central bank is king. If the zero lower bound is a strict impediment to lowering the policy rate beyond some point, a further expansionary twist to monetary policy can be achieved by lengthening the period over which the policy rate is defined. There are three ways of doing this. First, an overnight repo rate may be converted, for example, to a four week repo rate for all future operations. Second, the central bank can engage in open market operations in bills and bonds of greater maturity, thus effectively lengthening the interval of time during which the policy rate is
expected to be held at minimal levels, as an alternative to the further cut in the formal policy rate which the zero bound is assumed to preclude. Low rates are set for longer when they can’t be cut further for a shorter period. This is how Ueda (2002) describes quantitative easing (QE) in Japan; this description also holds for the QE experiments subsequently undertaken by the ECB, the Fed and the Bank of England. Finally, if it eschews bond market transactions, the central bank may issue its own expectation of the time profile of policy rates over a longer period than hitherto, and/or reduce the height of the curve it may already publish. Thus, perhaps, with luck, it may secure the market’s acceptance of lower near-future interest rates without the messy business of expanding its balance sheet and buying the relevant instruments.

**Conclusion:** if current short rates can be cut no further, the authorities still retain scope, in various ways, for lengthening the period of low rates. If zero is a strict floor or merely an impediment to nominal policy rate reduction, this provides a way of circumventing it. Monetary policy instruments retain potency.

**Question 9**

In recent years, policy rate changes in OECD area central banks have usually been 25 basis points. The large reductions seen in late 2008 and early 2009 are the main exception to this. Even then, they are typically multiples of 25 bp. So it appears that the standard “dose” of monetary policy medicine, QE operations aside, has become 25 basis points – with the odd very occasional episode with a drastic infusion of six or more units.

There are several arguments against the “tyranny of twenty five”. One is the case for inertia in the Taylor rule, eloquently made out for example in Woodford (2003). When agents come to expect policy rate changes to be spread over several months, in small amounts with similar sign, an unexpected policy rate change now will have enhanced effects on asset...
prices, spending plans and, in time, rates of inflation. This is because today’s rate change is accompanied by expectations of a sequence of repeats. If individual rate changes become smaller, to achieve the advantage of echoes predicted later on, the standard dose for the rate change should be cut – to 10 bp, perhaps, or maybe even less. Then there is the point that 25 is an artificial and unnecessary integer restriction on the policy instrument. There may be occasions when a subtle signal of slight loosening or tightening is thought to be appropriate, but policy makers feel constrained, for no good reason, to choose between sending too big a signal or sending no signal at all. And the fact that the repercussions of policy decisions – let alone the future character of shocks - are hard to predict does not by itself imply that those policy decisions should be blunted by a rule that limits the authorities’ freedom of action.

In a multi-member monetary policy committee that proceeds by taking votes, which, as Hammond (2011) shows, does occur in most inflation targeting countries, there are different ways of reconciling diverse opinions. One is to narrow the range of options into up, down and no change, and then see how opinion divides between them, to see whether any course commands a majority. Retaining the 25 bp dosage may well help here, not least by speeding up deliberations. Given that a single issue is at stake, however, one may invoke the idea of appointing the median member as a dictator. The median member might prefer something other than a 25 bp (or zero) change.

The zero lower bound is itself a justification for modifying the notion of a standard absolute dose. There are two arguments here. They conflict. One is that the policy rate needs to move, when low enough, onto a type of logarithmic or proportionate scale. One could think of the policy rate, once under this threshold, being lowered or raised by, let us say, tenths of itself (rounded, perhaps, if needs be, to the nearest basis point). You could carry on lowering the policy rate this way ad infinitum; zero would be no barrier. And by way of justification, it could be noted that at least one element of the transmission mechanism of monetary policy does rely on proportionate interest rate changes: this is the wealth effect (if any) from changing the value of consols.
The view the other way would stress the need to make really large policy rate cuts when under the threshold, in order to raise medium term inflation expectations, and deliver such a strong positive effect on spending that subsequent rate changes could only be in a positive direction. The way to avoid the black hole of the zero bound is, ironically therefore, to move towards it very sharply. This argument may have weighed with the policy makers that responded to the crisis of 2008/9 so aggressively.

*Conclusion:* the only real appeal of the “tyranny of twenty five” lies its simplicity in communication, and its ability to save decision takers’ valuable time. There are quite powerful arguments in favour of a smaller dosage unit, and of departing from linearity when the nearing the zero bound.

**Question 10**

In a credit crunch, some financial markets suddenly seize up, spreads widen, and risk premia explode. Essentially, it creates a bigger wedge. Simple IS-LM models can illustrate the consequence: given that the IS curve turns on rates facing borrowers, and the LM curve on rates for depositors, a credit crunch must lower aggregate demand, and all the more so if either or both of the two curves are quite elastic. The wedge is vertical. Still more depressing consequences can arise if one inserts the wedge into Ramsey-Cass-Koopmans macrodynamic models, or models of endogenous growth that are developed from them.

The first best policy would appear to be to attack the wedge directly. This might be done in several ways. The authorities could provide additional liquidity. Or purchase the suddenly depreciated, risk assets (though in obedience to Bagehot’s principles, at a further discount). Or they could adopt an incremental tax-subsidy scheme for banks that induced them to lend
more. Such a scheme could be explicit, or operate implicitly through a system of contracyclical dynamic provisioning or marginal capital ratio requirements.

It is only if use of these alternative weapons is precluded for some reason that recourse to emergency policy rate cuts becomes essential. Policy rate cuts are an indirect response; they do not go to the heart of the problem. Moreover, it is interesting to note that a financial crisis, which so often leads to a credit crunch, has often, in the past, been seen as the occasion to raise policy rates, not lower them. Currency crises are a clear example of this: defending an exchange rate parity under attack calls for immediate policy rate increases. And fears of possible bank runs have in often, in decades gone by, led monetary authorities to do the same, by increasing the relative attractiveness of bank deposits, as against cash.

Furthermore, in standard models of imperfectly competitive banks (such as those pioneered by Klein (1971)), it transpires that the nominal policy rate has an unambiguously positive direct effect on banks’ profits – and hence on their survival prospects at a time of financial distress. Another way of putting this is to argue that a reduced policy rate will gradually starve banks of their one key input, deposits. It is a hallowed principle of public economics⁶ that taxing firms’ inputs is unwise, even in second best circumstances.

Conclusion: policy rate cuts are not at all likely to constitute a first best response to a credit crunch. But by way of mitigation, a reduced policy rate now, if maintained for some while, may increase the equilibrium nominal value of the policy rate later on.

Question 11

⁶ See, for example, Diamond and Mirrlees (1971).
Most financial crises leave scars that take considerable time to heal. One legacy is impaired balance sheets for at least some of the banks that survive it. Another, depressed output and, as a consequence, a direct reduction in government’s net fiscal revenues. And if government has had to bail out distressed banks or guarantee their liabilities, we see yet a further reason for expecting their stock of debt to have jumped.

In the aftermath of a financial crisis, permitting additional and / or unexpected inflation suddenly becomes much more attractive. Monetary expansion should succeed in pumping up the nominal value of domestic real assets, such as commercial property. Surviving banks, already weakened by the crisis, will be holding collateral in that form nervously; increasing its nominal value has a double benefit. It lowers rates of delinquency on the part of borrowers (who, with appreciated assets and unchanged debt, are now likelier to be solvent). On top of that, it reduces strain on the bank itself: those borrowers who do fail leave it with a total of more valuable assets to set against their own (presumably unchanged) level of nominal liabilities.

Then there is the benefit that inflation can bring to the government’s accounts. Assume that its debts largely – maybe wholly – take the form of unindexed debt denominated in terms of its own currency. Extra inflation will increase nominal GDP, and hence nominal tax receipts, while leaving nominal debt little changed. The bloated state sector debt to income ratio that the crisis bequeaths can be brought down somewhat. What gives added force to this is two points: first the principle that taxes raised to service the national debt distort, and second, the fact that the damage done tends to increase quite sharply with the rates at which they are levied. But to the extent that debt is indexed, or denominated in foreign currency, or suffers from a very short maturity, these fiscal advantages of extra inflation will tend to disappear.

The case against additional inflation is threefold. First, inflation expectations may increase. If they do, most if not all of the above benefits will fade away; and if they do, the
authorities’ credibility will soon be in jeopardy. Then there are the undoubted costs of additional inflation, which are liable to recur. And on top of that comes the observation that asymmetries may be present. Restoring a low inflation equilibrium may involve much greater output losses in the transition, than the gains that accrued when inflation was on its way up.

Conclusion: after a serious crisis, punishing bondholders and depositors through the mechanism of unexpected, faster inflation may serve to save the banks and help the taxpayers of tomorrow. This is not just a matter of robbing Peter to help Paul: there may be a net social gain. So this will give that policy some appeal to politicians, however much central bankers might try to resist the ensuing loss in their credibility. And there are limits to a central bank’s operational independence, even in the purest form of inflation targeting.

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