A ‘Second-Best’ Rationale to Deflationary Monetary Policy in Japan

Thomas F. Cargill and Federico Guerrero

Department of Economics /0030
University of Nevada, Reno
Reno, NV 89557-0207
(775) 784-6850 │ Fax (775) 784-4728
email: tcargill@att.net; guerrero@unr.edu

December, 2006

Abstract

The Bank of Japan permitted a ten-year period of deflation (1995-2005) which appears to have ended in 2006. The deflation, as well as the preceding disinflation, adversely affected the financial and real sectors of the economy that in turn, made it difficult to recover from the collapse of asset prices in 1990 and 1991. Various ad hoc explanations have been offered to account for the deflation period. This paper offers a second-best explanation based on a two-player policy game between the Bank of Japan and the banking system in which the banking system relies on an accommodative policy of forgiveness and forbearance by the Ministry of Finance to deal with weak balance sheets. The paper does not explicitly model the Ministry of Finance preference function but incorporates the Bank of Japan’s perceived willingness of the Ministry to accommodate the banking system in the Bank’s reaction function. The model suggests that in the context of established deflationary expectations and large amounts of debt, the Bank of Japan explicitly regarded the level of debt as exceeding the socially optimal level, that Ministry of Finance forgiveness and forbearance contributed to this excess, and lacking an instrument to reverse deflationary expectations, the Bank of Japan employed deflation as a disciplining instrument to limit real debt.

JEL Classification: E31, E58, E42, E50

Keywords: Monetary Policy, Deflation, Japan.
A ‘Second-Best’ Rationale to Deflationary Monetary Policy in Japan

Thomas F. Cargill and Federico Guerrero(*)

Professor and Assistant Professor
Department of Economics / 030
College of Business Administration
University of Nevada
Reno, NV  89557. U.S.A.
tcargill@att.net
guerrero@unr.edu

Draft: June 13, 2006

Abstract: The Bank of Japan permitted a ten-year period of deflation (1995-2005) which appears to have ended in 2006. The deflation, as well as the preceding disinflation, adversely affected the financial and real sectors of the economy that in turn, made it difficult to recover from the collapse of asset prices in 1990 and 1991. Various ad hoc explanations have been offered to account for the deflation period. This paper offers a second-best explanation based on a two-player policy game between the Bank of Japan and the banking system in which the banking system relies on an accommodative policy of forgiveness and forbearance by the Ministry of Finance to deal with weak balance sheets. The paper does not explicitly model the Ministry of Finance preference function but incorporates the Bank of Japan’s perceived willingness of the Ministry to accommodate the banking system in the Bank’s reaction function. The model suggests that in the context of established deflationary expectations and large amounts of debt, the Bank of Japan explicitly regarded the level of debt as exceeding the socially optimal level, that Ministry of Finance forgiveness and forbearance contributed to this excess, and lacking an instrument to reverse deflationary expectations, the Bank of Japan employed deflation as a disciplining instrument to limit real debt.

JEL classification: E31, E58, E42, E50

Keywords: Monetary Policy, Deflation, Japan.
1. Introduction

The Bank of Japan (BoJ) in the 1970s and the first half of the 1980s achieved a remarkable record of price stability while defying the conventional wisdom that legally dependent central banks generated higher inflation rates than legally independent ones (Alesina and Summers, 1993). These years represent the high point of BoJ policy in the postwar period and drew widespread academic interest to BoJ policy outcomes and central bank institutional design. In the late 1980s and 1990s, however, the BoJ was criticized for accommodating asset inflation and then for a “cold turkey” response to the asset bubble in 1989 followed by anemic expansionary policy after 1992 almost universally regarded as insufficient to prevent prices from falling (Hetzel, 2003 and McCallum, 2003). In the first half of the 1990s Japan experienced disinflation followed after 1994 by a gradual but persistent fall in the price level that only by 2005 showed signs of increasing. The disinflation and deflation adversely impacted the financial and real sectors and limited Japan’s ability to recover from the collapse of asset prices in the early 1990s via several channels (see Cargill and Parker, 2003 and 2004, for example).

The deflation period appears to be coming to an end in 2006. Combined with an expanding economy, the BoJ on March 9, 2006 announced a gradual end to its zero interest rate policy (ZIRP), first established in February 1999, and the quantitative easing policy (QEP) initiated as of March 2001. At the same time the BoJ announced it was adopting a price stability objective of ultimately keeping the inflation rate between zero and two percent with a focus on the midpoint. While not a formal inflation target framework, the announcement is designed to express the BoJ’s definition of the price stability objective in Article 2 of the 1997 Bank of Japan Law.
The failure of the BoJ to prevent deflation and resistance to outside criticism has generated much debate between the BoJ and the academic profession, but more important for the institutional design of the BoJ, the failure of the BoJ to prevent deflation has brought the BoJ into conflict with the Ministry of Finance (MoF), Prime Minister Junichiro Koizumi, and the Diet. The criticism focuses broadly on the entire period of monetary policy since 1994 and on concern the BoJ will adopt a too rapid “exit” from the QEP in light of the premature shift to tighter policy in August 2000. Kuttner and Posner (2004) present evidence on the ‘scar effects’ of this premature policy. Prime Minister Koizumi in early 2003, prior to selecting a replacement for retiring Governor Masaru Hayami, made it clear he expected more aggressive action against deflation and implied that an inflation target framework was a possibility. Even though the Bank’s QEP significantly increased in late 2002 and 2003 and the rate of deflation declined, the Bank of Japan has still been subject to criticism for past policies, resisting calls for more expansionary policy, and resisting an inflation target framework. This has generated interest in modifying the newly enhanced independence achieved in 1998 (Feldman, 2006). Heizo Takenaka, minister of Internal Affairs, as recently as December 2006, stated that monetary policy is not the sole responsibility of the Bank of Japan (Economist, December 17, 2005). The BoJ’s March announcement might be intended to fend off any institutional redesign from the government, especially in the form of an explicit inflation target.

The consequences of the ten-year deflation have been significant both in economic and political terms. The unanswered question to date, however, is why the BoJ followed a policy that permitted deflation? The objective of this paper is to provide a
policy-game interpretation to the BoJ’s deflationary policy as a second best solution from the perspective of the BoJ in the context of three unique pre-existing conditions: entrenched deflationary expectations, large amounts of private and budget debt, and a perceived willingness of the MoF to substitute forgiveness and forbearance for structural reform in dealing with troubled financial institutions, especially banks. This framework fits the stylized conditions of the Japanese economy in the 1990s and offers a perspective on BoJ policies during the period anchored in optimal behavior on the part of the Bank.

The remainder of the paper consists of five sections. Section two summarizes various existing explanations to the Bank’s failure to eliminate deflation for so long a period. The policy-game framework is then developed in three steps. The first in Section 3 shows that the BoJ has an incentive to deflate in the context of pre-existing deflationary expectations and large amounts of debt, incorporating Fisher’s (1933) debt-deflation-inflation process in the BoJ’s constraint function. The second step in Section 4 expands the framework to include the BoJ’s perceived willingness of the MoF to engage in forgiveness and forbearance in dealing with troubled financial institutions. The third step in Section 5 explicitly models how the game between the banks and the BoJ generates a BoJ’s reaction function in which deflation is a second-best solution that acts as a “disciplining instrument” to limit further increases in real debt. A concluding section ends the paper with some reflections on the modeling strategy utilized in this paper.
2. Four Explanations of the Ten-Year Deflation Period

There have been various explanations to account for deflation during the past ten years which can be labeled the “BoJ view”, the “independence trap”, the “policy error trap”, and the “conservative trap” explanations. While none of these explanations has been rigorously framed they have all been offered in various forms as explanations to account for the BoJ policy outcomes of the last ten years. Each is briefly outlined.

The BoJ at various times has argued it exhausted the potential of its traditional instruments of targeting the call rate at zero (ZIRP) and permitting the account balance to reach unprecedented levels (QEP) through discounting and open market operations in Japan Government Bonds (JGBs). According to the “Bank’s view”, the ZIRP and QEP were not successful because of the structural problems in the real and financial sectors and low priced Chinese imports. Not only would these constraints have prevented nontraditional monetary policies such as large scaled purchases of JGBs from being effective, nontraditional monetary policy would weaken the Bank of Japan’s capital position, expose it to interest-rate risk, and reduce its flexibility to deal with the post-deflation period (Cargill, 2005). The “Bank view”, however, has been rejected by the majority of researchers who almost universally conclude the BoJ was capable of preventing the ten-year deflation process or ending it much sooner.

Cargill, Hutchison, and Ito (2000) suggest a political economy perspective that emphasizes an “independence trap” explanation. The politics of central bank independence in 1997 led to an overly conservative approach on the part of the BoJ and a general resistance to outside advice and/or cooperation with the MoF in dealing with deflation that would be viewed as inconsistent with the BoJ’s new found legal
independence. This is a variation of the view that central banks can easily become prisoners of their own independence, especially in dealing with extraordinary situations.

Ito (2004) provides extensive discussion of BoJ policy in the context of its refusal to adopt an inflation targeting framework and suggests that lack of understanding or a “policy error trap” might offer an explanation. Much of the writings of Posen (1998 and 2000) also fall into this category. This view suggests that the BoJ’s decision-making process was interrupted by the resignation of the Governor and Deputy Governor in 1998 over allegations of improper conduct of the Banking Section of the BoJ and then followed by the appointment of Masaru Hayami as Governor (until March 2003) who lacked understanding about the new financial and monetary environment of Japan and focused on nominal rather than real interest rates as indicators of monetary ease.

The BoJ in the postwar period has been a conservative central bank, partly because of the adverse experience with inflation in the 1930s and early 1970s and partly because of the conservative position of the central government regarding the budget. As a result, starting in 1973 the BoJ focused on a very low inflation rate --abstracting the 1990s, and most recently the BoJ announced its definition of price stability as an inflation target between zero and two percent with a focus on a one percent rate. Former Governor Hayami in a March 2000 speech offered an even more conservative view and stated: “Mainstream thinking now says that price stability should be maintained by a policy which prevents inflation from arising in the first place” (Hayami, 2000, p. 6); hence, price stability is zero percentage change in the price level. A low inflation rate (or zero inflation rate) in the context of the well-established measurement error in price indexes suggests that BoJ policy outcomes may have a tendency to generate mild deflation.
It should be noted that all four of the explanations are reminiscent of the debate over the Federal Reserve’s policy outcomes in the 1930s when it permitted prices to decline in the first part of that decade. In that debate the Federal Reserve claimed it had done all that was possible and that concern with formal independence, lack of understanding, and conservative attitudes were prominent explanations for what is now regarded as inappropriate central bank policy.

The “independence trap”, “policy error trap”, and “conservative trap” offer meaningful insights into BoJ policy outcomes; however, they do not exhaust the range of possible and plausible explanations. In particular they do not address the following critical question connected to the incentives the BoJ faced: could it have been the case that the BoJ mildly deflationary monetary policy was the Bank’s optimal response in a second-best scenario where critical policy instruments were lacking? The following three sections explore an explanation along those lines in the context of a game between the BoJ and commercial banks in a Barro-Gordon framework that suggests the BoJ had incentives to generate deflation in the presence of three pre-existing constraints: entrenched deflationary expectations, large amounts of private and public debt, and a perceived willingness of the part of the MoF to adopt forgiveness and forbearance in dealing with troubled financial institutions.

The three pre-existing conditions seem reasonable given Japan’s macroeconomic performance throughout much of the 1990s. While these three conditions are assumed as the background for the model developed in this paper, there is considerable anecdotal evidence they are reasonable assumptions.
Entrenched deflationary expectations came to dominate Japanese public attitudes by the late 1990s in light of disinflation in the first half of the 1990s and actual deflation by all of the price indicators after 1994. Continued declines in real estate prices and employee compensation further contributed to deflationary expectations and most important the increasing criticism of the BoJ and scandals in 1998 further contributed to the public’s lack of confidence in the ability of the BoJ to reverse the general price decline. The large amounts of private and public debt also become a major feature of the Japanese economy in the 1990s with Japan’s ratio of gross government debt to GDP being one of the highest among the industrial economies. There is no doubt the MoF along with much of the rest of government has been willing to engage in forgiveness and forbearance in dealing with troubled institutions and at times has differed with the BoJ over the pace of structural reforms.

3. Deflation as an Optimal Response When Deflationary Expectations are Prevalent and the Central Bank Lacks a Sufficient Instrument to Change Expectations

The question this section addresses is the following: could deflation ever be an optimal policy response when the central bank lacks the instrument to change pre-existing deflationary expectations and hence has to take those expectations as given when choosing inflation? We formulate the problem in the context of a standard loss function framework.

Assume the BoJ’s preferences can be represented with the following loss function:

\[ L = \frac{1}{2} (D_t - D^*_t)^2 + \frac{1}{2} \theta (\pi_t - \pi^*_t)^2 \quad \theta > 0 \]
Where \( D^* \) and \( \pi^* \) denote the socially optimal levels of real debt and inflation, respectively. Now consider an “expectations-augmented Phillips curve” in which unexpected inflation (deflation) reduces (increases) the current level of real debt above (below) its socially optimum level. Equation (2) acts as a constraint in the Bank’s minimization problem.

\[
(2) \quad (D - D^*) = -(\pi - \pi^*) + \varepsilon
\]

Where \( \pi^* \) denotes the public’s expectations about the rate of change of the price level (inflation if positive; deflation if negative) and \( \varepsilon \) is an iid shock. This explicitly incorporates the debt-deflation hypothesis of Fisher (1933), since an increase in unexpected deflation increases real debt beyond its socially optimal level.

Assuming all variables take positive values, expression (1) and (2) yield the standard Barro-Gordon outcome. In a one-event game the central bank has an incentive to inflate and reduce the level of real debt and hence, monetary policy displays an “inflation bias”. The framework can also easily show that the BoJ has a “deflation bias” in an environment of pre-existing deflationary expectations, that is, when \( \pi^* < 0 \) is taken as given by the BoJ when choosing its optimal policy.

Substituting (2) into (1), differentiating the resulting expression with respect to \( \pi \), setting the first order condition equal to zero and solving for \( \pi \) yields:

\[
(3) \quad \pi = \frac{1}{1 + \theta} \pi^* + \frac{\theta}{1 + \theta} \pi^* + \frac{\varepsilon}{1 + \theta}
\]

In expression (3), set \( \varepsilon = 0 \) to focus on the deterministic solution, impose the pre-existing condition of deflationary expectations (\( \pi^* < 0 \)), and assume that the socially optimal rate of inflation from the central bank’s perspective is non-negative (\( \pi^* \geq 0 \)).
This generates the result that the optimal policy is actual deflation ($\pi < 0$), as long as the following condition holds:

$$\pi^* < \frac{1}{\theta} |\pi^*|,$$ or, equivalently: $\theta \pi^* < |\pi^*|$.

The result in (4) says that deflation will be an optimal policy so long as the socially optimal rate of inflation weighted by its relative importance in the BoJ’s loss function is strictly less than the (absolute value) of the expected rate of deflation. This result means that if the BoJ considers that the socially optimum rate of inflation is indeed low (its upper bound being exactly given by (4)), then a policy of deflation can indeed be a best response in an environment where there are widespread expectations of continual deflation, and the central bank lacks an instrument to change those expectations, so that it has to take them as given when setting its optimal policy.

4. The Quest for the Missing Instrument: Deflation as a “Discipline Device”

The above framework can be extended to incorporate a BoJ perceived view that the MoF is prone to policies of forgiveness and forbearance in dealing with troubled financial institutions. This is historically reasonable as the BoJ has generally been more supportive of financial liberalization and market solutions than the MoF, which on many occasions has attempted to slow the process of liberalization and after 1990 resisted greater transparency, market discipline, and departure from the old financial regime.

As way of example, consider the following reference to the BoJ’s actions:

“The Bank seems to be mostly concerned that by creating inflation it might let debtors off the hook and thereby reduce the pressure on firms to restructure and on the government to make structural reforms. Yet in playing this game the Bank of Japan has failed in its primary duty as a central bank: to ensure price stability. Its agenda of pressing for structural reform and corporate restructuring, commendable as it is, is outside its mandate” (Economist, May 31st, 2001).
To accommodate the analysis that follows, we need to modify the BoJ’s preference function regarding deflation and the deviations of the levels of debt relative to its socially optimum level, so that the new BoJ’s loss function is now given by:

\[ L(D, \hat{\pi}) = c \hat{\pi}^2 + (D - D^*) \; ; \; c > 0 \]

Where \( \hat{\pi} \) now denotes the rate of deflation (taking non-negative values) and \( \hat{\pi}^e \) denotes the expected rate of deflation (also taking non-negative values). The deviations of real debt relative to its socially optimal level now enter the loss function in a linear fashion (the technical reason for this will become apparent when we introduce a modified BoJ’s constraint function that makes room for deflation to act as a “disciplining device”).

The implicit function theorem indicates the BoJ now faces a trade-off between the level of real debt and deflation. In order to reduce the deviations of debt relative to its socially optimal level, the BoJ needs to increase deflation because

\[ \frac{\partial D}{\partial \hat{\pi}} = -\frac{\partial L}{\partial \hat{\pi}} = -2c \hat{\pi} < 0 \]

To illustrate the implications of the tradeoff we make a slight but subtle modification of expression (2), the constraint function, to permit a disciplining effect stemming from deflation --on top of the Fisher revaluation effect already incorporated into expression (2). The deviations of current debt relative to the socially optimal level of debt are now expressed in the following quadratic form:

\[ (D - D^*) = \gamma (\hat{\pi} - \hat{\pi}^e)^2 \; ; \; \gamma > 0 \]
In this case, the level of debt is increased relative to its socially optimal level by deviations of the deflation rate in either direction. What is the economic rationale of such a formulation?

If deflation is lower than expected, the burden of repaying already existing debt by troubled banks is reduced. If combined with a lenient policy by the MoF, this leads to an increased capacity of troubled banks to secure “soft loans” implicitly guaranteed by the MoF. That is, if deflation is less severe than expected, troubled banks can borrow more under a lenient MoF and hence, the level of debt exceeds its socially optimal level. If deflation is higher than expected this has the potential to generate a debt-deflation process per Fisher and hence, the level of debt will also increase relatively to the socially optimal level but via a different process than when the deflation is lower than expected. In either event, deviations of deflation from the expected rate generate a higher level of debt relative to the socially optimal level of debt.

The optimal deflation rate from the BoJ’s perspective can be determined by substituting (7) into (5) and minimizing the resulting expression relative to \(\hat{\pi}\), taking deflation expectations as given. Setting the first order condition equal to zero and solving for \(\hat{\pi}\) provides the following optimal response by the BoJ:

\[
\hat{\pi} = \frac{\gamma}{c + \gamma} \hat{\pi}^e
\]

Note that so long as there are expectations of deflation, the BoJ’s optimal response is to generate deflation in a less than one-for-one fashion because of the condition \(0 < \frac{\gamma}{c + \gamma} < 1\).
5. Explicit Expression of the BoJ’s Perceived MoF Policy of Forgiveness and Forbearance and Equilibrium of the Policy Game

It remains to be shown that the level of debt will indeed be systematically above its socially optimal level from the BoJ’s perspective, even if deflation and expected deflation are always the same, and not only as the result of a temporary misalignment between the two, as was the case in the previous section. In other words, the distortion introduced on the level of debt by the MoF’s policy of forgiveness and forbearance, as perceived by the BoJ, needs to be modeled more explicitly.

5.1. The BoJ’s best response in the presence of (perceived) forgiveness and forbearance

Rewrite expression (6) in the following manner:

\[ (bD - D^*) = \gamma (\hat{\pi} - \hat{\pi}^e)^2 ; \quad 0 < b < 1 \]

Even if \( \hat{\pi} = \hat{\pi}^e \), \( D > D^* \) so long as \( b < 1 \). That is, the BoJ perceives that the level of debt is systematically too high because troubled banks borrow too much money encouraged by the implicit guarantee of the MoF. Note that in the previous section, the level of debt could exceed its socially optimal level only so long as deflation and expected deflation differed from each other, but there was no systematic bias. Now, there is an explicit ‘political distortion’, captured by the parameter \( b < 1 \).

To see how the BoJ’s perception of the existence of a bias on the part of the MoF toward forgiveness and forbearance influences BoJ behavior, solve (9) for \( D \), substitute the resulting expression into (5), differentiate the resulting expression relative to \( \hat{\pi} \), set the resulting expression equal to zero and solve for \( \hat{\pi} \) to arrive at the following:

\[ \hat{\pi} = \frac{\gamma}{cb + \gamma} \hat{\pi}^e \]
There are two considerations to expression (10). First, since the coefficient \( \frac{\gamma}{c_b + \gamma} < 1 \), the BoJ’s reaction function cushions some of the expected deflation; that is, the BoJ does not translate deflationary expectations one-for-one into actual deflation policy. Second, the BoJ generates more deflation given the same deflation expectations when the perceived policy of forgiveness and forbearance imposes an upward bias on the level of banks’ debts because the coefficient in (10) is larger than the coefficient in (9), \( \frac{\gamma}{c_b + \gamma} > \frac{\gamma}{c + \gamma} \). The BoJ uses deflation policy as a “disciplining instrument” at the margin. That is, the BoJ internalizes the soft behavior of the MoF toward troubled banks and seeks to prevent excessive debt increase on the part of banks: the higher the perceived lax attitude of the MoF (the lower the value of \( b \)), the more deflation the BoJ creates, for a given expected deflation rate.

5.2. Optimization by distressed banks (or where deflationary expectations are coming from)

The BoJ’s reaction function given by (10) is an element of the policy game between the BoJ and troubled banks and a critical component of the equilibrium of the (one stage) game. What needs to be considered at this point is to account for the distressed banks’ best response; that is, will distress banks choose to expect deflation when trying to maximize the amount of debt they hold under the lenient supervision of the MoF?

The answer to this question is non-trivial for the framework developed in this paper. If troubled banks choose to maximize equation (7) --after solving it for \( D \)-- subject to the constraint given by (10), their optimal choice would be \( \hat{\pi}^e = 0 \), and thus,
no equilibrium with deflationary expectations would exist. While this may not be a reasonable optimization process for banks (the constraint function of one player does not have to be the objective function of another, and vice versa), its possibility suggests that deflationary expectations are not an obvious optimal choice of distressed banks in the one stage game with the BoJ. However, if distressed banks explicitly incorporate in their objective function the notion that the BoJ uses deflation as a means to discipline debt behavior by troubled banks, then a deflationary Nash equilibrium becomes possible in which distressed banks optimally choose to expect deflation in their maximization problem.

This can be illustrated by considering the following maximization process for distressed banks. Private, distressed banks take (10) as given and choose the expected deflation rate that maximizes the following function:

\[
\Delta D = \frac{1}{2} (\hat{\pi}^e - \hat{\pi})^2 D_{-0} - \frac{\hat{\pi}^e}{\phi} D_{-0} \quad ; \quad 0 < \phi < +\infty
\]

The second addend in expression (11) shows that distressed banks internalize the BoJ’s use of deflation as a “discipline device” (i.e., the initially prevailing level of debt is being reduced by the mere existence of deflationary expectations). In terms of notation in expression (11), \( D_{-0} \) denotes the stock of debt outstanding at the time of the maximization, \( \Delta D \) denotes the increase in the debt --what troubled banks are trying to maximize, and \( \phi \) is an “attenuation parameter” indicating to what a degree the usage of deflation as a “discipline device” to moderate debt increases is attenuated, in the perception of troubled banks. When \( \phi \rightarrow +\infty \), the perception of deflation as a “discipline device” is heavily attenuated and tends to carry no weight in distressed banks’
optimization problem. Conversely, when $\phi \to 0$, there tends to be no attenuation and the perception of deflation as a “discipline device” by the BoJ plays a dominant role in distressed banks’ optimization problem.

Substituting expression (10) into expression (11), differentiating the resulting expression for $\hat{\pi}^e$, setting it equal to zero and solving for $\hat{\pi}^e$ generates the following optimal response to BoJ policy by troubled banks:

\[
\hat{\pi}^e = \frac{1}{\phi} \left[ \frac{cb + \gamma}{cb} \right]
\]

That is, troubled banks come to anticipate deflation based on their understanding of the BoJ’s policy. In the case where there is no upward bias in the level of debt induced by the MoF’s policy of forgiveness and forbearance ($b = 1$), then (12) is simply:

\[
\hat{\pi}^e = \frac{1}{\phi} \left[ \frac{c + \gamma}{c} \right],
\]

which implies a lower expected deflation on the part of troubled banks. Thus, troubled banks internalize the BoJ strategy of deflation as a “discipline device”, recognizing the implicit heterogeneity of preferences between the BoJ and the MoF on the optimal level of debt and the consequent strategic behavior of the BoJ regarding the actions of the MoF --captured by equation (9).

Also note that when attenuation is high (that is, when $\phi \to +\infty$), the optimal choice by distressed banks implied by (12) is: $\hat{\pi}^e \to 0$. When high attenuation is coupled with perfect foresight expectations ($\hat{\pi} = \hat{\pi}^e$), zero deflation becomes the Nash equilibrium of the one-shot game, since equation (5), the loss function of the BoJ, collapses to $c\hat{\pi}^2 + (1 - b)D^*$, with the implication that the optimal choice is given by $\hat{\pi} = 0$. 

16
6. Concluding Comments

This paper offers an explanation for the ten-year period of deflation in Japan that stresses the incentives faced by the BoJ when making decisions in a second-best scenario where various policy instruments could have been missing. The approach consists of a policy game within what Drazen (1999) calls the “new political economy” branch of macroeconomics. In particular, this paper stresses the importance of three pre-existing distortions in shaping BoJ’s incentives: entrenched deflationary expectations, large amounts of outstanding debt, and a perceived MoF preference for a policy of forgiveness and forbearance toward troubled banks.

The explanation suggested in this paper complements (rather than substitute) existing explanations that try to make sense of BoJ policy during the ten year period of deflation in Japan. While lack of understanding on the part of the BoJ, concerns with protecting formal independence, and overly conservative views about price stability might be part of the explanation for the ten-year period of deflation in Japan, they do not focus on understanding what shaped the incentives facing the BoJ when making its monetary policy decisions.

This paper offers a straightforward analytical framework that provides some insight by modeling the deflation period as a rational second-best solution to a one-stage policy game between the BoJ and troubled banks, which in the perspective of the BoJ rely on MoF forgiveness and forbearance as a policy to deal with weak balance sheets. Two caveats are in order, however.
First, the model does not incorporate an explicit preference function for the MoF, but rather adopts a shortcut that incorporates the influence of the MoF on the BoJ actions via the BoJ constraint function, by modeling how the BoJ perceives the MoF bias toward “too much debt, too little reform.” This modeling strategy simplifies the analytical problem at hand, avoiding the need to model a three players’ game. While the cost paid is that the MoF behavior and motivation are left unexplained, the model still offers a reasonable explanation of why the BoJ permitted deflation for such a long period of time: an upward bias on the level of debt permitted by a policy of MoF forgiveness and forbearance (as perceived by the BoJ) induces the Bank to use deflation policy as a “disciplining instrument”.

The modeling approach presented in this paper is based on the same conceptualization of macroeconomic performance as the outcome between game playing between policy makers recently suggested by Nordhaus and Hoshi. Nordhaus (1994) provides a formalization of the game played between the monetary and fiscal authorities and shows that a lack of coordination between them leads to both a higher budget deficit and a higher interest rate than either authority considers optimal. Hoshi (2004) models the non-cooperative equilibrium between the central bank and the bank supervisor and finds that in equilibrium a lack of coordination leads the monetary authority to pay too much attention to bank supervision and to choose a monetary policy that is too tight relative to the one that would prevail in the case when policies are coordinated. Our paper explores the strategic interaction that has, so far, been left unexplored: the one between the BoJ and troubled banks that are not under the Bank’s supervision and by doing so sheds new light on a very important policy problem.
A second caveat is related to the assumption that the BoJ directly controls the rate of inflation. As forcefully argued by Blinder (1998), this assumption is unrealistic as a description of the monetary policy-making process and should always be kept in mind. The rationale for the use of the assumption in this paper relies on a cost-benefit relationship between the model and trying to account for BoJ behavior in an optimizing framework. The perspective offered in this paper that incentives faced by a central bank in a second-best world generates suboptimal macroeconomic performance and the applicability to the BoJ in the recent past seems worth the tradeoff.

An obvious question that emerges from the framework in this paper is to what degree it can be used to excuse the BoJ for permitting deflation in violation of Article 1 of the 1997 Bank of Japan Law and the adverse effects of deflation on the economy for such a long period in Japan. The Bank of Japan likely exceeded its role in the Japanese economy as specified in the 1997 Bank of Japan Law in pursuing its agenda of inducing “more reform and less debt” while simultaneously ignoring its main goal of preserving price stability by using deflation as a “disciplining instrument.” The pre-existing distortions modeled in this paper provide an understanding of the Bank’s actions from a “positive perspective”, but do not justify them on a “normative basis.”
(*) The authors would like to thank Ken Kletzer, Takeo Hoshi, and other participants of the May 12, 2006 “West Coast Japan Economic Seminar”, jointly organized by the International Relations and Pacific Studies program of the University of California, San Diego and the Santa Cruz Center for International Economics of the University of California, Santa Cruz. The usual disclaimer applies.

References


