

Why Deflation is Different, forthcoming in *Central Banking*

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In the two decades since the long-run trade-off between unemployment and inflation was rejected by most economists and central bankers, independence of the central bank from political pressure has been thought necessary to ensure a reasonable balance between these two objectives. Politicians with shorter time horizons are considered more likely than central bankers to overemphasise the employment objective. Central banks that were formally independent, such as the Federal Reserve in the United States, argued that independence was the proper institutional design for more activist central banks, while central banks that lacked formal independence, such as the Bank of Japan, argued that better monetary policy outcomes could be achieved with more independence. This emphasis on independence received statistical support in a number of studies (eg, Cukierman, Webb, and Neyapti, 1992) that reported a negative and statistically significant relationship between measures of central bank independence and inflation rates; that is, the more independent the central bank, the lower the inflation rate. The statistical evidence has been used to justify more central bank independence and has also suggested that had central banks been more independent of their governments in the 1970s and 1980s, inflation would have been lower in many countries.

Independence delivers

As Table 1 illustrates, the new emphasis on price stability and central bank independence was largely successful. The inflation rate in most countries, and in every part of the world, declined significantly by the end of the 1990s, and many central banks were also able to achieve gains in independence. In 1998 the Bank of Japan and the Bank of Korea, for example, achieved a significant increase in formal independence from government. The European Central Bank was established as an independent central bank. Central banks and others (eg, Cogley, 1996) argued that independence provided a more credible institutional design to establish public

expectations of low and steady inflation. In one dramatic example, once the Central Bank of Russia was granted greater independence and responsibility for Ruble stability in 1995, the average annual rate of inflation fell from 553% in the previous four years to 33% in the five years after.

Table 1: Average consumer price inflation rates in selected countries

	1975-1985	1985-1995	1995-2000	2000-2002
World Index*	14.1	17.4	5.9	4.0
Industrial Economies*	8.0	3.4	1.9	2.1
United States	7.2	3.5	2.5	2.2
Euro area	7.3	3.4	1.7	2.5
Japan	4.7	1.4	0.3	-0.8
United Kingdom	10.6	4.5	2.5	2.2
Canada	8.1	3.3	1.7	2.4
Australia	5.0	5.2	1.9	3.7
New Zealand	13.4	5.7	1.4	2.7
Switzerland	3.3	2.8	0.7	0.8
Sweden	9.7	5.4	0.7	2.5
Developing Economies*	30.2	43.0	10.8	6.2
Africa*	15.8	21.8	9.4	7.5
Asia*	8.5	8.7	5.1	2.7
China	3.1	11.7	1.8	0.1
Korea	12.0	5.8	4.0	3.4
Europe*	24.8	89.2	37.4	22.5
Russia (1991-)		155.5	32.6	17.0
Czech Republic (1989-)		18.5	6.7	3.3
Poland (1989-)		83.9	12.7	3.7
Turkey	44.0	65.1	73.7	49.6
Middle East*	16.7	16.3	7.9	4.2
Saudi Arabia*	4.2	1.0	-0.3	-0.5
Western Hemisphere*	62.4	143.7	12.9	6.8
Brazil (1980-)*	146.2	704.3	7.5	6.9
Mexico	39.6	41.2	19.1	5.7

Source: IMF International Financial Statistics, OECD, China National Bureau of Statistics, Goskomstat of the Russian Federation.

Note: * No data available yet for 2002.

Too much success

Recently, however, there is increasing concern that disinflation policy has been pursued too aggressively. In Japan in particular, the Bank of Japan's disinflation policy led to price deflation after the mid-1990s, and this in turn has increased Japan's

economic and financial distress. Other countries are becoming concerned about the possibilities of their central banks following suit or deflation becoming internationally transmitted through fixed exchange rate regimes (eg, China). Since most economists believe that there is an upward measurement bias for many price indices, the low inflation rates found in many countries may already reflect zero or even negative rates of price inflation. The corresponding low nominal interest rates leaves central banks little room to stimulate the economy in the face of adverse supply/demand shocks. In early May, both the Fed and the ECB expressed concerns about the current low rates of inflation, and deflation has become an increasingly popular topic of both academic conferences and the news media.

This paper discusses two aspects of the deflation problem that have not been discussed extensively in the literature. First, we argue that the effects of deflation on the economy do not simply mirror the effects of inflation, for a low and stable deflation rate can have a greater adverse impact than an identically low and stable inflation rate. Second, the concern with central bank independence may have contributed to the current deflation threat, and may help explain some of the problems experienced by the Bank of Japan. We thus consider the central bank decision-making process from the perspective of the public choice literature. In general, central bank independence has been oversold as an optimal institutional design, and may be contributing to current prospects for deflation.

Deflation misunderstood

Is deflation simply the inverse of inflation? Economic theory suggests that anticipated inflation has minimal real effects on the economy as long as contracts can be adjusted and the anticipated inflation rate is low. Anticipated inflation does cause some misallocation because resources are devoted to posting new prices (ie, menu costs) and economising on cash balances (ie, shoe leather costs), but as long as the anticipated inflation rate is low these effects are minor. Because inflation has been the major macroeconomic problem since the end of the second world war, and thus the focus of most economic modelling, there has been a tendency to regard deflation as just the “flip side of the coin”; like anticipated inflation, anticipated deflation should have minimal real effects as long as economic contracts can incorporate or be adjusted to the anticipated deflation and the anticipated deflation is mild.

This view, however, is incorrect. Because there is an effective lower bound on nominal interest rates, deflation is fundamentally different than inflation and has the potential for additional adverse effects on the economy. The concern over deflation has a solid foundation that is only beginning to be explained in the popular literature, with occasional comments about “liquidity traps” and reduced spending by consumers and investors, and with references to the 1930s, the last significant period of deflation in world economic history.

The deflationary phenomenon

In the context of Friedman’s well-known statement that inflation (and thus deflation) is everywhere and at all times a monetary phenomenon, it is important to first distinguish between supply-led and demand-led deflation. In a review of the historical international deflation experience, Borio and Filardo (2003) note that deflation is not always associated with output declines. Productivity shocks and increases in competition, especially those resulting from transition toward market-directed economic structures (eg, in China) can also generate price declines even as output increases. Supply-led deflation, however, is not likely to persist for long periods, since productivity shocks are unlikely to continue over long periods of time and deflation in the absence of lower monetary growth or a decline in output is unlikely to cause a sustained decrease in velocity.

Demand-led deflation, however, can continue for long periods of time as long as monetary growth remains insufficient to support a constant or increasing nominal output. Cargill and Parker (2003a) considered the differing effects of supply and demand-led deflation in China and Japan, respectively, and argued that supply-led deflation imposed far fewer problems than demand-led deflation. Unfortunately, it is the demand-led deflation that has central banks concerned. This is the type of deflation that Krugman (2000) has in mind in his provocative “The Return of Depression Economics”.

Pain of hitting rock bottom

With demand-led deflation, particularly once nominal interest rates approach their lower bound, five adverse effects of price deflation can be identified. Deflation

increases the burden of servicing outstanding debt and thus increases both bankruptcy rates and the banking sector's share of non-performing loans, and deflationary expectations also reduce consumption. Deflation increases the demand for money balances, while on money's supply-side deflation reduces the deposit expansion multiplier. As a result, deflation generates a "discontinuity" in the conduct of monetary policy often referred to (somewhat inaccurately) as the liquidity trap.

1) Deflation increases the burden of servicing outstanding debt. Fisher (1933) outlined a hypothesis to account for the rapid decline in economic activity in the United States during the Great Depression, and he emphasised the effect of deflation on servicing outstanding debt which in turn, increased the rate of default on bank loans, resulting in reduced output due to bankruptcy, reduced investment spending, and a potential for a financial crisis (eg, the collapse of banks). This adverse effect of unanticipated deflation is mitigated to some degree by adjustable rate debt instruments. However, at any point there exists a large volume of fixed-interest debt and adjustable rate instruments such as mortgages are limited as to how far the nominal rate can be adjusted downward. Fisher's hypothesis is thus still relevant. Deflation in Japan is not anywhere near the magnitude of the deflation in the 1930s; however, the large amount of outstanding debt (much of it considered non-performing) means that even the mild deflation experienced in Japan has impacted their economy along the lines suggested by Fisher 70 years ago.

2) Deflationary expectations reduce consumption. Anticipated inflation has little impact on spending, and thus one would expect the same for anticipated deflation. While one might decrease current spending in anticipation of lower prices, falling nominal interest rates combined with anticipated increases in real wealth should largely offset this effect. This scenario is correct with regard to anticipated inflation, where there is no constraint on the ability of nominal interest rates to adjust in order to maintain a constant real rate of interest. Deflation is different, however, because the nominal interest rate has an effective lower bound at or near zero. Lenders always have the option of holding onto funds and earning a zero nominal return rather than paying someone to borrow with a negative nominal interest rate. Once deflation drives the nominal interest to its minimum, further deflation increases the real interest rate. For temporary periods, at least, rising real interest rates offer an incentive to

save; that is, to postpone spending. Cargill and Parker (2003b) find evidence that deflation can thus decrease consumption spending.

3) Deflation increases the demand for money balances. Almost a half century ago, Cagan (1956) outlined a model of hyperinflation in which increases in anticipated prices reduced the demand for money (increasing velocity) and contributed to a self-reinforcing cycle of even further inflation and increased velocity. Inflation reduces the value of cash balances, which in turn provides incentives to substitute commodities for cash balances. The reverse is possible in the case of deflation, and the Cagan-type effects might be generated with a deflation rate considerably less in absolute terms than the type of inflation rates studied by Cagan. Deflation increases the value of cash balances, thereby encouraging the substitution of cash balances for commodities. Cargill and Parker (2003a) find evidence that money demand in Japan not only rose with disinflation, it rose even further when disinflation turned into deflation.

4) Deflation reduces the deposit expansion multiplier. Deflation reduces the willingness of banks to lend so that any change in high-powered money results in a smaller increase in the money supply. Two factors account for a decline in the money multiplier: first, Fisher's debt deflation process increases the risk of lending and banks raise loan standards; second, increasing real interest rates provide incentives to postpone spending and hence, postpone borrowing. Banks are thus likely to shift their portfolios away from lending towards safer government securities and money balances.

5) Deflation generates a "discontinuity" in the conduct of monetary policy. In an important contribution, Krugman (1999) initiated the current interest in the liquidity trap. However, the traditional liquidity trap concept can be misleading, particularly in the present situation. The Keynesian liquidity trap was not necessarily monetarily-induced and more important, the liquidity trap was used by Keynesians (as opposed to Keynes himself, who expressed doubts about the practical usefulness of it) to demonstrate the impotency of monetary policy and the usefulness of fiscal policy. Deflation in Japan, however, can easily be traced to tight monetary policy (McCallum, 2003). Expansionary monetary policy has not become impotent, but it has instead been insufficient to create an anticipation of future price increases. Thus,

it is not accurate to refer to the problems that deflation creates for monetary policy as a liquidity trap; we prefer to refer to the problem as a “discontinuity” in the conduct of monetary policy.

A downward spiral

Deflation increases the demand for money and reduces the deposit expansion money multiplier, and thus it can lead to yet more deflation unless monetary authorities respond appropriately. As the process continues, the degree of monetary expansion needed to generate anticipations of price inflation increases. That is, the longer the deflation process continues, the more difficult it will be for monetary policy to reverse the process. In addition, the standard interest rate-expenditure channel becomes useless because of the inability to reduce nominal interest rates during even a mild deflation of 1-2%, and monetary expansion requires a significant increase in open market operations.

Given the above effects of demand-led deflation, what dangers does it pose for the business cycle? After extensive debate and efforts to compose reliable historical data, the majority opinion of macroeconomists is that the business cycle in the United States was more unstable prior to the second world war than in the post-war period. Many economists have argued that this improved stability is evidence that countercyclical fiscal and/or monetary policy has been successful, and perhaps this is true. But an alternative explanation is that deflation, which was common in the pre-war era and rare afterwards, may have helped to make recessions more protracted. Not all deflations caused recessions, of course, but a demand-led deflation could make an accompanying recession much longer and deeper.

The independence link

Disinflation, which brought many economies close to deflation in the past decade, was the direct outcome of central bank policy as it clearly became a high priority for central bank policy in the 1980s and early 1990s. In most countries, of course, it would be inappropriate to characterise this as a policy failure, even though in hindsight it might have been preferable to focus on a price path target of 2-3% annual inflation. Bank of Japan policy in the 1990s, however, does merit being characterised as such a failure. The focus on low inflation rates and the policy failure of the Bank of

Japan have a common basis, however. Concern with central bank independence may have contributed to the current concerns and problems with deflation.

Independence oversold

We develop this argument in several stages. First, central bank independence is neither necessary nor sufficient for price stability despite the statistical evidence linking central bank independence to inflation outcomes. Cargill (1995) and Fujiki (1996) questioned the reliability of the econometric studies, while Posen (1995) argues that the statistical association merely measures commitment to price stability and reveals nothing about central bank independence and policy outcomes. The central bank policy outcomes of the Fed and the Bank of Japan contradict the prediction that high central bank independence generates low inflation rates. Aside from the dubious statistical foundation, a public choice perspective of central bank decision-making suggests that in some circumstances an independent central bank may still act like a dependent central bank. A central bank that highly values maintaining or enhancing its independence may accommodate political pressures. In such a strategic game, politicians value the availability of an independent central bank that can assume responsibility for the adverse effects of their inflation policy. In general, central banks become “prisoners” of their own independence.

Second, central bank independence is a desired goal of any central bank from a public choice perspective, regardless of the argument that independence contributes to price stability, since independence is a valued commodity in any government agency. Hence, it is no accident that central banks have embraced the statistical evidence linking institutional design and price stability.

Fear of failure

Third, central banks were forced to accept responsibility for the high inflation rates of the 1970s and 1980s, as the empirical and theoretical evidence was overwhelming. The long-run trade-off between inflation and unemployment was rejected in the 1980s, Friedman’s dictum that inflation was a monetary phenomenon became the consensus view, and the disruptive effects of inflation in the 1970s and 1980s were extensively documented. The focus on central bank responsibility for price stability thus had an effect on central bank behaviour. Independent central banks were

concerned that the policy failure would cost them some of their independence unless they achieved price stability in the future.

This was not a trivial concern. In the case of the Fed, for example, Concurrent Resolution 133 of 1975 and the Full Employment and Balanced Growth Act of 1978 reduced the independence of the Fed by requiring that monetary aggregate targets be announced and that progress reports be presented to Congress. Central banks that desired more independence saw that lower inflation rates would put them in a better position to obtain it from legislative bodies. The incentive to pursue price stability to maintain or enhance independence was another manifestation of being a “prisoner” of central bank independence, though in this case, the policy outcome was positive. Thus, central banks became enthusiastic price stabilisers; in fact, they may have overdone price stability and brought their economies to the brink of deflation.

Trapped by independence

Fourth, central banks are reluctant to admit they may have pursued disinflation too vigorously. For example, the Fed blames the potential for deflation on the collapse in equity prices and the Bank of Japan has blamed deflation on inexpensive Chinese imports and the non-performing loan problem. Government agencies are reluctant to admit policy errors under any circumstances, but with so much focus on central bank policy as *the* stabilisation instrument and so much emphasis on independence as a basis for optimal policy outcomes, many central banks are reluctant to change policy. In the current environment, shifting policy is a public event that draws attention to the policy error, and it thus raises concern that independence will be compromised. As a result, central banks can become resistant to outside criticism and more insular in their perspective, because being influenced would represent a loss of independence.

This clearly appears to be the case in Japan. Cargill, Hutchison, and Ito (2000) argue the Bank of Japan may have become caught in an “independence trap” and become overly conservative and increasingly resistant to outside influence. The result is a reluctance to admit policy errors or, in the case of Japan, to admit that the deflation is partly attributed to a “war of attrition” being conducted with the Ministry of Finance over how to deal with the non-performing loan problem. A reflection of this conflict can be found in the Bank of Japan's concerns with its own solvency, should increased

nominal interest rates reduce the value of its portfolio of government bonds, and the unwillingness of the Ministry of Finance to provide guarantees of support should this happen.

A targeting solution

Fifth, inflation (or price path) targeting in its various forms provides a long-run anchor that prevents the public from establishing anticipations of price declines. Inflation targeting has been advanced primarily as a method to prevent inflation; however, it is equally useful in preventing deflation. It is puzzling why some central banks are opposed to inflation targeting, especially given the increasing concern being expressed about the potential for deflation. While inflation targeting has been established for a number of central banks, in general central banks often resist this institutional redesign by dismissing inflation targeting as “too simplistic” and too limiting of their ability to respond to short run shocks. This again reflects the concern with maintaining independence, as inflation targeting does reduce the perceived independence of the central bank, and resistance again reflects an independence trap.

In conclusion, central bank policy outcomes are critical to providing a stable financial and monetary environment for economic growth. While central bank independence has traditionally been regarded as the best institutional design to ensure price stability, we argue that the statistical evidence is debatable. Independence is neither necessary nor sufficient to generate price stability, and deflation in Japan, along with a resistance to inflation targeting and an unwillingness to accept responsibility for deflation, is in part the outcome of this concern with independence. Central banks can find themselves trapped by their own independence, and in the case of deflation this is a serious problem. Unlike low inflation rates, even low deflation rates can have an adverse effect on the economy.

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