The Unravelling of Inflation Targeting

ALOK SHEEL

Inflation targeting as currently conducted by central banks in both developed and developing economies is breaking down. In the developed countries it is stymied by asset and credit bubbles and in developing countries inflation targeting has been disrupted by the source of inflationary pressures and volatile capital flows. Developing countries need to find ways of targeting non-core inflation, and also need to devise a separate policy instrument to target the external financial cycle.

The changing structure of the global economy is leading to rethinking on a number of long-established macroeconomic paradigms, particularly in the wake of the recent global financial and economic crisis. One of these is the relationship between inflation and the business cycle that has critical implications for the conduct of monetary policy by central banks.

Ever since the global economy went off the gold standard in the early 1970s, and central banks were empowered to print money according to their discretion, governments and central banks could follow aggressive macroeconomic policies to stabilise business cycles. Following Keynes, fiscal and monetary policies endeavoured to be contra-cyclical – expansionary during downturns, and contractionary during episodes of overheating. But the business cycle had still to be measured to gauge the extent of contraction or overheating.

By and large the metrics of measurement were based on the Phillips curve that postulated a positive correlation between economic growth and inflation. But, like Goldilocks, policymakers had still to determine what combination of growth and inflation was just right for a particular economy, and the associated policy-neutral rate. In practice, since the production possibility frontier was difficult to measure, and also a moving target, a consensus gradually developed that the policy-neutral growth rate was the one consistent with the acceptable level of inflation. Advanced economies gradually converged on a consensus or policy-neutral inflation rate of 2%. The inflation rate usually used by central banks is core consumer price inflation that excludes volatile food and fuel commodity prices that were less sensitive to monetary policy actions. Therein lay the genesis of "core inflation" targeting.

Two Watersheds

Since the 1970s there have been two major watersheds in the evolution of macroeconomic policy. The first watershed was reached with the realisation that on account of its overtly political overtones it was difficult to enforce countercyclical fiscal policy. Entry was easy but exit was not. There was also a realisation during the stagflationary 1970s that the Phillips curve breaks down when the source of inflation lies in the volatile commodities sector, and that the central bank's chief monetary policy instrument was blunted in such circumstances.

Following the stagflationary 1970s, therefore, the pole position in macroeconomic policy was handed over to "independent" central banks that started targeting core rather than headline inflation. While Milton Friedman laid the intellectual foundations of the transition from fiscal to monetary policy, Paul Volcker controversially used the monetary policy bludgeon to telling effect to slay the monster of stagflation in the United States (US).

The second watershed was reached when monetary policy setting by central banks became rule-bound rather than discretionary. The most widely used rule was the Taylor Rule. John B Taylor of Stanford University arrived at his famous Taylor Rule through a historical study of the monetary policy of the US Federal Reserve. His equation captured the relationship between the policy rate, inflation and growth during periods when the US monetary policy outcomes were optimal. While there are a number of variations of the Taylor Rule, including those by Taylor himself,[1] a commonly used formula is as follows: Policy rate = last quarter inflation + 0.5 (last quarter GDP- potential GDP) + 0.5 (last quarter inflation – inflation target).

Inflation Targeting: The Third

We may now be witnessing a third watershed in the evolution of macroeconomic policies. Following the global financial crisis, Taylor argued that a contributory factor was that the US monetary policy was too loose as it deviated from the Taylor Rule.[2] This

Views expressed are personal.

Alok Sheel (*aloksheel@gmail.com*) is secretary, Prime Minister's Economic Advisory Council.

certainly seems to have been the case following the dotcom bust of 2000, as Table 1 would show. US potential GDP is assumed to be 3.5%, and the core inflation target as 2%. All numbers are quarterly year-on-year averages. The quarters have been aggregated into periods of robust growth and low growth.

Table I: GDP, Inflation and Deviation from the Taylor Rule – The United States

Period	GDP Growth	CPI-Headline Inflation	CPI- Core Inflation	Dow Jones Industrial Average inflation	Home Price Inflation	Deviation of the Effective FED Fund Rate from the Taylor Rule
1997Q1-2000Q3	4.6	2.3	2.3	18.9	6.4	0.50
2000Q4-2003Q2	1.6	2.4	2.3	-8.4	9.1	-0.97
2003Q3-2006Q4	3.3	2.9	2.0	9.3	11.3	-0.94
2007Q1-2008Q2	1.5	3.3	2.3	9.4	-7.8	0.49
2008Q3-2009Q4	-2.4	0.9	1.9	-20.8	-13.3	-0.61
2010Q1-2013Q4	2.3	2.1	1.6	14.4	1.7	-2.60

(1) Bureau of Labour Statistics, Department of Labour, US-http://www.bls.gov/cpi/
(2) Bureau of Economic analysis, US-https://www.bea.gov
(3) Economic Research, Federal Reserve Bank of St. Louis- http://research.stlouisfed.org
(4) Board of Governors Federal Reserve System, US http://www.federalreserve.gov
Home Price Inflation calculated from National Composite Home Price Index for the United States.

What were the compelling factors underlying this deviation? Therein lies a long tale. The story begins with the sharp decline in consumer price index (CPI)-based inflation in both developed and developing countries over the last two decades. According to International Monetary Fund (IMF) data, it averaged under 7% in developing countries between 2002 and 2010, as against 38.4% between 1992 and 2001. In developed countries, it fell by about 20% from 2.4% to 1.9%. On the basis of this data the IMF in its World Economic Outlook of April 2013 concluded that "inflation targeting" by central banks had been eminently successful in anchoring inflationary expectations.

Inflation targeting, however, was never an end in itself but the means to a much broader end, namely, macroeconomic stabilisation. It was the canary in the gold mine that central bankers watched to set the equilibrium interest rate at which incomes are optimally distributed between savings/investment and consumption so as to keep the economy growing at the production possibility frontier, or its potential growth rate over the long run. If the central bank sets the interest rate too low, the demand for investment would exceed supply, as consumers reduce savings and expand consumption. This leads either to an economic slump through a collapse in domestic investment as interest rates eventually rise, or more likely, in an open economy, to a growing external deficit to finance the excess of investment over domestic savings to meet the excess demand. This however only postpones the inevitable. As and when the stock of debt exceeds levels considered sustainable by the market, the ensuing revolt makes the cost of borrowing unaffordable leading eventually to loss of market access and a downturn in the business cycle.

From the above it would be clear that if core consumer price inflation were to lose its sensitivity to the business cycle, the targeted inflation would also cease to ensure macroeconomic stability through an equilibrium interest rate. This is precisely what happened. It was as though the canary could now withstand excessive levels of methane in the gold mine. Core inflation remained remarkably stable, despite sharp fluctuations in growth and periodic fluctuations in commodity prices. (The five quarters of recession during the global financial crisis, which also saw three quarters of deflation, was an exceptional period.) The Phillips curve was becoming unstable all over again. The questions to ask are how was it that the canary's tolerance of methane in the coal mine increased so dramatically? And how was it that the central bank was able to drive down interest rates when private savings were declining? To answer these questions we need to turn to a different part of the globalisation puzzle.

Economists are wont to treat their discipline as a natural science governed by immutable laws rather than by the vagaries of human behaviour that can vary across space and time. The same low interest rates that reduced savings in one part of the globe, served to raise savings in another, notably China, where the state followed a conscious policy of financial repression to increase and direct private savings into investment. According to the Austrian school of economics, while deferred consumption can increase savings and investment to increase the production possibility frontier – or economic growth – over the short to medium term, a sustained expansion of investment accompanied by stagnant or falling consumption is a recipe for recession. In an open economy, however, it is possible to keep expanding the production possibility frontier over an extended period despite stagnant domestic demand by leveraging external demand.

Two Structural Changes

Independent central banks can be credited for initially anchoring inflationary expectations. But the reality was that there were also two major structural changes in the global economy that kept, and are still keeping, consumer price inflation low. This has undermined the traditional role of consumer price inflation as a robust marker of business cycles.

First, there was the entry of two humongous developing countries, namely, China and India, into the global labour market for goods and services, at a time when large-scale productivity shifts were taking place in these countries as large numbers of people moved out of low productivity agriculture into high productivity manufacturing and modern services. Between them, they account for about 40% of the global population and virtually unlimited supply of cheap labour. Other populous low-income countries, such as Bangladesh, Vietnam and Indonesia, were never far behind.

Second, there was an acceleration of globalising tendencies, with tariff walls coming down to nominal levels, the entry of China into the World Trade Organisation (WTO), rise of global

production chains, services becoming more tradable through the use of information technology, and large two-way capital flows. Goods and services exports as a proportion of the gross domestic product rose from about 20% between 1992 and 2001 to over 30% by 2007. Gross exports and imports rose even more sharply as global value chains further enhanced productive efficiency. These productivity and efficiency gains had a deflationary impact on consumer price inflation. Increasing globalisation meant that excess domestic demand in advanced economies like the US was easily accommodated by cheap supply overseas without inflationary outcomes.

Such spillages widen current account deficits (CADs). Ordinarily, a widening CAD leads to currency depreciation that narrows the current account gap. Depreciation also leads to inflationary pressures. However, systemically large CADs were in high-income reserve-issuing currency countries. The counterpart current account surpluses of developing countries were parked in these very countries. The reserve currencies, therefore, did not depreciate relative to their major "surplus" trading partners, and the surplus of savings over investment in emerging markets exercised a downward pressure on global interest rates. Consumers in advanced economies thereby gained from the deflationary forces triggered by productivity shifts in the big developing countries.

The upshot of these structural changes in the global economy was the "Great Moderation". Economists now started talking about the end of business cycles, a new "Goldilocks economy" of low inflation-high growth, "dark matter" that propped up the US dollar despite mounting external deficits, and a "global savings glut" that drove down interest rates. Central banks were either deluded by the Great Moderation into keeping interest rates unduly low, or, as argued by Alan Greenspan, they lost control over long-term interest rates as large capital flows, amplified through the shadow banking system, neutralised their interventions at the short-end of the yield curve.

The liquidity overhang from loose monetary policy had to find some outlet, and it did so by raising the price of financial assets, with several physical assets such as housing, and commodities like oil, food and gold, doubling up as financial assets. The consequential "wealth effect" increased consumer demand despite stagnant labour incomes. "Inflation targeting" was inflating asset bubbles. High asset prices therefore persisted even during episodes of low growth – proxied in the table through the Dow Jones Industrial Average and the S&P-Case Shiller Housing Price Index – indicating that there was more liquidity than what the real economy could absorb. In a closed economy this should have pushed up consumer prices, real wages and sharply reduce unemployment – the classic symptoms of overheating. But the forces of globalisation ensured that it did not.

Lessons from the Crisis

Central banks in advanced economies were alive to the build-up of assets bubbles. Greenspan spoke of "irrational exuberance". However, these bubbles mostly passed under their policy radar since they were focused on core consumer price inflation. Their preference was for cleaning up afterwards, rather than calling asset bubbles and pricking them, lest they also pricked the business cycle in the process. Ironically, this is exactly what happened when Alan Greenspan attempted to tighten monetary policy just prior to the global financial crisis. And as the recent "taper tantrums" indicate, this could happen yet again.

The collapse of the asset bubble unleashed deflationary pressures, collapse of the money multiplier and demand compression – the global financial crisis – because it was based on high levels of leverage through a complex and highly interconnected shadow banking system. Deflation was, however, averted by massive liquidity injections by central banks. Protracted monetary stimulus however is once again inflating asset bubbles, rather than stoking inflation to targeted levels. If anything, the distortions arising out of inflation targeting have been magnified in the post-crisis period, whether measured in terms of core inflation, asset inflation and deviation from the Taylor Rule. Going forward, there is the added risk that central banks in advanced economies may be constrained to keep interest rates too low out of fear of triggering another financial crisis, and also to pay down public debt that has increased dramatically in the last few years as a result of crisis management. Large budget deficits also loom in the future on account of ageing unless social compacts are renegotiated.

Even if output in advanced economies were to get back to full potential, consumer price inflation may not rise commensurately because deflationary forces are still acting on consumer prices. Of course, the position could change if the world moves towards greater protectionism in response to high levels of unemployment in advanced economies and/or if China rebalances its economy rapidly, shutting off the supply of cheap wage goods and savings.

Inflation Targeting Is Abortive

If inflation is no longer a robust marker of business cycles, what other markers should supplement it? Since the anomaly of low inflation and high growth in advanced economies was induced by the wealth effect of inflating asset prices and growing leverage, these are automatic candidates. Both asset prices and leverage reflect the level of liquidity and demand in the economy. Central banks, therefore, need to keep their weather eye open to asset prices and the credit cycle in addition to the business cycle. How, and whether, monetary policy rules, including the Taylor Rule, change to accommodate new markers, or whether policymakers complacently persist with inflation targeting following IMF's findings and continue to fuel asset bubbles, remains to be seen.

It could plausibly be argued that while inflation targeting no longer works for advanced countries, it is still relevant for developing countries. John B Taylor has argued that his eponymous rule is, mutatis mutandis, relevant for developing country central banks. While developing countries have also gained from deflationary forces acting on consumer prices, there are other reasons, such as

commodity prices and exchange rate fluctuations on account of growing cross-border capital flows that lead to periodic bouts of relatively high inflation, though these are rarely in double digits as in the past. Stringent regulation of their financial sector also limits monetary policy spilling over into asset bubbles. The factors emasculating inflation targeting in emerging markets are however entirely different.

First, with food and fuel comprising a substantial chunk of their expenditure basket, core inflation seems much less relevant as a policymarker. Non-core inflation is much less amenable to monetary policy actions on the one hand, while it may be becoming increasingly volatile as it includes commodities that have become financialised through derivatives, on the other.

Second, cross-border capital flows are now increasingly driving business cycles, including asset prices, in emerging markets, and simultaneously exerting disinflationary and inflationary pressures through exchange rate fluctuations. This constrains their central banks, following inflation targeting, to tighten policy just when the external cycle turns and growth collapses. They have consequently found it impossible to use a single policy instrument, the short-term interest rate, to simultaneously target both the domestic growth-inflation cycle and the external financial cycle which is subject to the vagaries of monetary policies emanating from reserve currency issuing countries. Their inflation targeting keeps running up against the "impossible trinity" or policy "trilemma", as according to the widely accepted "Tinbergen rule" a policy instrument can be effective only if it has a single objective.

Table 2 aggregates major macroeconomic variables for India from 2002 into periods of robust growth and low growth on the same lines as Table 1, inflation is proxied by CPI of industrial workers (IW) headline inflation, and asset prices by the Bombay Stock Exchange Sensex. The inflation target is presumed to be 5%, and potential GDP 8%.

Table 2: GDP, Inflation and Deviation from the Taylor Rule – India

Period	GDP Growth	CPI-Headline Inflation	BSE Sensex Inflation	FC Reserves Accretion in $ Billion	Movement of Rupee against $	Repo Rate	Average Deviation of the Repo from the Taylor Rule
2002Q2-2003Q2	4.0	4.0	-2.3	5.2	0.6	7.2	4.00
2003Q3-2008Q3	9.1	5.3	38.6	12.3	3.3	6.8	-3.28
2008Q4-2009Q2	5.0	9.5	-37.0	-5.5	-18.4	6.2	-6.14
2009Q3-2011Q2	9.0	11.4	31.8	3.7	2.8	5.6	-6.40
2011Q3-2013Q4	5.2	9.8	2.1	-2.7	-7.9	7.9	-6.42

RBI Database.
CPI inflation derived from CPI (IW) .

Loose Monetary Policy

Two things are immediately apparent. First, monetary policy has been consistently very loose since 2003, both in periods of low and high growth. Second, since asset inflation seems to move in perfect tandem with economic growth, this reflects optimism driven by sentiments surrounding growth prospects rather than asset bubbles driven by loose monetary policy as in the US.

One can think of five possible reasons why monetary policy in India was so loose over the past decade. First, the central bank may have been targeting alternative metrics of inflation, such as wholesale price or core inflation. Wholesale prices are not used by other central banks for the conduct of monetary policy. Core inflation is, but it is inappropriate for emerging markets because of its smaller weight in the consumption basket. Be it as it may, use of alternative metrics may qualify the extent to which monetary policy was loose but is unlikely to change the overall stance.

Second, the Reserve Bank of India may have followed the precedent set by advanced country central banks in easing aggressively in response to downturns without commensurate tightening in the upturn. Central bankers are, after all, part of the exclusive Basel Club. The consequence was asset inflation in advanced economies, and persistently high consumer price inflation in India.

Third, the central bank may have given preference to growth over inflation, perhaps prodded on by the treasury either directly, or indirectly through fiscal dominance. Since fiscal policy was lax, there was little that the central bank could have done but to accommodate it to prevent even greater distortions.

Fourth, since the source of inflationary pressures in India was on the non-core side that is less amenable to monetary policy actions, periodic modest rate hikes have been unable to tame inflation, making monetary policy look unusually loose in retrospect. As Paul Volcker showed in the US, monetary policy has to be used as a sledgehammer if it is to tame inflationary pressures emanating from the non-core side.

The fifth explanation is that Indian monetary policy got trapped in the classic "impossible trinity" by trying to simultaneously target the domestic growth-inflation cycle and the external financial-capital flow cycle. Thus in the period 2003Q3-2008Q3 monetary policy was too loose with respect to the domestic growth cycle because the central bank was constrained to respond to huge capital inflows and the appreciating rupee.

Learning from the Last Decade

The low growth period 2008Q4-2009Q2 during the global financial crisis was also a period of huge capital outflows and sharp depreciation of the rupee. With a large stockpile of foreign currency reserves, monetary policy now focused on the domestic growth cycle.

The period of high growth in 2009Q3-2011Q2 saw the return of capital flows and rupee appreciation, constraining monetary policy to shift its focus back to the external cycle. In the recent period 2011Q3-2013Q4, despite the rupee coming under pressure on account of capital outflows and sharp depreciation, the focus of monetary policy shifted back to the domestic growth cycle.

What lessons can be derived from the Indian experience of the last 10 years for the monetary policy framework in developing countries going forward? First, the Taylor Rule is a single policy variable framework for responding to the domestic business cycle. However, cross-border capital flows are now increasingly driving business cycles, including asset prices, in emerging markets, exerting disinflationary or inflationary pressures through exchange rate fluctuations. Since growth collapses just as the external cycle turns, their central banks need to loosen monetary policy to stimulate growth but tighten it to prevent capital flight. They consequently find it impossible to use a single policy instrument, the short-term interest rate, to simultaneously target the domestic growth-inflation cycle and the external financial cycle. The latter is determined by the vagaries of monetary policies in reserve currency issuing countries and not by their own macroeconomic variables. According to the widely accepted "Tinbergen rule" a policy instrument can be effective only if it has a single objective. Developing countries therefore need to move beyond flexible "inflation targeting", to using a second policy instrument as part of a consistent framework to respond to the external financial cycle.

Second, while the financial regulatory structure may be robust enough to prevent loose domestic monetary policy spilling over into asset markets, the latter are nevertheless susceptible to spillovers from monetary policies of advanced economies through capital flows. This warrants a suitable macroprudential policy response.

Third, and last, as long as there is fiscal dominance, and a large weightage of food and fuel in the consumption basket, the credibility of any inflation targeting monetary policy framework would remain at risk as these are not easily amenable to monetary policy actions.

In Sum

To recapitulate the central arguments, there have been two major watersheds in the conduct of macroeconomic policies since the advent of fiat money in the 1970s. The first was the shift from fiscal policy to greater reliance on monetary policy to stabilise business cycles. The second was the adoption of rule-bound monetary policies such as the Taylor Rule. In the wake of the global financial crisis, a third inflexion point in the conduct of macroeconomic policy may have been reached with inflation targeting as currently conducted by central banks in both advanced economies and emerging markets breaking down. In advanced countries it is stymied by asset and credit bubbles and in developing countries by the source of inflationary pressures and volatile capital flows.

Repair of the macroeconomic framework in advanced economies would involve tweaking monetary policy rules to take stock of asset prices, or through effective financial regulation that can contain spillovers from monetary policy into asset markets. Emerging markets need to find ways of targeting non-core inflation, and also a separate policy instrument to target the external financial cycle so that the interest rate instrument can be freed up for targeting the domestic growth-inflation cycle.

NOTES

1 See John B Taylor's blog. http://economicsone.com/2013/12/20/clarifying-some-key-taylor-rule-calculations/

2 John B Taylor, "The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong", NBER Working Paper 14631, January 2009.