How Will Central Banks Cope With a Non-Inflationary World?

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INFLATION IS CENTRAL TO OUR understanding of the global investment outlook. At present, the long-term trend in inflation appears benign. Inflation in the major economies is back down to the level of the early 1960s; concerns about its future evolution are also close to all-time lows. Even if inflation does try to make a comeback, it is widely believed that it will immediately be squashed like a bug by a monetary sledgehammer, wielded by history's most hawkish generation of central bankers.

Have central bankers really gotten so good at their jobs that investors can stop worrying about inflation risks? There can be no question that central bankers' craft has improved in the past 30 years. Nonetheless, a compelling case can be built that the improved inflation record is largely the product of fear and luck, rather than skill.

The element of fear comes from the major inflationary mistakes made in the past, which none of today's central bankers wishes to repeat. This is making them extra cautious—prepared to err on the side of disinflation or even deflation to preserve their hard-won gains. The element of luck has its roots in the global technological revolution that we are now witnessing. That is pushing the world's price level down and boosting its ability to produce goods and services from a given level of inputs.

It has been a long time since the world's central banks have had to deal with such a combination of good news. The odds of entering a world of price stability are therefore higher now than they have been at any time since the 1950s.

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In a non-inflationary world, investors can expect to encounter "Gibson's Paradox", a phenomenon given its name by John Maynard Keynes. Writing in 1923, Gibson observed that bond yields were historically correlated with the general *level* of prices, rather than with the *rate of inflation,* as predicted by the well-known Fisher relationship that forms the backbone of received monetary theory. Gibson's Paradox is a characteristic of non-inflationary periods, and it brings with it an inversion of the usual relationship between stock prices and bond yields. Rather than being negatively correlated, as they are in inflationary periods, stock prices and bond yields become positively correlated when inflation falls to zero. This will have a dramatic effect on portfolio strategies, and the transition to Gibson's world will mean a significant adjustment to asset prices.

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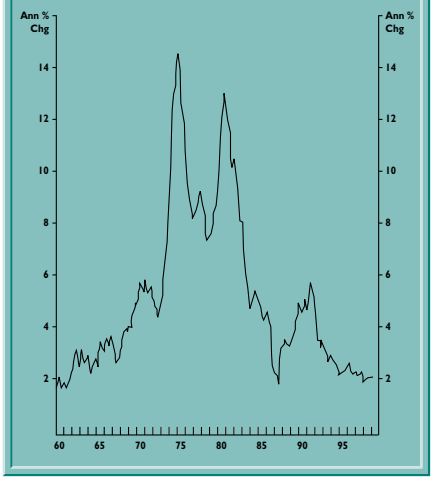
FIGURE 1
Inflation in the Major Economies



The Great Inflation

In the broad sweep of history, the inflation of the 1970s really stands out (see Figure 1). It is legitimate to call it the Great Inflation because it belongs in the same class of economic event as the Great Depression of the 1930s. What happened in the 1970s to cause this?

To begin with, the economics profession played a key role. In the post-war period, the economics profession was dominated by people schooled in Keynesian macroeconomic theories, which had their roots in the Great Depression. Keynesian theory was almost entirely about the demand side of the economy. The supply side of the economy was taken as given, and if demand fell short of the existing supply, governments would need to come to the economy's aid. In this analytical framework, the idea of a "supply shock" that could fundamentally alter macroeconomic performance independently of the demand side had barely entered the collective consciousness of the profession. Moreover, there was a strong belief that policymakers could allow a little inflation in the economy, thereby greasing the wheels of commerce, and in so doing achieve a lower rate of unemployment. This set of policy prescriptions combined to produce a steady rise in global inflation in the late 1960s. The foundations of the Bretton Woods exchange-rate system gradually eroded, and then came tumbling down in the early 1970s.

The stage was then set. An unfortunate combination of events produced a significant contraction in the world's productive capacity, pushing output down and prices up. Classified today as a "negative supply shock", this combination included a dramatic rise in the world price of petroleum. El Niño acted up, and the anchovies failed to appear off the coast of South America, so fertiliser and agricultural prices skyrocketed. The higher price of oil made a number of old technologies unprofitable, and productivity slumped.

This was an unusual set of circumstances for the world's central banks. In the US economy, for example, growth collapsed while inflation rose (see Figure 2, top panel). In such circumstances, should a central bank respond by reducing interest rates, thus stimulating growth but eventually accommodating the inflationary impact of the supply shock? Or should it raise interest rates, thus offsetting the inflation but exacerbating the weak economic growth? With the policy understanding of the time, the conundrum that central banks faced was how to design a painless demand-side policy to deal with a massive supply shock. Accommodation of the shock might protect people's jobs, but would boost inflation, whereas a policy of non-accommodation would produce a protracted recession. With no painless options available, and freed of the constraints previously imposed by the Bretton Woods system, central banks chose partial accommodation of the shock: real interest rates drifted down, and the result was the Great Inflation (see Figure 2, bottom panel).

In contrast with the situation in the early 1970s, the monetary-policy response to a demand shock is relatively straightforward, at least conceptually. For example, if the demand side of the economy begins to grow above the rate offered by the supply side, this is likely to lead to a gradual rise in inflation. The central bank sees it coming, raises interest rates, and demand growth slows without inflation rising. This is akin to the adjustments needed to keep an automobile cruising at a constant speed.

The most difficult part of conducting monetary policy is to be sufficiently forward looking, when the actual economic situation is highly uncertain. All of the indicators used to analyse the economic outlook are published after the fact. It is a little like driving forward while looking out the back window. Even the most basic issue of distinguishing between a demand and a supply shock requires a leap of faith.

The central bank must therefore act on the basis of *forecasts* of economic growth and inflation, which are shrouded in uncertainty. If the central bank did not act pre-emptively, instead taking a "wait and see" approach to monetary policy, it would wait until inflation began to rise before springing into action. It would then raise interest rates, usually by more than in the pre-emptive case, often prompting a recession in order to bring inflation back to its original level. In short, a "wait and see" approach to monetary policy actually contributes to economic volatility by creating a series of boom and bust cycles.

An economy with zero inflation is always just one negative demand shock away from outright deflation.

The Policy Dilemma of the 1990s

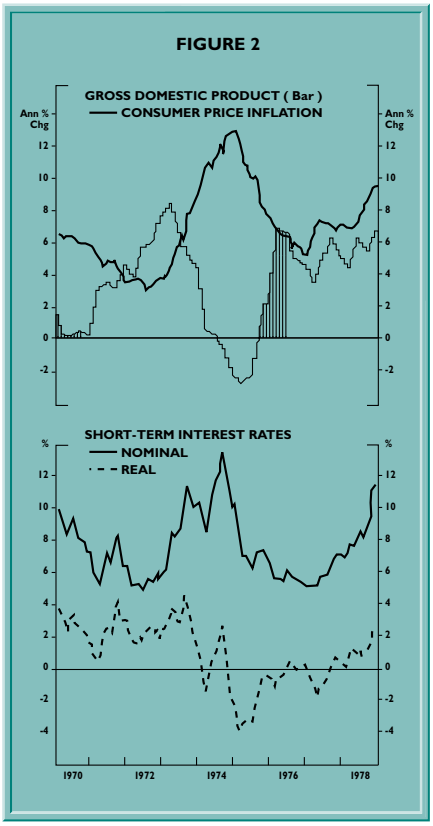
A key issue confronting central banks today is the technological revolution we see going on around us. Stunning technological advances and plummeting prices of capital goods are permitting companies of all types to deliver their goods and services at lower cost and with fewer labour inputs than ever before. Although the productivity statistics do not really show it at the aggregate level, the anecdotal evidence is overwhelming. In the manufacturing sector, where output is easy to measure, productivity data for many countries show a solid acceleration. However, output is very difficult to measure in the rapidly growing service sectors of our economies. As a consequence, the official economy-wide productivity data are not very useful.

Central banks again face a major supply shock, but this time it is a *positive* supply shock. The improvement in productivity and higher rates of investment in technology boost economic growth. At the same time, costs fall, and competitive pressures force these savings along to the consumer. In other words, economic growth rises above trend and inflation heads south. What are central banks to do? Should they lower interest rates to stimulate demand and thus prevent inflation from falling through the floor? Or should they raise interest rates to reduce growth, but contribute to the downward pressure on inflation?

Although the economics profession today understands much better the implications of a supply shock, their ability to translate that understanding into a concrete prescription for monetary policy is still limited. The key problem is essentially one of uncertainty in measurement. Policy-makers are unsure about how much of the strong output growth is due to growth in demand—which ought to be tempered by a tightening of monetary policy—and how much is due to growth in supply—which can safely be confronted with a more relaxed monetary policy. Given this uncertainty, the central bankers' temptation is to return to a "wait and see" approach.

Facing this sort of uncertainty is particularly difficult for a central banker that lived through the Great Inflation. A comparison of the 1990s policy conundrum to that of the 1970s is instructive (see Figure 3). In the 1970s, policy-makers faced a negative productivity shock that reduced output and raised inflation. Well-intentioned policies were put in place and the outcome was the Great Inflation. Now, in the 1990s, all the aspects of the situation are inverted: we

FIGURE 2



have a positive productivity shock, and output is rising while inflation is falling. Will well-intentioned policies now produce the Great *De*flation? Should we be worried?

The Great Deflation?

Some will answer this question emphatically in the negative. They will have in mind the performance of the US economy over the past couple of years, when the Federal Reserve has resisted the urge to tighten policy and has seen output grow, unemployment fall and inflation remain low. Some have characterised this "wait and see" approach as "probing the limits of growth" and are expecting other central banks to do the same in the next few years. Should the pressures of deflation emerge, this strategy should cause them to push hard on the monetary accelerator and hopefully prevent a serious deflationary spiral.

Others may have somewhat less faith in the art of central banking, ascribing the current situation more to fear and luck than to careful management. They may have in mind the numerous failed efforts of Japan's central bank to pull the Japanese economy out of the deflationary quicksand in the past several years. Furthermore, today's central bankers have clearly been affected by the inflationary history of the past 30 years. They are naturally afraid of repeating past mistakes. The US, UK, German and Canadian central banks have all made it clear that they will not tolerate a rise in inflation. Federal Reserve Chairman Greenspan has said that the goal of US monetary policy remains "price stability" and that, although it remains difficult to quantify that goal, it means achieving an inflation rate below the current one.

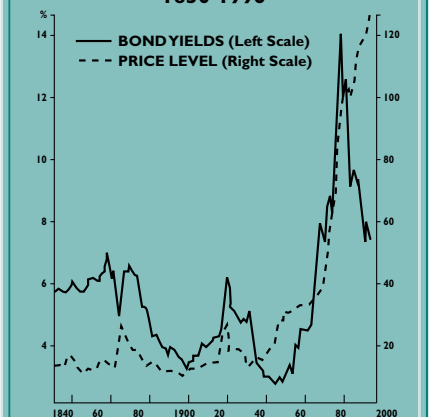
The implication is that a disinflationary bias still dominates the conduct of monetary policy in the major economies. Over time, we can expect central banks to take advantage of an increasingly benign inflation environment to lower their inflation targets. More important, inflation will drift below target in many cases, as central banks respond too conservatively to a major bit of luck—namely, a positive supply shock due to the ongoing technological revolution. Holding nominal interest rates unchanged while inflation drifts lower due to a positive supply shock means rising real interest rates, which amounts to a passive tightening of monetary conditions.

Even if central banks shade their strategies just a little in the direction of accommodating more economic growth, history suggests that they will err on the side of disinflation. Thus, inflation and inflation expectations are headed lower. Investors should prepare for a non-inflationary world.

FIGURE 3
Comparing the 1970s to the 1990s
Should We Be Worried?

1970s	1990s
Negative Productivity Shocks	Positive Productivity Shocks
↓	↓
Weak Economic Growth and Rising Prices	Strong Economic Growth and Falling Prices
+	+
Well-intentioned Policies	Well-intentioned Policies
=	=
THE GREAT INFLATION	THE GREAT *DE*FLATION?

FIGURE 4
US Bond Yields and Producer Prices
1830-1996



Price Stability and Gibson's Paradox

What are the investment implications of price stability? The first and most obvious would be a further drop in global bond yields. For example, US long bonds are still priced for inflation expectations of about 2½%, perhaps a little more. This should drop to at least 2% over the next few years, bringing long yields down to 5% or lower.

Second, markets are still discounting too much inflation in their earnings estimates for stock valuations. Even if bond yields fall to 5%, the US stock market will require earnings growth in excess of nominal GDP growth to justify recent valuation levels. These earnings expectations could become increasingly unrealistic as inflation drifts lower. Similar figures are true for Germany, France, Italy, Canada and Australia. Indeed, UK equities are the only prominent exception. Thus, the gradual emergence of price stability will put even more stress on equity valuations, producing either a correction in stock prices or a more extended period of lacklustre stock-market performance.

Third, there will be significant changes in the dynamic behaviour of bond and stock markets. Entering a world of stable prices means facing Gibson's Paradox. Back in 1923, Gibson noticed a strong historical correlation between bond yields and the general level of prices (see Figure 4). This stood in direct contrast with accepted monetary theory, as expounded by Irving Fisher, which said that bond yields would be correlated with the *rate of inflation* but not with the price *level*. Keynes called this observation "Gibson's Paradox" in his 1930 *Treatise on Money*. The paradox disappeared after 1970 and was replaced by the standard Fisher relationship between inflation and bond yields.

Gibson's Paradox was a key feature of the gold-standard era, when the price level was just as likely to fall as it was to rise, a situation which essentially defines "price stability". Another definition would be that under price stability the general level of prices tends to revert to its mean. In contrast, in an inflationary world the general level of prices drifts up continuously and only the rate at which it does so varies over time.

Gibson's world is quite different from Fisher's world, and investors have become quite accustomed to thinking

about markets in Fisher's terms. In Fisher's world, not only do we tend to see a positive correlation between bond yields and inflation, but we also see a negative correlation between bond yields and stock prices. In Gibson's world, however, this correlation is reversed: bond yields gradually become positively correlated with stock prices, and thus negatively correlated with stock returns.

Figure 5 is suggestive of these shifting relationships, although use of rolling correlations based on a moving 25-year window is an imperfect means of illustrating them. In the figure, inflationary periods are marked by a declining correlation between bond yields and the price level, whereas during non-inflationary periods that correlation is generally high or rising. The correlation between bond yields and stock prices drifts down during the inflationary periods, and is strongly negative at the end of the sample period. As we become more entrenched in Gibson's world, however, that correlation will again become positive. Thus, bond yields and stock returns will become negatively correlated over time, the exact opposite of what the current generation of investors has come to expect.

What is the reason for this difference in behaviour? It is important to bear in mind that Gibson's Paradox is still a paradox, so there is no universally agreed explanation for it. One possible explanation is that the risk premium for equity is correlated with inflation. When inflation rises, so does its variability, and therefore so does investors' uncertainty about future corporate earnings. Thus, when inflation rises, investors demand a higher rate of return from equities and so stock prices fall. When inflation hits zero and we enter a world of price stability, the equity risk premium hits its minimum. From there on, corporate profits are positively correlated with the general level of prices and therefore with bond yields. Most of the variability in the economy becomes real, as opposed to monetary. A monetary-policy regime committed to maintaining the benign inflationary environment will reinforce this expectation with investors.

Japan is already in Gibson's world. Investors holding Japanese financial assets are preoccupied with whether the Japanese price level will rise or fall in the next 12 months, not with what the rate of inflation will be. This has been true for some time, and Japanese bond yields have been positively correlated with stock prices for several years.

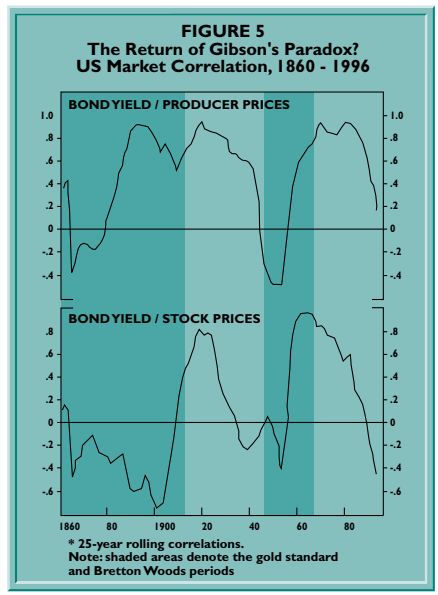


FIGURE 5
The Return of Gibson's Paradox?
US Market Correlation, 1860 - 1996

It is important not to associate Gibson's world only with the sort of sub-par performance the Japanese economy has been experiencing in the 1990s. The last time that Gibson's conditions prevailed more widely was during the 1950s and early 1960s, which are widely regarded as among the most prosperous on record. The non-inflationary conditions of that period are very similar to what we are likely to have in the years ahead—a series of positive productivity shocks that reduce prices and raise living standards. Nevertheless, the fact remains that an economy with zero inflation is always just one negative demand shock away from outright deflation. In those conditions, as the Japanese authorities have recently discovered, central banks have little room for monetary manoeuvring given that interest rates are already very low.

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It is equally important not to assume that all of the major economies are headed into a repeat of the golden era of the 1950s and 1960s. During the 1870s there was a similar boom in global growth, but the deflationary effects of increased supply from North America produced depression-like symptoms in the established economies of Europe.

Moreover, the transition from Fisher's world to Gibson's world could involve a substantial downward revision in stock-market valuations, with knock-on effects on economic growth, despite the cushioning effects of declining interest rates. Thus, investors must continually monitor their checklists while bearing in mind the nature of our ultimate destination.

Summary

Are the major economies really headed for Gibson's world? It is impossible to say with certainty. But a dispassionate assessment of the present situation suggests that the odds of doing so are the highest they have been since the 1950s, which was the last time we experienced the properties of Gibson's world. If the technological revolution proves to be as big, and its implications as profound, as presently seems likely, then central banks will deal with its deflationary consequences in a too-hawkish manner and we will enter Gibson's world sooner rather than later.

Financial markets are not priced for this outcome. Equity prices could decline significantly once the realisation sets in that inflation is falling toward zero. Bond yields could also decline significantly. Furthermore, after the transition period, portfolio diversification will take on an entirely different meaning, with the usual correlations between stock and bond markets turned on their head. ◆