

Prospective Equity Returns in a Disinflationary Environment

As we entered the 1980s there were serious doubts being expressed as to whether stock prices really could keep up with inflation. In an earlier time the standard view had been that equities were the perfect hedge against inflation. The argument was simple enough; consumer prices were charged by corporations, so they also represented revenues. Consequently, both should rise together.

In the 1970s, as inflation accelerated and stock prices fell further behind, the view developed that stocks were not a good hedge against inflation. Theories followed the fact, and provided belated justification for what was happening. Unfortunately, these had more of the characteristic of *ex post* rationalization than predictive theory that could explain market behavior over different periods and different countries. These are important criteria, too often neglected in the attempt to explain particular circumstances. The development of specific theories, or explanations, is not unique to the stock market, but can be found in most areas of market behavior, economics, politics and life itself. However, general applicability should provide the ultimate test of any such model. While the main emphasis here is on the United States, examples from other countries are also used. The proposed explanation of the relationship between the stock market and inflation is general enough to cover a wide range of different experiences without being a tautology.

An interesting aspect of the serious alternatives that were put forward to explain why the stock market was not a good hedge against inflation was that in nearly every case the conclusion was drawn that decelerating inflation would be bullish for stocks. For that reason it is relevant to review the main theories that were proposed, and how stock prices have performed with inflation at different times and places.

There was another school of thought that held that the stock market had caught some terminal disease from which it would never recover. However, while such views had some popular supporters, they did not receive widespread acceptance. There are still some who hold this position today, but it has become increasingly difficult to sound convincing as the market has continued to move higher.

In judging prospects for the stock market for the rest of this decade it is necessary not only to have a view about how inflation or disinflation will affect the stock market, but also what the inflation outlook is likely to be. It should also be clear that a view about inflation is not enough, since there will always be a variety of other forces at work. Putting the market theory and the inflation forecast together provides a market forecast for the remainder of this decade.

An Outline Model

Before discussing how inflation might affect stock prices, it will be helpful if we first outline a basic framework on which the arguments can be hung. The intention is not to capture all the intricacies of stock market behavior, but aim at only the more modest objective of identifying the major elements in a stock valuation model. The starting point is to define the expected return on equities (re) as equal to the current dividend yield (d/p) plus the rate at which these dividends, and earnings, are growing (g).

$$re = d/p + g \quad (i)$$

Underlying this equation is the assumption that the dividend yield is constant through into infinity. There is, therefore, no cyclicity to earnings and no risk. Needless to say, this is hardly

a perfect representation of reality. However, it is slightly less unrealistic for the market as a whole, which is averaging many different types of companies, than it is for any individual stock.

It is reasonable to state that the observed rate of interest (rb) consists of a real rate of interest (i) and the expected rate of inflation (x).

$$rb = i + x \quad (ii)$$

In equilibrium it can be assumed that the expected return on equity will be equal to the default free return on bonds, plus a risk premium (R).

$$re = rb + R \quad (iii)$$

Putting these three equations together produces:

$$p = d/i + x + R - g \quad (iv)$$

and

$$e/p = (i + x + R - g)/a \quad (v)$$

Where e is earnings, a represents the dividend payout ratio and e/p is the earnings yield, the inverse of the price earnings ratio. While somewhat unrealistic, the final equations do help to identify the major influences on stock prices, and provide a useful starting point for analysing the effect of inflation and disinflation on stock prices. A model of this type underlies the main theories of how inflation affects market prices.

Inflation and the Stock Market

In proposing a general explanation for the failure of stock prices to keep up with inflation in the 1970s, it is also helpful to be aware of the other main explanations that have been proposed but which have failed to meet this criterion. The explanations vary from the assumption of irrationality on the part of investors to rationality in the face of deteriorating conditions.

The different explanations considered here have each emphasised their own distinguishing characteristics, and this has helped to conceal a common thread running through all of them. All of the discussion centers around the fact that the earnings yield, as defined above, has fluctuated with nominal interest rates, and in-

flation, as shown in the chart on page 63. A problem arises because the earnings yield (or price/earnings ratio) ought to be a good deal more stable if, as is generally accepted, the rate at which corporate earnings are discounted is a real rate of return, and the real rate of interest is fixed. The essence of this argument can be seen in equation (v) above: with a fixed payout ratio, a fixed real rate of interest and no change in the risk premium, then if earnings grow at the same rate as inflation (plus a fixed margin) then the earnings yield should remain unchanged in the face of accelerating inflation.

One view about why stock prices failed to keep up with inflation is that adjusted corporate earnings did not keep up with inflation. Nominal earnings as reported may have kept up, but the quality of the earnings deteriorated because of the effect of rapid inflation on inventory valuation and depreciation adjustments, which carries the implication that the increases in earnings were, therefore, unsustainable. One problem with that approach is that the earnings do seem to have been sustained, as shown by their ability to keep up with inflation. There has been endless debate on the quality of earnings, and this is likely to continue without ever being finally resolved.

Others have argued that if true adjustment is made, including the benefits of fixed interest debt issued at lower yields, then re-adjusted earnings have in fact kept up with inflation. In this case alternative explanations are required for the failure of stock prices to keep up, and one of these has been based on the assumption of the irrationality of investors. The problem here is why the irrationality persists in this way. Also, why have investors not always been irrational when faced with rapid inflation, since there are plenty of examples when stock prices have kept up with inflation?

Another alternative was that the dividend payout ratio declined as a direct result of inflation. In this case there would be an increase in retained earnings which might be expected to raise the growth of earnings and dividends in the future. After all, Japanese companies have very low payout ratios and yet are also highly priced. A higher growth rate should actually have the effect of reducing the dividend yield, not raising it. The greatest weakness in this explanation is its failure to account for the rise in the dividend yield along with the earnings

yield. A different explanation of the observed reduction in the payout ratio is possible which reverses the casualty. A reduction in the share price relative to earnings, for some other reason, raises the external cost of funds through the issue of shares, while rising interest rates raise the cost of borrowing. It, therefore, becomes sensible to retain a higher proportion of earnings for investment purposes.

The final specific explanation of the rising earnings yield puts the blame on increases in the risk premium. Certainly that would do it, but no justification has been provided as to why the risk premium should move so closely with interest rates. An even greater problem with the argument that there is some automatic link between the risk premium and inflation in the US in the 1970s is that in other countries, and at other times, the relationship has been absent. This is the problem with all those explanations that seek to establish an automatic link between inflation and the earnings yield.

What is needed is an explanation that covers all behavior; that allows stock prices to go up with inflation under some circumstances, but which also explains why sometimes, particularly in the developed countries, stock prices fail to keep up. The possibility has to be considered that it is not inflation that is holding back stock prices, but something else. The key factor is whether the inflation is unrestrained or whether attempts are being made to control it. In the first case, money is pumped in to keep the level of activity up and fuel further price increases. Under these circumstances of easy credit stock prices will keep up with inflation. If, on the other hand, the monetary authorities are trying to restrain inflation, so that credit becomes expensive and real interest rates increase, then stock prices will lag behind inflation. This explanation is consistent with the facts, and general enough to explain behavior in different countries, and over different times.

The assumption made above, and the assumption generally made by economists, is that the real rate of interest is very stable, with wide fluctuations only in nominal yields. This alternative view of the way in which inflation affects the stock market lifts that assumption and allows the real rate of interest to vary. That, in turn, would also explain increases in the earnings yield, but not automatically with inflation, only when monetary policy is tight.

In addition, there is likely to be a systematic relationship between risk and attempts to control inflation, as distinct from inflation itself. Once it becomes clear that the monetary authorities are going to push interest rates up in order to bring inflation under control this leads to the expectation of weakening economic activity, falling profits, and the increased possibility of bankruptcies. Rather than wait for this to happen, investors are likely to anticipate events by lowering the price they are prepared to pay for the present inflated stream of profits. Therefore, since earnings are still rising with inflation, the earnings yield will be pushed up even faster. Instead of assuming that investors are irrational, this approach assumes a very rational form of behavior.

For all these theories, a fall in inflation is good for the stock market. However, there is an important distinction between the general explanation suggested here, and the alternative theories. In the latter cases declining inflation is all that is needed to bring down the earnings yield. According to the former view, falling inflation only creates the conditions for the relaxation of monetary policy and it is this that will bring down the earnings yield. The distinction may seem slight, but, as discussed later, can be very important, as, for example, in the period from 1980 to 1982.

Some Examples of Inflation

Looking at the way stock prices have moved at times of very rapid inflation contradicts the theories which say that there is something inherent in the process of inflation that requires stock prices to lag behind. What we find, in fact, is that stock prices have typically kept up easily. In Israel, over the five years from 1980 to 1984, consumer prices rose 56 times, which definitely counts as high inflation, and stock prices rose 57 times.

The classic inflation period was that in Germany after the First World War. The experience of stock prices at that time showed that they will rise with general prices no matter how fast inflation accelerates; after all, why not exchange rapidly depreciating paper money for claims on real assets? It also showed that there must be sufficient liquidity available. The stock market was disorientated by the war and the

chaos that followed, and this helped produce major fluctuations in prices.

In 1920, stock prices outpaced wholesale price inflation and the depreciation of the mark by a substantial margin. In 1921, the increase in stock prices fell just short of the decline in the exchange rate, but still did better than wholesale prices, and substantially better than consumer prices. 1922 produced a very different response. Share prices ended the year 12 times higher than they had been at the start, but wholesale prices, and the dollar/mark exchange rate, had risen 40 times. There was, therefore, a substantial decline of share prices in real terms.

COSTANTINO BRESCIANI-TURRONI in *The Economics of Inflation* noted that at this time the Daimler car company had a total market value equivalent to only 327 cars. The economy was weak, with production 30% below what might have been considered normal, but the undervaluation of corporations was clearly extreme. BRESCIANI-TURRONI draws attention to the fact that whereas there had been easy money through 1921, conditions tightened considerably in 1922. Bank credit slowed and the quantity of money increased only 65% over the first 7 months of the year. At the same time the government had tried reducing expenditures and raising taxes. The discussion above suggests that this restriction in money growth was even more significant than allowed for by BRESCIANI-TURRONI.

Towards the end of the year there was a dramatic shift in monetary conditions. Note issues increased rapidly and the flood-gates were opened wide. During 1923 stock prices increased an incredible 83 000 times, compared with an increase in the cost of living of 'only' 16 500 times. A buying panic developed, encouraged by foreign exchange constraints. In November 1923, the gold price of shares had risen above the pre-war level for the first time; the ratio of the share price to gold was 39.4 compared with only 16 in July of the same year, and 18 in October 1921. At this point stock prices had clearly become overpriced, given the fragile economic structure.

The main conclusion to be drawn from a review of these experiences is that stock prices will rise at times of rapid inflation by an equal, or even greater amount, as long as monetary policy is easy and credit is readily available.

Runaway inflation is no problem for real stock values. However, attempts to stop inflation will typically lead to high real interest rates and uncertainty about future profitability. It is these that will prevent stock prices keeping up with inflation.

Why Inflation will be Down

The reason for expecting the trend of inflation to remain down has to do with the apparent political awareness that it is not possible to buy your way to sustained high growth. Governments around the world have been cutting back on their spending and bringing budget deficits down. More impressive is the fact that this has happened even as unemployment has risen to post-war records levels in many industrial countries. And there are no signs yet that this new attitude has changed, despite the reduction in inflation.

The U.S. has lagged this general trend, government expenditure has increased and the budget deficit soared. This might cause concern that the U.S. is still out of control, with only a desperate rear-guard action being fought by the Federal Reserve. That interpretation has actually been made, but it is not justified. Certainly, monetary policy has been forced on the defensive by easy fiscal policy, but real interest rates would have had to rise anyway. More important is the widespread recognition that a greater contribution is required from fiscal policy. An additional benefit for stock prices is the increasingly pro-business attitude by governments.

Fiscal policy in the U.S. has been out of control, but that is the past. The momentum from now on will be in the opposite direction. The GRAMM-RUDMAN-HOLLINS bill is an expression of the widespread concern to bring the budget under control. Though that is unconstitutional, the political momentum is still in the direction of achieving a better fiscal balance. Even the Democratic party has pinned its flag to the same post, differentiating that position in the past only by being prepared to increase taxes.

Wherever you look, Belgium, France, the U.K., Germany, etc., there is a persistent drive to restore a better balance in government finances, and to prevent inflation accelerating again. In Japan, the government is under strong

international and domestic pressure to stimulate the domestic economy, and has been for some time, but still it is only moving slowly in that direction. The Japanese economy is relatively weak and consumer inflation is very low, and significantly negative at the wholesale level. Normally these circumstances would have produced a greater reaction towards stimulus, but here also there is evidence of a much more cautious approach by the government and central bankers. For this reason, more than any other, one should expect the trend towards lower inflation to be maintained. The collapse of oil prices is important, but this itself is a result of the more responsible attitude being adopted by governments around the world.

Real Comparisons

The crash of 1929, and the subsequent depression of stock prices and the economy, continues to exercise a fatal fascination on many people. Comparisons with that period have been used to justify an impending crash for many years. As each corner is turned and the expected crisis fails to materialize so the argument is discarded, only to resurface soon after in a slightly different, but similar, form.

The extent and duration of the stock market decline of 1974 came as a surprise to most people. As inflation continued through the second half of the decade, the resultant instability was widely seen as the precursor to some greater catastrophe. The potential fragility of the financial system became increasingly obvious through this time and into the 1980s, with first the S & L's, then the money center banks with their loans to the developing countries, then the farmers' loans, then oil loans coming into question. To many, it seemed as if the end of the world was coming, and for a while the KONDRATIEFF long-wave became a popular explanation of events, and portent of doom.

Despite all this, inflation came down, the economy recovered and stock prices soared, not only in the U.S., but around the world. Once more the end of the world was postponed, and the crisis scenario was placed on a back burner along with KONDRATIEFF. Recently there have been signs that the heat is being turned back up, on the basis of comparisons be-

tween present market action and that in the period leading up to and including 1929. All of a sudden charts are appearing which claim to show how similar the period now is with that historical experience. These same historical charts can, however, be used to draw a very different conclusion.

A number of comparisons have been made between the behavior of the stock market in the period 1912–29, and the more recent period starting in 1970. Both of these periods are shown on the chart on page 62, which shows the trend of stock prices monthly since 1900. There is supposed to be a close similarity, but that seems to be very much in the eye of the beholder, since there is really little correspondence except for the very recent run-up in prices. It is also possible to show that the 1950s was similar in this respect but was not followed by a crash. Any of the comparisons are equally good, and none are very good; they certainly do not stand up to close statistical scrutiny.

An even greater failing with the comparisons that have been made, however, is that they are in nominal terms. Comparisons of stock prices across time or country only make sense in real terms, after taking out the effect of inflation. It is clearly illogical to argue that a 400% increase in stock prices in Brazil is better than, say, a 20% increase in the U.S., if inflation is 500% in Brazil, but only 5% in the U.S. A 1200% increase in stock prices, as in Germany in 1922, did not mean that the stock market was doing well for investors, since inflation was 4000%, and about to get spectacularly worse.

Comparing stock prices in real terms makes a lot of difference. A plot of real stock prices is included in the chart on page 62, along with measures of nominal and real economic activity. High inflation through the 1970s produced a much worse performance in real terms than is indicated by the nominal numbers. In real terms, it becomes hard to justify the argument that a major correction is due because the market has come such a long way. Stock prices have recovered strongly, but, in real terms, still remain well below their 1968 peak, and have only recently crossed above the level reached in 1929.

The chart on page 64 shows the major foreign stock markets in real terms, i.e. after allowing for changes in consumer prices. Everyone knows what has been happening in nominal

terms, but comparisons in real terms have been significant only by their neglect. What they show is that on that basis the markets do not look overvalued. In Italy, where stock prices have advanced strongly since 1984, the index in real terms only exceeded its 1980 level at the end of 1985, and it remains substantially below the 1960s highs. This is an extreme example, but the story is similar in most other countries.

As a rule of thumb, the higher the trend rate of inflation, the more depressed the real stock price has been, and the further the real index is now from its old highs. The only two countries where the stock indices have crossed their old 1960s peaks are Japan and Germany. The Japanese index crept above first, and then went sideways for a year before again advancing strongly. The German market only moved above the old record at the end of 1985. The U.K. and U.S. markets still have a long way to go to get back that far.

In terms of a long-wave view of history, it is more reasonable to conclude that the market 'crash' has already occurred. What has been observed is an extended correction in real terms from the peak in 1968 down to the low in July 1982. This interpretation of the recent past is completely opposite to the view of those who are still anticipating a repeat of 1929.

The problem lies in looking for exact replicas of the past. However, because lessons were learned from history, this has changed reactions in the present. There have been plenty of opportunities over the past ten years to create a financial panic, a sharp liquidation and contraction of output, had the government and Federal Reserve followed the policies of their 1920s/30s predecessors.

The mistakes were not repeated, and the result was an inflationary correction that avoided a very sharp collapse, but also dragged it out, so that it lasted much longer. We have now come to an end of this correction period and are still in the early stages of an extended recovery. Now is not the time to look back in despair, but to gather encouragement from the past.

The Outlook for Stock Prices

There are many ways to analyse market behavior. The Dow industrials and transports

moving to new highs, or prices crossing above their moving average, are two popular technical indicators of a rising market. Clearly it follows that stock prices must be strong under such circumstances, although it is not always the case that they will continue that way. More importantly, these observations provide no explanation of why market prices should rise or fall the way they do.

The basic starting point for a fundamental view of the market is that stock prices rise with earnings. The two key influences are the level of earnings themselves and the growth of earnings. A high level of earnings provides justification for a high stock price. However, if growth is slow this will tend to produce a relatively higher earnings yield, i.e. a lower price-earnings ratio. Alternatively, rapid growth of earnings will generally produce even faster appreciation of the share price, and, therefore, a rising P/E, even if there is no dividend payment at all.

It is not at all unreasonable that lower growth will produce a higher earnings yield. If earnings actually fall, that is likely to result in an even more negative reaction, and an even greater increase in the earnings yield, which will exaggerate the weakness coming from the lower earnings. What is more, the stock market will not wait for these events to happen, but will typically lead them by six to nine months. It should therefore not be considered unusual to observe rising inflation and falling stock prices, or at least prices not keeping up with inflation. The persistence of this experience came from the persistence of attempts to bring inflation under control – until finally successful.

As inflation came down this produced the conditions for an explosive rally in stock prices. This did not happen immediately when inflation came down, contrary to the predictions of most inflation theories, but only when interest rates dropped sharply in 1982. Falling inflation created the possibility, since it allowed the anti-inflationary policies to be relaxed, but it was not until that point was reached that stock prices reacted. Up until then there was still too much uncertainty. The situation can be compared with a wound when the blood loss is stopped but the circulation is not restored until the tourniquet is removed; the one is a precondition for the other, and both are necessary to maintain a healthy blood flow.

The new environment of disinflation has not been fully accepted by investors, and this has helped to keep real interest rates high. Over time, as inflation has remained low, there has been a gradual improvement in the outlook. Despite the influence of rational expectations on theoretical models, expectations in the real world are still slow to adjust, and are based on hard news rather than abstract theories. The decline in oil prices has accelerated this process, encouraging an optimistic outlook for inflation. Oil prices are probably more important for expectations than inflation itself.

More than just inflation, falling oil prices also raise the expectation of faster economic growth. The slowdown in world economic growth in the 1970s has often been blamed on the shift of resources to OPEC. In fact, the OPEC price hikes were really a symptom of the overexpansion in demand which was taking place, and the economic slowdown was the result of the rise in real interest rates designed to bring the situation back under control. Now growth is likely to accelerate, and the fall in oil prices will certainly help, but the truth is that it

is really the general improvement in inflation that is responsible. Stock prices stand to benefit both from a fall in the earnings yield as real interest rates come down, and reasonably strong profit growth which should average around 10% per year. These two forces combined should produce price appreciation on the average of 16% to 17% a year over the four years from the end of 1985, which in turn implies a Dow of around 3000 by 1990.

In addition, there are dividend returns to add in, and when this is done an average annual return of 20% certainly seems possible. The high return is based on two things. First, the catch up from past distortions as real interest rates come down, and secondly, on improved conditions for economic growth. The 1980s are the 1970s in reverse. There will be cyclical setbacks, and inflation will strengthen in the U.S. in reaction to the declining dollar, but these reversals to the main trend should prove temporary. Those sectors that stand to benefit most are the same ones that suffered the greatest loss of competitiveness from the high dollar.





