Asset prices and inflation

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Monetary policy is forward-looking and so are asset markets. Assets are held because they yield benefits in the future and asset prices change as the markets reassess those benefits. Many of the factors determining asset prices are economic, for example prospective real growth or inflation, and so overlap with the Monetary Policy Committee’s concerns. But some have to do with the investors themselves, for example their attitude to risk or the rules which investing institutions have to follow. And many asset prices, including the price of foreign exchange, move on news about monetary policy itself, in this country or abroad, because of the impact which monetary policy has on financial and future economic conditions. In assessing the impact which any particular asset price movement may have on inflation prospects, it is important to consider why the price has moved.

Asset prices and the transmission mechanism of monetary policy

Monetary policy is set in one financial market (the money market) and is transmitted to the economy in part through other financial markets, and through markets for real assets, such as the housing market. The MPC sets a short-term nominal interest rate—the Bank’s official repo rate—which directly influences other short-term rates in sterling markets. Less directly, the MPC also influences long-term interest rates because long rates depend in part on expectations about future short-term interest rates (to be set by the MPC). To take a simple example, investors may be able to choose between making a long-term loan or rolling over a series of short-term loans. If so, the rate they are willing to accept on the long-term loan will be influenced by what they can expect to earn from short-term interest payments on the series of short-term loans. So if short-term interest rates are expected to rise in the future, then long-term interest rates will reflect that already today. If the long-term loan is traded, in the form of a bond, then changes in long-term rates will in turn affect the price of the bond. Think of an existing bond which pays, say, 5% a year. If long rates rise, so that new bonds pay 6% a year, the old bond will become less attractive and will fall in price. In sum, expectations about rates to be set by the MPC in the future have an impact today on long rates and hence on bond prices.

The MPC is provided with information on interest rates and yields, both in this country and abroad. The information is often summarised in yield curves showing yields to different maturities and the path of future short-term rates that would be compatible with those yields. Charts 1 and 2 are examples. Chart 1 shows the yield that could be earned by investing from 22 February this year to different points in the future. Chart 2 shows the path of very short-term rates that is implied by the yield curve in Chart 1. Investing for, say, five years at the rate shown at five years in Chart 1 gives the same return as investing in a series of very short-term loans at the rates shown for the period up to five years in Chart 2.

The MPC’s influence reaches other markets too. A change in mortgage rates brought about by a change in the Bank’s repo rate will affect house prices. Exchange rates are affected by many factors, but one of them will

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be a comparison of the return to be earned on assets denominated in sterling and assets denominated in other currencies. By changing the return on sterling-denominated assets the MPC affects their relative attractiveness, which, other things being equal, will affect the exchange rate. Equities too can form part of this transmission mechanism, either because monetary policy is expected to affect the profitability of companies, or simply because the rate at which the market discounts future profits or dividends changes as longer interest rates change. To put this latter point another way, if, for example, bond prices rise (so that bond yields fall) the return on equities will look more attractive, and equity prices will be bid up too.

By changing interest rates the Monetary Policy Committee changes the ‘terms of trade’ between resources now and resources in the future. By, say, raising rates it makes it more attractive to save, to spend less now to be able to spend more later. And higher interest rates make it less profitable to borrow now to finance investment that will pay off in the future.(1) This is indeed the most direct way in which the MPC can control inflationary pressures, by influencing the level of demand in the economy, relative to the economy’s capacity to supply.

If some movements in asset prices are reflections of monetary policy action (actual or expected), what part do they play in the transmission of policy to the economy? The transmission mechanism as a whole was described in a report published in 1999.(2) Two of the channels through which policy-induced changes in asset prices may affect the economy are wealth and the cost of capital. If monetary policy is eased and house prices and equities rise as a result, individuals will see their wealth increasing and may feel less need to save.(3) If companies see their share price rising and long-term interest rates falling as a result of monetary policy action they may be more inclined to invest. The exchange rate too has a major influence on the economy. It is set in an asset market, the currency market, but affects prices at which goods and services are imported into this country and thus the inflation rate that the MPC targets. Another channel of influence runs from the exchange rate to the competitiveness of UK output at home and abroad, and hence to the level of activity in the UK economy and, again, to UK inflation.

A further way in which asset prices affect demand (and hence inflationary pressure) is by changing the value of collateral that households or companies have available. Lenders often know a lot less than borrowers do about the borrowers’ prospects. And lenders may have limited control over borrowers’ behaviour once the loan has been made. So lending decisions may be influenced by the amount of collateral that borrowers can put up to secure their loan. ‘Mortgage equity withdrawal’ is an obvious case in point: the greater the value of the housing stock, the easier it is for borrowers to ‘withdraw equity’ by borrowing on mortgage for non-housing

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(1) In the medium to long run the real interest rate (the price of future resources in terms of resources today) is determined by fundamental factors, such as the productivity of physical investment and the tendency of consumers to value future consumption less highly than consumption today. But in the short run, prices of goods and services are subject to inertia, and by controlling the short-term nominal rate the MPC has a grip on the short-run real rate also.


purposes. But the value of collateral can be important for corporate borrowers too.

The value of collateral can change for many reasons. But one factor will be monetary policy itself. If monetary policy is tightened, one way in which it has its effect on the economy is to lower the value of collateral and to make loans more expensive or difficult to obtain at all. This is sometimes called the ‘credit channel’ of monetary policy. But its strength depends on circumstances. If collateral is plentiful, a fall in asset prices that still leaves a comfortable cushion of collateral may have no impact at all. If balance sheets are more stretched, the impact may be considerable.

Asset prices as information for policy-makers

As noted earlier, asset markets are forward-looking. Assets are held because they will earn a return in the future. So the prices at which assets trade reflect in part the views of market participants about the future state of the world. The market’s view of the future, if we can work it out from market prices, can thus be compared and contrasted with the Monetary Policy Committee’s own projections, incorporated in its Inflation Report forecast. Indeed the path of short-term interest rates implicit in market prices reflects in part market expectations of the MPC’s own future behaviour in setting interest rates.

Changes in asset prices are potentially informative also. Policy has to react to what the economic jargon calls ‘shocks’—unexpected developments that were not incorporated in policy-makers’ forecasts. Because asset prices at any one time incorporate the market’s view of the future, changes in asset prices largely reflect ‘news’—developments which the markets had not previously expected. So asset price movements may help policy-makers to identify the shocks that are hitting the economy, and that may affect their view of the outlook and hence of the required stance of policy.

In practice judgment is required in interpreting market information in this way. Take the case of inflation expectations. In principle we have a fairly straightforward way to set about deriving the market’s expectations. That is because in this country the Government issues two sorts of bonds. There are conventional bonds in which the Government promises fixed amounts of money as interest and capital repayment. And there are indexed bonds in which the interest and capital repayment are indexed to the Retail Prices Index (RPI). The relative yields at which these two forms of debt trade clearly depend, in part, on expectations of future movements in the RPI. On certain assumptions we can back out from relative yields the future inflation rates they imply. Chart 3 shows implicit twelve-month inflation rates five and 15 years ahead as they appeared over the past decade. Sometimes the interpretation of these implied future inflation rates appears straightforward. For example they jumped up in September 1992, when sterling left the Exchange Rate Mechanism of the European Monetary System. The fall in the exchange rate was seen as adding to inflationary pressures. By contrast on the day the Government announced operational independence in monetary policy for the Bank of England these implied future inflation rates fell by up to about half a percentage point. They then drifted down to around 2½% over the next year. But through 1999 implied inflation rates for a few years ahead increased again to over 4%, even though there was no such increase in direct surveys of inflation expectations. And a bond-implied inflation rates for the more distant future

Asset prices and inflation

Briefing the Monetary Policy Committee

Asset market developments are monitored continuously by Bank staff and by outside commentators. Members of the Monetary Policy Committee have access to many reports from inside and outside the Bank.

Before each policy meeting, usually on the Friday morning of the previous week, MPC members attend a half-day meeting (‘pre-MPC’) at which senior Bank staff give a series of presentations on key economic and financial developments over the past month. Briefing on asset price developments is normally included in presentations on the international environment and on domestic monetary and financial conditions, and house prices are often covered in a presentation on domestic demand and output. In addition, the views of financial market participants, particularly on interest and exchange rate developments and prospects, are covered in a presentation from the Bank’s Monetary Operations area.

In the pre-MPC meeting, the focus is on extracting information relevant to the Committee’s policy decision. Do changes in market interest rates mean that markets have revised their views on future output or inflation at home or abroad, or on the likely stance of policy? Can exchange rate movements be explained in terms of relative changes in monetary conditions in different countries, or in terms of specific capital flows (eg connected with mergers and acquisitions, or portfolio shifts)? What do changes in equity prices mean for future profitability or activity in different economies or different sectors of industry? Can different measures of house prices be reconciled, and what do they indicate for households’ wealth and spending? Have particular economic data releases or policy announcements had an especially large impact on asset markets? At times particular attention may be paid to individual markets—for example oil futures contracts or options on those contracts—but it is often the pattern of movements across many markets that may be most suggestive of the underlying news in asset prices.

Ahead of the pre-MPC meeting each MPC member receives a standardised briefing pack of charts and tables, including many dealing with asset prices and interest rates. The pack and the pre-MPC presentations are updated for market developments between pre-MPC and the policy meeting, and any questions on asset prices arising at the pre-MPC meeting are answered by the staff.

Four times a year the Committee’s forecast and the associated Inflation Report are produced. As part of that process the staff provide the Committee with a Quarterly Financial Assessment which considers asset market developments over a somewhat longer time-frame and which quantifies as far as possible the outlook for UK output and inflation implicit in financial market prices, and also uses financial market data to assess the risks around central forecasts.

fell to remarkably low levels (sometimes as low as 1%). Since then future inflation rates implied by relative bond prices have come closer together again at around 2 1/2%.

What can explain these movements? Institutional investors including pension funds are large holders of British Government bonds. The Minimum Funding Requirement (MFR) for pension funds was coming into effect in the late 1990s and then possible reform to the MFR was increasingly discussed. It seems quite likely that these developments had a significant impact on bond yields so that the apparent economic information from the market was distorted by institutional factors.(1)

Other cases where care is required include house and equity prices. House prices can give some insight into households’ expectations of their future income, because the ability to service mortgage payments out of future income will influence how much people are willing to spend on acquiring a house today. But the price of housing also reflects a number of other things. Demographic and other social factors also influence the demand for housing, and changes in the degree of competition in the supply of mortgage finance and in tax incentives in favour of owner-occupation have likewise been important in the past. And, for example, changes in planning regulation affect housing supply.

Valuing equities is notoriously difficult. Movements in share prices depend on prospects for the relevant companies. Investors and market analysts scrutinise the outlook for individual companies so that share prices are in principle summarising a mass of detailed information that could well be of interest to the MPC—not only on the economy as a whole but also on particular sectors. Movements in equity prices in recent years, particularly in the United States, appear to have reflected changing perceptions of future productivity growth. For markets, productivity growth matters because it affects future corporate earnings and dividends. To policy-makers it matters because it helps determine the rate at which the economy can grow without putting upward pressure on inflation. However, equity values depend not only on future streams of earnings or dividends, but also on the rate at which they are discounted, including any allowance for the risk involved. If equities come to be seen as less risky that would raise share prices, even if there was no change in the view taken of future earnings or dividends.\(^{(1)}\) In practice, the links between equity price movements themselves and subsequent developments in the macroeconomy appear to be not stable enough to form the basis of reliable forecasts of, for example, inflation or output.\(^{(2)}\) But information from the markets may nevertheless provide some information on the ‘shocks’ hitting the economy.\(^{(3)}\)

The United Kingdom is integrated into the wider world economy. Inflation and output in this country are clearly influenced by developments abroad and so are movements in UK asset prices. Care may therefore be needed in weighing the significance of UK asset price movements for domestic prospects. Many large UK companies have interests overseas, and movements in UK equity prices may reflect prospects for overseas subsidiaries as well as domestic activity. Moreover, there is evidence that the strength of international influences on domestic financial markets varies over time, being especially high at times of financial market stress.\(^{(4)}\)

Exchange rates are the price of one currency in terms of another. So there is a wide range of factors in this country and abroad that in principle bear on sterling’s exchange rates against other currencies. But quantifying the effect of each has often proved very hard. The largest recent movement in sterling occurred in the second half of 1996 (ie just before the establishment of the MPC) and was analysed by Bank staff in the Inflation Report of February 1997. The factors considered were monetary and fiscal policy at home and abroad, portfolio shifts associated with the prospect of EMU, movements in the oil price, possible shifts in the demand for UK goods in world markets, and possible improvements in productivity in UK industries producing internationally tradable goods and services. The implications for inflation of each of these factors could be quite different, but it was hard to know how important each of them was. Exchange rate movements since the establishment of the MPC have been less extreme, but often equally difficult to interpret, as can be seen, for example, in the discussion in the Minutes of the February 2000 MPC meeting.\(^{(5)}\) One way of tackling this topic is to use theory to consider the pattern of exchanges rates, other asset prices and capital flows that might be expected following a particular change in one of the underlying factors, and then to see how far that pattern matches developments in the real world.\(^{(6)}\)

The future is inherently uncertain, and so asset prices depend on their holders’ attitude to uncertainty or risk. Future dividends from equities are clearly uncertain and


\(^{(5)}\) Paragraphs 2–6.

\(^{(6)}\) For an example of this approach see Bailey, A, Millard, S and Wells, S (2001), ‘Capital flows and exchange rates’, Bank of England Quarterly Bulletin, Autumn, pages 310–18. The underlying factor considered in this article is a change in US productivity.
equity-holders may require a higher return from equities to compensate them for bearing this risk. But bond-holders may be affected too. The holder of a conventional bond may be concerned not only with the expected rate of inflation, which will erode the real value of future cash receipts from the bond, but also with the fact that future inflation is uncertain, so that the real return is uncertain too.

This means that asset prices can change for a number of different reasons.

- Market participants’ best assessment of the future may have changed because their view of the economy has changed;
- because their view of the MPC has changed;
- market participants’ view of the future may have become more or less diffuse (risky);
- market participants may be more or less comfortable about bearing risk.

The Monetary Policy Committee may be interested in all of these elements, and may wish to take account of them in different ways. But unscrambling the different elements from observed asset prices is rarely easy.

Some financial instruments, options, are particularly related to risk. They are designed to put a value on the risk of future movements in the price of an underlying asset, which is often a financial instrument, such as an equity or foreign exchange, but can also be a physical commodity such as oil. From options prices we can, under certain assumptions, infer ‘distributions’ of future equity or oil prices, exchange rates etc, rather like the fan charts which express the MPC’s own uncertainty about future inflation or about GDP growth. Chart 5 shows the implied probability of the sterling/dollar exchange rate falling into different ranges, as given by options prices earlier this year. Market views of risk can help inform the MPC’s own judgment of risk, particularly of course when the Committee is concerned with asset markets as a source of risk to the economic outlook.

As noted above, asset prices move for a variety of reasons, which may have different implications for the inflation outlook. So it is not surprising that attempts to forecast inflation on the basis of purely statistical relationships with asset prices have by and large not been successful.

### Asset prices and monetary policy decisions

Asset prices are part of the information on which the MPC bases its view of inflation prospects. In that sense they clearly feed into monetary policy decisions. But economists and policy-makers also debate whether asset prices should feed into policy decisions more directly, and not just through the inflation forecast. The debate is not completed.

The case for taking asset prices directly into account generally rests on the possibility of asset price ‘bubbles’, that is episodes in which asset prices move away from the level that would be compatible with fundamental economic forces and then, when the ‘bubble’ bursts, come back into line. The UK house price boom of the late 1980s and the ‘irrational exuberance’ in world equity markets in the 1990s might be candidate episodes. In

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(1) Options give the right, but not the obligation, to buy or sell the underlying asset at a point in the future at a price set now (the strike price). An option to buy only has value if there is a chance that the underlying asset will be worth more than the strike price when the option comes to be exercised. So by examining prices of options at different strike prices we can form a view on the probability that the price of the underlying asset will be in different ranges.


MPC analysis

In March 2001, equity prices fell sharply in the United Kingdom, the United States and in the euro area. The following extract from the Minutes of the MPC’s meeting on 4–5 April shows the range of factors that went into the Committee’s analysis of these developments.

The size of these falls in equity prices could not plausibly reflect changes in risk-free real interest rates, but instead indicated lower expected profits and, perhaps, a higher equity risk premium associated with greater uncertainty about future returns. In the United States, options prices suggested that market participants now attached a higher probability than before to further sharp falls in equity prices. The declines already seen would tend to restrain the growth of private consumption (through the effects on personal sector wealth), of investment (through the effects on the cost of capital), and of exports, since this was a global phenomenon.

Given the volatility of equity prices, the recent falls need not imply that there had been a major change in longer-term prospects for US productivity growth. They might instead represent a correction to earlier over-optimistic expectations of earnings growth for individual companies, or indeed an overshooting on the downside. In the United States, downside risks to equity prices remained: price to earnings ratios were still above historical averages. UK profit warnings, meanwhile, remained high compared with a year ago and were widely distributed across sectors, with an increasing number of firms citing the US slowdown as the reason for the revision downwards to their expected profits.

‘bubbles’, asset markets become an independent source of economic instability. Households that see their wealth rise with house or equity prices may save less, only to have to save more when the ‘bubble’ bursts. Firms that could sell equity at high prices in the late 1990s invested in projects that would not have seemed worthwhile before or since.

If asset price bubbles destabilise the economy they may also destabilise the inflation rate. Since the target which the Chancellor has set for the MPC is 2 1/2% ‘at all times’, there is an obvious case for policy attempting to head off the impact that asset price bubbles might have on inflation. If bubbles tend to grow when left unchecked, that may strengthen the case for giving them special attention in the policy process and for using monetary policy to prick them early on. Some have argued that central banks can recognise asset price bubbles and should react to them. A policy of this kind, it is said, would make misalignments less likely to arise in the first place.(1) Others question whether policies of this kind are feasible at all—whether bubbles can be recognised in time and whether the policy action needed to prick them can be defined with any accuracy.(2)

Asset prices and the inflation target

The inflation target set for the MPC is expressed in terms of the twelve-month change in the retail prices index excluding mortgage interest payments (RPIX). House prices are the only asset prices that enter directly into the calculation of RPIX. They are used to proxy the cost of depreciation to owner-occupiers (with a weight of just over 4% in the index) and in the calculation of ground rents and estate agents’ fees (with smaller weights). But some have argued that asset prices should play a much larger role. The twelve-month change in RPIX can be thought of, more or less, as the current change in the cost of living. But some have argued that what matters to consumers is the value of money in a more general sense, including both the current and future cost of living.(3) If inflation falls today, but people expect it to be much higher in the future, they may consider that inflationary conditions have worsened overall, so that looking only at current inflation would be misleading.

Asset prices come into this discussion because it is obviously very hard to measure ‘future inflation’ directly.

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There are some commodities in which it is possible to fix a price today for, say, a barrel of oil to be delivered in the future. But such futures markets cover only a limited range of commodities and limited periods into the future. Some have argued that asset prices can fill this gap.(1) The idea is that assets represent a claim on the future consumption of goods and services. If the prices of future goods and services rise so too will the current prices of all assets taken together. But this is true only of a very theoretical, all-embracing definition of ‘assets’—including ‘human capital’, the present value of people’s future wages and salaries. There is no reason to suppose that it is necessarily true of assets which are actually traded and whose prices we can observe.

In practice, UK official statisticians have not chosen to use asset prices to measure future prices of goods and services. So there is no ready-made index of current and future inflation that could be substituted for RPIX in the MPC’s target. (The definition of the target is in any case a matter for the Chancellor of the Exchequer and for Parliament and not for the Bank or the MPC.) However, although the target is defined in terms of a measure of current inflation only, the target applies at all times, and in this sense future inflation is included in the MPC’s remit. Indeed it may take up to two years for the MPC’s policy actions to have the bulk of their effect, so interest rates are set with future inflation in mind. And the current policy framework as a whole may have an impact much further into the future, if people expect that similar anti-inflationary policies will be followed then.

**Summary and conclusions**

Asset markets are forward-looking and so is monetary policy. Market participants and MPC members need to form a view on many topics in common. But asset markets are just part of the wider economy. They have an impact on the real economy, but they also react to developments elsewhere, including monetary policy. It makes sense to interpret asset price movements in the light of other information on the economy. But they rarely give simple unequivocal messages for policy on their own—the links between asset prices and inflation depend on the circumstances. For this reason asset prices are unlikely to be suitable as intermediate targets for a policy whose main aim is to control inflation.

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