

Central banks and house prices in the run-up to the crisis

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Abstract

The financial crisis and the role played within it by fluctuations in house prices has reopened the debate about whether monetary policy should respond to asset prices. This paper investigates how the central banks of the euro area, the UK and the US considered, understood and responded to the trends in house prices in the six or seven years preceding the crisis, and how they have analysed those developments since the crisis. It suggests that these central banks, particularly the Anglo-Saxon ones, might have been able to take some useful action if they had devoted more intellectual resources to analysing the possible misalignments of house prices and been willing to act on them.

Keywords: monetary policy, house prices, asset prices, leaning against the wind, Lucas Critique

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I. Introduction

The financial crisis of the last few years and the role played within it by fluctuations in house prices has reopened the debate about whether monetary policy should respond to asset prices. It is clear that house prices in many countries rose significantly before and then fell significantly in the crisis and, while that in itself does not prove there was a bubble, most commentators would probably now agree that at least a large part of the rise was not just a response to changes in the fundamentals. Moreover, it is clear that the falls in house prices made a major contribution to the financial crisis. In that case it is useful to consider whether central banks could have acted differently in the run-up to the crisis, so as to have averted or at least mitigated the crisis. This paper uses central banks' own records and publications to assess how they understood the developments of house prices and what they did and did not do and why in response to them.

The previous orthodoxy on the issue of monetary policy intervention, which goes back to Bernanke and Gertler (1999, 2001) and argued that policy should respond to asset prices only insofar as asset prices had implications for inflation, has been questioned by authors such as Blanchard, Dell'Ariccia and Mauro (2010) and Allen and Rogoff (2011). The previous minority view, which was initially developed by Kent and Lowe (1997) and Cecchetti, Genberg, Lipsky and Wadhvani (2000) and argued that policy should 'lean against the wind' of asset prices, has been reaffirmed in different ways by Wadhvani (2008) and others.¹

The majority view can be summarised as follows: i) it is not easy to identify whether a bubble exists or not in real time or even ex post; ii) it is not possible to affect asset

prices significantly by interest rates without the risk of serious adverse effects to the real economy; iii) policy should concentrate on softening the impact if a bubble bursts rather than trying to stop a bubble expanding; and iv) since asset price movements affect aggregate demand policy makers should take account of them in making inflation and output forecasts but not attempt to target asset prices directly or indirectly. Against this the minority view argued that a) asset price misalignments are hard but not impossible to measure and identify (like the output gap); b) asset prices contain information on future inflation so that work on forecasting asset prices could improve inflation forecasts; c) taking account of asset prices would reduce the probability of bubbles (together with boom-bust investment cycles) and produce better performance in hitting inflation targets; so d) monetary policy should systematically 'lean against the wind' of asset prices, that is, raise interest rates when asset prices were rising too fast or too far, and cut rates when asset prices were falling too fast or too far; and e) the understanding of this strategy by the public and the markets would enter into their expectations about asset prices, and this would help to stabilise them.

With respect to house prices and the financial crisis that started in 2008, the crucial questions are whether policymakers could have identified what are widely regarded ex post as bubbles, and whether they could have taken any useful action to avert or mitigate the house price cycle. There are two basic approaches to analysing house price misalignments: the 'structural' approach, which is sometimes reduced to comparing 'affordability', the (possibly interest-adjusted) ratio of house prices to households' disposable income, with its historical average; and the 'asset-pricing' approach, which is sometimes reduced to comparing the house rent/price ratio to its

historical average.² The key issue in this case is whether the reductions in interest rates, actual and expected, that were associated with the lower inflation of the Great Moderation (and for some countries with accession to EMU), were enough to explain the rises in house prices over the decade or so before the crisis. Reference is made below to a wide range of statements and papers which draw on one or both of these approaches.

This paper does not attempt to assess whether or by how much house prices were in fact overvalued in the run-up to the crisis. Instead, it examines how the central banks of the euro area, the UK and the US considered and understood the trends in house prices in the six or seven years preceding the crisis, how and why they responded at the time to what they saw and understood, and how they have analysed those house price rises and the possible contribution to them of monetary policy since the crisis. Of course, what policymaking committees have to decide on is their policy actions, that is whether to change their policy interest rate on particular occasions, rather than the precise rationale for those actions, which may differ as between different members.³ One way of putting this is in terms of the different nodes on Rudebusch's (2005) decision tree (originally presented at the June 2005 Federal Open Market Committee meeting discussed below). This involves a sequence of three questions: 1) can a bubble be identified? 2) would bubble fluctuations cause serious macro problems that policy could not easily offset? and 3) is monetary policy a good tool to deflate the bubble? What Rudebusch calls the Bubble policy – try to reduce the bubble – requires a yes to each of these questions, but the Standard policy – do not try to reduce a possible bubble – requires just one no at any point. This means, for example, that if a policymaker would answer no to (2) or (3), then she can reasonably

decide not to change interest rates even if she thinks the answer to (1) is yes, or indeed without making up her mind on (1).

On both the Federal Open Markets Committee (FOMC) and the Monetary Policy Committee (MPC), those committee members with more economic training and/or stronger academic backgrounds tend to spell out their positions more clearly; they do this typically in separate speeches rather than in the discussions reported in the minutes, and these speeches are cited below where relevant. For other committee members and for the committees as a whole, it is not possible to identify precise positions in terms of the decision tree. But it turns out that, largely because the minutes (and other sources) provide explanations of interest rate decisions, it is still possible to draw some substantial conclusions from the evidence available.

Section II sets out, for each of the Federal Reserve Board (Fed), the Bank of England (BoE), and the European Central Bank (ECB), the coverage of and attention to house prices by the monetary policymakers over the period, with the focus on the processing of information about house prices, its role in their decisions and their attitudes to the wider issue of whether policy should respond to asset prices. Section III offers a comparative assessment of the positions and actions of the three banks, relating them to the nodes of Rudebusch's decision tree. Section IV reviews later work on the issue, undertaken with hindsight, which has emerged from the three central banks, notably Bernanke (2010), Dokko et al. (2009, 2011), Bean et al. (2010) and Clerc and Mojon (2011). Section V offers an evaluation of that work, again with reference to the decision tree. Section VI summarises the findings.

II. Monetary policymakers and house prices in the run-up to the crisis⁴

The Federal Reserve Board

Figure 1 shows the basic trend of US house prices for two different indices, together with the Federal funds rate.⁵ From a level of 2-3% per annum in the mid-1990s house price inflation rose almost continuously from 1997 to reach nearly 16% in 2005 on the Case-Shiller index and nearly 12% on the FHFA house price index, with a couple of very mild slowdowns on the way. In 2006 it fell sharply, turning negative on the Case-Shiller index in 2006 Q4 and hitting a low of -19% in 2009 Q4; and going negative on the FHFA index in 2007 Q4 with a low of -6% in 2008 Q4.

The Fed had raised interest rates from mid-1999 to mid-2000 to restrain a boom in the US economy, but after the sharp falls in equity prices (the bursting of the ‘dotcom bubble’) it cut rates heavily from early 2001 down to 1% in mid-2003, with a particular concern about deflation (Hetzel, 2008, chapter 20). Rates were then raised very gradually from mid-2004 to mid-2006.⁶ In 2000 and 2001 the FOMC minutes discuss housing activity but make almost no reference to house prices.⁷ In November 2002 the FOMC Minutes note that the ‘strength of housing demand was also reflected in further rapid gains in home prices’. Little attention was paid to house prices in speeches by FOMC members before 2004. Chairman Greenspan had long been a proponent of the orthodox view with respect to stock prices.⁸ Governor Bernanke gave a speech in 2002 on ‘Asset price “bubbles” and monetary policy’ which referred to real estate as well as equity prices but focused mainly on the latter; the speech set out the standard orthodoxy, in particular regarding the difficulty of identifying bubbles, but did not discuss specific structural factors affecting house prices.⁹ Governor Kohn argued in February 2003 that house prices were not out of line given

the context of low interest rates and rising disposable incomes. And a March 2003 speech by Greenspan played down the possibility of a serious and damaging bubble in house prices. There are no articles in the Federal Reserve Bulletin over this period, or indeed between 2000 and 2008, which address the issue of house prices, although there are a number of analyses of housing finance (including equity withdrawal). However, a 2003 Fed discussion paper by Gallin presented evidence against the conventional view that there was a stable long run relationship between the level of house prices and the fundamentals in the form of per capita income.

By 2004 house prices had been rising more rapidly than inflation for seven years, and house prices come to be mentioned more frequently (but still not regularly) in the FOMC minutes, and rather more frequently in the transcripts.¹⁰ However, house price inflation does not seem to have played a role in interest rate decisions; the rises in 2004, for example, were typically explained in terms of the wider economic expansion and signs of incipient rise in inflation.¹¹ Another discussion paper by Gallin (2004) (the only other Fed discussion paper that addresses house prices over this period) examined the relationship between house prices and rents, and found (p3) that ‘periods in which house prices are high relative to rents appear to be followed by periods in which real rent growth is faster than usual and real house price growth is slower than usual, and that the response of prices dominates that of rents’. He thought the currently low value of the rent/price ratio might indicate the existence of a housing bubble, but he set out several caveats (e.g data issues, the simplicity of the model used) against rushing to such a judgment. In the December 2004 FOMC meeting Kohn referred to recent rises in house prices as ‘astonishing’ and possibly presaging a fall, but he remained ‘convinced that our best approach to asset-price concerns is to

react, possibly aggressively, to the combination of asset-price movements as it occurs. Such a strategy can be reasonably successful in counteracting the effects of even a large movement in asset prices, and it avoids making policy errors by acting in anticipation of asset-price changes that don't occur or are quite delayed.' (transcript, p. 47).

In June 2005 the FOMC meeting included a substantial discussion of house prices and monetary policy. Of the five staff presentations, Gallin presented an analysis of the rent/price ratio, which suggested that houses could be as much as 20% overvalued. Lehnert examined the risk exposure of borrowers and lenders, which he concluded was not particularly high (though it would be put under pressure by a sharp house price correction). Peach considered whether the house price/income ratio had really risen, with particular attention to different house price indices and other data issues; in general he played down the probability that there had been a large rise. Rudebusch presented his decision tree in a discussion of the wider issue of whether monetary policy should respond to asset prices. Williams examined the economic costs of a collapse of a housing bubble, arguing that the costs might not be so high and that using monetary policy to reduce a misalignment would be very difficult. The discussion that followed focused on the identification of and the contribution of changes in land prices, the role of financial innovations, the question of whether house prices were really misaligned, and wider issues about the monetary policy response to asset prices. There was no clear agreed outcome to the discussion, but a number of participants clearly felt reassured by the implication that any overvaluation may have been limited in size and by the implication that monetary policy would have a reasonable chance of dealing with the likely magnitude of house price correction

without major economic cost.¹² The summary of the discussion of this item in the minutes says:

‘Prices of houses in the United States had risen sharply in recent years, especially in certain areas of the country, to very high levels relative to incomes or rents. In addition to local market factors, a wide range of influences appeared to be supporting home prices, including solid gains in disposable income, low mortgage rates, and financial innovation in the residential mortgage market. Prices might be somewhat above the levels consistent with these underlying factors, but measuring the extent of any overvaluation either nationally or in regional markets posed considerable conceptual and statistical difficulties... the rise in house prices had been accompanied by a modest shift toward potentially riskier types of mortgages... Nonetheless, financial institutions generally remained in a comfortable capital position... loan-to-value ratios had fallen.’

There are also a few more extended discussions of house prices and their possible overvaluation around this time in speeches by Ferguson (2005) and Kohn (2005, 2006). However, a notable feature of these speeches, as well as of the minutes, is the lack of any sense of alarm at the ongoing house price inflation.

In the second half of 2005 the FOMC noted each meeting the strength of house price inflation, along with possible signs that it might be moderating.¹³ By March 2006 the FOMC was expecting a deceleration in house prices. By September, the FOMC was noting that ‘Available measures of home prices suggested that appreciation had slowed considerably but prices in most areas were not falling.’ And by January 2007 ‘The most timely indicators of home prices... pointed to small declines.’ In May most

participants agreed that ‘the correction of the housing sector was likely to continue to weigh heavily on economic activity through most of this year’. In September 2007 the FOMC noted in its discussion of the first cut in interest rates that without the cut there would be ‘a risk that tightening credit conditions and an intensifying housing correction would lead to significant broader weakness in output and employment’. The next month the FOMC was still relatively optimistic for the medium term: ‘participants noted that economic growth should increase gradually to around its trend rate by 2009 as weakness in the housing sector abated and stresses in financial markets subsided. With aggregate demand showing somewhat greater than expected strength in the third quarter and little evidence of significant spillovers from the housing sector to other components of spending,’ the downside risks to growth were seen as somewhat smaller than in September. However, by June 2008 opinion had changed: ‘the possibilities that the decline in house prices would be more protracted than previously anticipated, that spillovers from the decline in housing wealth to consumption could be larger than expected, and that the household saving rate might rise more steeply than currently projected had intensified’. In fact, house prices continued to fall through 2008 and 2009.

The Bank of England

Figure 2 shows the basic trends in house prices and the level of Bank rate.¹⁴ The UK experienced rising house price growth from early 2001, with a peak (for 12-month growth) of over 25% in late 2002/early 2003; house price growth then declined over the next year to a low of 14-15% before increasing again to a peak of over 20% in mid-2004; it declined over the next year or so and came into line with standard inflation at around 2% in the late summer of 2005, before rising again to around 10%

in the winter of 2006 and the spring and summer of 2007; it then fell sharply from August 2007 to reach a trough of around -18% in early 2009.

The MPC was aware of the initial acceleration of house prices by mid-2001 (e.g. Minutes, June 2001, §14). In January 2002 it discussed possible reasons for the renewed rise in house price inflation, which took it to its highest level since 1988, and this discussion was taken further over the next few months (e.g. Minutes, May 2002, §9). In June 2002, although it considered that the ‘present rate of increase in house prices was unsustainable, and the longer it persisted the greater would be the risk of a subsequent sharp correction’, the MPC articulated clearly the orthodox view (which was, of course, implied by the MPC’s mandate) that the ‘Committee does not target house prices. But house price developments were relevant because they affected prospects for demand and inflation...’ (§10). In July 2002 the MPC considered four reasons why the equilibrium level of house prices to earnings might have risen: the lower and more stable level of inflation and nominal interest rates; a possible reallocation of investment from the equity to the housing market; increased competition among lenders leading to an easing of lending criteria; and a slowdown in housebuilding (§20).¹⁵ However, the committee argued that ‘it was not clear where the new equilibrium level was, nor whether the rate of increase would level off as the new equilibrium approached or whether house prices would overshoot’ (§20). The MPC continued to monitor the situation closely until house price growth turned down in early 2003. In December 2002 the MPC said that ‘the evidence did not support any one explanation of recent house price movements’ (§9). Over the next year, there are continuing discussions in the IR about the reasons for the rises in house prices and in

the house price/earnings ratio; these tend to argue that there are good reasons why the equilibrium ratio should have risen, but it is hard to know by how much.¹⁶

There is little evidence over this period that house price inflation affected policy decisions. In November 2002, one of five arguments for not reducing interest rates (the majority view) was that ‘a reduction in interest rates now risked stimulating house prices and household borrowing even further, increasing the risk of a sharper fall in consumption at some point in the future’ (§24). However, Nickell (2002b) argued forcefully in December 2002 that the MPC had declined to lower interest rates not, as claimed in the press, because of the house price boom itself but because of concern, among other things, about households’ accumulation of debt. The interest rate cut in February 2003 took place at a time when the slowdown in house prices was not clearly established (and one argument against the cut – which was opposed by Andrew Large and Paul Tucker – was that ‘any signal of an easier interest rate environment could prompt further, unsustainable accumulation of debt by households, potentially exacerbating the subsequent adjustment and complicating the operation of monetary policy’ (§27)). The cut in July 2003 was related primarily to the slowdown of the UK economy generally, though it was also argued that given the house price slowdown an interest rate cut was ‘unlikely to cause house prices to accelerate... There was therefore less risk... of stimulating further increases in household borrowing...’ (§26) Other speeches by Nickell (2002a), Allsopp (2002), Barker (2002) and Bean (2003) all articulated the orthodox view that policy should not respond to house (or other asset) prices beyond the implications of such price movements for aggregate demand and inflation. On the other hand Wadhvani stated in May 2002, shortly before he left the MPC, his belief ‘that a clear signal from

monetary policymakers that they would, other things being equal, react to a housing market bubble if one clearly emerged, would make the continuance of strong house price growth less likely now' (Wadhvani, 2002: 21).

After falling from a peak of around 25% to a low of 14-15% at the end of 2003, house price inflation began to rise again. In the summer of 2003 the MPC had noted that house prices were slowing less than expected (e.g. Minutes, July 2003, §13; August 2003, §15), but by April 2004 it thought that house price inflation 'now looked as if it had been picking up since the middle of last year' (§16). The interest rate rises of November 2003 and February 2004 seem to have been motivated by the level of demand and the inflation forecast and there is little mention of house prices. And when the MPC raised rates again in May 2004 it noted that 'In presenting a decision to raise the repo rate, it would be important for the Committee to make clear that this did not imply that it was targeting house price inflation, or any other asset price.' (§28). In the second half of the year it became clear that house price inflation was declining, and it continued to do so until it came roughly into line with goods and services inflation in summer 2005. In September Nickell (2005) was able to argue that there had been a housing price boom but no crash, and that 'commentators (either implicitly or explicitly) disagreed significantly on the long-run equilibrium level of house prices, on where house prices were heading and on the extent to which there was a misalignment or bubble' (2005: 14). He then discussed in detail the rise in the equilibrium house price/earnings ratio, concluding that it was impossible to tell whether there had been a bubble at all.¹⁷ He also argued that if it had wanted to have a significant impact on house prices the MPC would have had to raise interest rates by

some 300 basis points for three years, and this would have cut GDP growth and caused a large undershoot of the inflation target.

House price inflation began to rise again in the autumn of 2005, and this was first identified explicitly in the MPC minutes in February 2006 (§16). By October 2006 it had risen to 8% and it remained around 9% or more for the next 12 months. In this period the MPC appears to have paid less attention to house price growth. The committee discussed in January 2007 whether the high level of asset prices should be of concern to monetary policy,¹⁸ but this seems to have had no effect on the policy decision. More importantly, there was no discussion in the Minutes or the IR or Bank of England discussion papers of structural factors or of the equilibrium house price/earnings ratio (which rose further over this period, on the Halifax data shown in Figure 2, from 5.1 to 5.8).¹⁹

After October 2007 house price growth fell very sharply, going negative in April 2008 and reaching a low of -18% in early 2009. In April 2008 the MPC commented that ‘Some fall in the ratio of house prices to earnings was probably warranted, and could come about through varying combinations of house price adjustment and continuing growth in nominal earnings. But it was still unclear how far these housing market developments would amplify the expected slowdown in consumption growth.’ (§30)

The European Central Bank

Figure 3 shows the basic trends in house prices at the euro area level together with the ECB’s policy rate: for most of 2000-2006 house price inflation varied between 5 and 7.5%, but it fell from late 2006 to a low of -3.9% in 2009 Q3 before recovering to a

positive level by 2010 Q1. Figure 4 shows house price inflation on an annual basis for selected euro area countries.²⁰ There is considerable variation, with Germany and Austria having low house price inflation throughout; Spain, Ireland, France and Luxembourg showing rates of over 10% between 2003 and 2006, but other countries rather less; and all countries other than Germany, and to a lesser extent Austria, experiencing sharp falls in house price inflation in 2007-9 (in Ireland house prices fell by some 21% in 2009 but in other countries they fell by no more than 7%).

In its early years the Monthly Bulletin (MB) makes little or no reference to house prices except as one of the factors affecting the level of household borrowing.²¹ The first serious consideration of house prices is in a box in the October 2001 MB, most of which is a discussion of data problems (there was as yet no published index of euro area house prices, and there were marked differences between the types of indices available for individual countries). A graph shows a euro area aggregate for house prices against the HICP inflation rate, and the MB comments (October 2001: 23) that there is 'little evidence that house prices in the euro area have moved significantly out of line with general price developments in the euro area as a whole over the period under review'. This material is updated in a box in the October 2002 MB, which also gives a more complete analysis of the determinants of price changes (pp. 25-6): 'Annual growth rates in euro area house prices have been relatively strong ... some of this increase may be associated with the advent of Economic and Monetary Union (EMU)... asset prices in some countries may have adjusted to reflect the expectation of sustained lower inflation and lower interest rates. Country-specific house price developments are also driven by factors such as demographics and economic growth.'

In March 2003 the ECB published a report on *Structural Factors in the EU Housing Markets*, which covered the importance of housing markets for the overall economy and monetary policy, house price dynamics, rent dynamics, tax/subsidy systems and the mortgage market, and which included a plea for improved (and harmonised) data. The section on house price dynamics, which included data by country, emphasised macro conditions, particularly household incomes and interest rates, as determinants. The May 2003 MB contained a full length article on recent trends in house prices in the euro area, which looked at data issues, house price dynamics, the determinants of house prices (including 'affordability'), and the relations between house prices and consumption and between house prices and household borrowing. In summary it argued (p 59) that 'Euro area house price inflation remained well above consumer price inflation in the last four years. The recent upswing in house prices has been less pronounced than that of the late 1980s. Income growth and the decline in interest rates on loans for house purchases have been important factors contributing to the recent upswing. The effects... on private consumption are likely to have been relatively modest for the euro area as a whole'. A box on euro area property prices in the December 2003 MB noted the continuing high level of house price growth but also differentiated between Spain, Ireland, the Netherlands, Greece and France, where growth was high, and Germany and Austria where it was very low. These divergences are attributed to differences in the local character of housing markets, demographic trends and interest rate changes since the late 1990s.²²

The ECB took a different attitude from the Fed and the BoE to the issue of the appropriate response of monetary policy to asset prices. A speech by Issing (2003) had shown some cautious and qualified sympathy for some of the arguments of

Cecchetti et al. (2000), and argued that the ECB's monetary pillar would provide an early warning of excessive credit expansion which might cause an asset price bubble. These arguments are set out more fully in an article in the April 2005 MB, with a wider perspective which also includes material on how stock and house price overvaluations might be detected (with applications to Japan in the 1980s and 1990s rather than the euro area).²³

Before 2005 there is little sign of house prices affecting decisions on interest rates, which were lowered successively between May 2001 and June 2003. However, through 2005 the MB became increasingly concerned about house price dynamics, e.g. 'the rapid pace of residential property price increases in some regions of the euro area warrants a close monitoring of housing market developments' (May 2005: 35); 'asset price dynamics, in particular in housing markets, need to be monitored closely' (editorial, August 2005: 5). Between December 2005 and June 2007 the ECB raised its policy rate (which had been unchanged since June 2003) at roughly three month intervals, from 2.0 to 4.25%. The first rise was justified on the basis of stronger economic activity, HICP inflation above 2% (partly due to oil price rises), and confirmation from the monetary analysis in the form of faster monetary and credit expansion and 'price dynamics in a number of housing markets' (editorial, December 2005: 6). Through 2006 and the first half of 2007 the MB shows repeated concern with house price inflation and household mortgage borrowing. A full length article in the February 2006 MB used both structural and asset pricing approaches to examine whether house prices were overvalued, and concluded that there was 'a tentative sign of a growing risk of overvaluation', particularly in some regions of the euro area (February 2006: 70). The September, October and November editorials each say, in

almost the same words, ‘Monetary developments therefore require careful monitoring, especially against the background of improved economic conditions and strong property market developments in many parts of the euro area’ (September 2006: 6). By May 2007, however, the MB was able to report ‘a cooling down of housing market developments after a prolonged period of unusually high growth rates in house prices. However, in real terms, deflated by the HICP, house price growth still remains relatively buoyant in the euro area on average when seen in historical perspective,’ and mortgage credit was still growing strongly (May 2007: 46). A further interest rate rise in July 2008 was justified as a way of preventing second-round effects from the current high level of inflation (due primarily to high commodity prices), in the context of ‘vigorous’ money and credit growth, but there was no reference to house prices, which were now growing much more slowly, particularly in the countries which had experienced the highest house price inflation in the preceding period (MB July 2008: 5, 43-5; see also MB February 2008: 46-9).²⁴

III. Assessment and comparison

The three central banks each had more or less adequate data on house prices – though the UK data were probably better than the US data in the earlier years, and the data for the euro area were initially quite poor. The three banks also had a common understanding of the analytical relations between mortgage credit and house prices, and between house prices and consumption. But their interest in and attention to house prices varied considerably.

The Fed paid remarkably little attention to house prices except for the 2005 FOMC meeting where they were specifically discussed; and house prices are almost never

cited in the rationales for policy decisions in the pre-crisis years. Kohn (2008) noted later, with reference to Gallin (2004) and McCarthy and Peach (2005), that Fed staff ‘arrived at a wide range of answers... Thus, controversy over the existence of a bubble persisted almost right up to the actual peak in the housing market.’ A further complicating factor was probably the heterogeneity of house price movements across the US. However, the fact that house prices were only rarely discussed and the lack of reference to house prices in policy rate decisions before the crisis struck suggest that the FOMC as a whole was so firmly committed to the orthodox view – notably that asset price misalignments (which were still thought of mainly in terms of stock prices) cannot be identified, and any adverse effects can be dealt with adequately if and when they are realised – that it failed to allocate substantial intellectual or time resources to the issue. In terms of Rudebusch’s decision tree, the overall view of the FOMC is probably best characterised as an unequivocal no to question (2) (would bubbles cause macro problems that policy could not easily deal with?), such that it was not necessary to decide on (1) (can a bubble be identified?), or indeed (3) (is monetary policy a good tool to deflate the bubble?).

The BoE was also clearly wedded to the orthodoxy, but it felt that it was necessary to argue the case in a more serious way. The Committee as a whole, and some of its external members in particular, consistently articulated the orthodox view that monetary policy should respond to asset prices including house prices only insofar as price movements had implications for aggregate demand and inflation. Despite comments in the press (referred to in Nickell, 2002b) and occasional statements elsewhere,²⁵ there is no reason to doubt that the committee as a whole was indeed concerned essentially with the implications of house prices and household

indebtedness for consumer spending and demand, and that the policy decisions it took were taken on that basis. The only arguments in favour of a monetary response to house prices as such were by dissenting members of the committee, e.g. Wadhvani (2002, cited above).²⁶ In the first half of the decade the orthodox view was buttressed by arguments that structural factors were responsible for a significant rise in the equilibrium house price/earnings ratio, so that the rise in the actual ratio was not, or at least not necessarily, indicative of a bubble. However, when house price growth accelerated again in 2006-7 such arguments were strangely absent. The BoE seems to have lost its focus on the issue at a time when claims that house prices were not overvalued would have been increasingly hard to substantiate, and when it might have been increasingly useful to have taken some action. In terms of Rudebusch's decision tree, the overall position of the MPC involved a much firmer no to (1) than that of the FOMC, backed up by a no to (2) and, in the case of Nickell's (2005) speech, a no to (3).

The ECB was always in principle more open to policies of the leaning against the wind (LATW) type. Despite the data problems it faced it devoted considerable resources to the issue of house price overvaluation, though it also argued that its monetary pillar or analysis should ensure an appropriate response of policy to asset prices.²⁷ Overall, the ECB was clearly aware of the risk of a house price boom (and bust), and it monitored house prices with increasing attention through the mid-2000s. In particular it believed it had identified signs of house price overvaluation in some countries in early 2006. However, the extent to which particular policy rate decisions were driven directly by house price considerations is unclear, since there were always other factors mentioned in the MB as well or instead. There may have been some

additional indirect influence via money and credit growth, but that was typically a secondary back-up factor in the MB editorials' rationales for interest rate decisions rather than the dominant factor. It is also possible that house price inflation in the euro area just did not reach the level at which the ECB would have reacted strongly, because high inflation in some countries was offset by low or zero inflation in others. Moreover, when house price inflation started to fall it fell more rapidly in countries which had experienced higher inflation before, and this tendency towards a reconvergence could be taken as reducing the need for policy action. In terms of the decision tree, the ECB spent much more effort on thinking about (1), and answered yes at least in part and some of the time to both (1) and (2), but its policy actions were also probably limited by the heterogeneity of house price movements in the euro area, which would have weakened its yes to (3).

IV. Hindsight

Given the above characterisations of the three central banks' views on house prices in the run-up to the crisis, it is natural to ask whether they have changed their views since. While the house price falls that occurred with the crisis do not themselves prove that there had previously been a house price bubble, none of the three central banks considered here have tried to argue that there had in fact been no bubble. ECB economists, in the form of Gattini and Hiebert (2010), have accepted that there was a house price bubble in the euro area, but the Fed and the BoE have largely ignored the issue. Instead, they have tried to address the possibility that they themselves had contributed to the boom and bust which, if it were true, would also imply that it would have been better if they had acted otherwise.

Fed Chairman Bernanke was the first to do this, in a speech in January 2010 which focused on two issues. First, he rejected Taylor's (2007) view that monetary policy had been too loose in the run-up to the crisis: Taylor had shown that the actual Federal funds rate had been held well below the counterfactual benchmark level implied by the original Taylor (1993) rule between early 2002 and mid-2006. Bernanke argued that central banks should respond in a forward- rather than a backward-looking way, that is they should respond to forecasts of inflation rather than actual (lagged) inflation, and if the counterfactual policy rate was calculated on the basis of the Greenbook inflation forecasts over the period then the actual policy rate was not clearly inappropriate. Second, Bernanke drew on Dokko et al. (2009), a recent Federal Reserve Board discussion paper, to argue that house prices grew over the period at a much higher rate than could have been expected on the basis of actual macroeconomic conditions and the actual level of the policy rate, which he interpreted as implying that the house price bubble could not be attributed to actual monetary policy or the wider macro environment. He therefore turned to changes in methods of housing finance to explain the bubble.

Dokko et al. (2009) used a VAR model estimated over 1977-2002, from which they generated forecasts up to 2008 for the federal funds rate, house price growth and residential investment conditional on the actual values of the other variables in the model. Since these forecasts were reasonably accurate for the policy rate but not at all for house price inflation or residential investment, they argued that monetary policy had contributed little to the bubble, so its causes must be sought elsewhere, in regulatory and financial developments. They also used the FRB/US model to consider what would have happened if the policy rate had been higher, in line with each of two

Taylor rules commonly presented in the literature. Their results led them to conclude that if policy rates had been high enough to exert a serious drag on the housing market, the real economy would have been adversely affected and unemployment would have been much higher. A later version of this paper, which included a larger element of international comparisons, was published in 2011. The basic story was the same, that it was not monetary policy which had caused house price inflation, but a loosening of the terms and standards for mortgage loans; and that a monetary policy tight enough to restrain house price inflation would have had large effects on GDP and employment. Thus the appropriate policy response should be to investigate, introduce and improve macro-prudential regulation.

Deputy BoE Governor Bean has presented some broadly comparable work on both the UK and the US, with estimated VAR models including a measure of macroeconomic volatility (but no credit supply variable). Bean et al. (2010) found, for both countries, first that policy rates were indeed below those implied by the historical reaction function over 2002-5 – though this could be explained in the UK's case by the expectations-stabilising regime shift of 1997. Second, however, these monetary policy deviations could explain only a small part of the growth of credit and house prices, and house price shocks were very important for house price inflation. And third, shocks to macro volatility had large effects on house prices. They also simulated the VARs to see how the economies would have developed if policy rates had been 2% higher than the actual between 2003 and 2006 (where this was implemented by a series of interest rate surprises). The result was that GDP growth would have been strongly affected, but house price inflation and credit growth much less.

Finally, while there is no ECB paper which addresses these issues, Clerc and Mojon (2011) from the Banque de France estimated a panel VAR for eleven euro area countries which included a survey measure of banks' willingness to lend. It turned out that credit growth had a big effect on GDP and inflation, but monetary policy had only a small effect on credit supply and most of the variation in credit growth was due to credit-specific shocks. Thus, 'a different monetary policy in the euro area could have had only a very limited impact on credit growth' (2011: 276).²⁸ They then used the DSGE model of Antipa, Mengus and Mojon (2010) to analyse the determinants of the euro area credit cycle, and found that monetary policy shocks had only a small impact on credit, house prices and GDP. They also emphasised the wide differences between euro area countries in terms of credit growth (and house price growth), despite the common monetary policy.

V. Evaluation

These studies have two key points in common: first, the proposition that it was not monetary policy that was responsible for the high rates of house price inflation; and second, the argument that higher interest rates would have had damaging effects on economic activity and growth but only a small restraining effect on house price inflation. In terms of the decision tree, at a time when it was perhaps more difficult to say no to (1) and (2), these arguments amounted to a firm no to question (3). In principle, a no to question (3) obviates the need to decide one way or the other on (1), and provides a rationale for the pursuit of the standard policy which takes no account of asset prices (beyond their implications for aggregate demand and inflation). On the

other hand, the calls from central banks for additional macroprudential instruments implicitly accept the need for closer monitoring of asset prices.

However, a couple of points should be noted in passing. First, the importance ascribed in these studies to house price and credit shocks suggests that there remain considerable gaps in our understanding of how house prices are determined, so it would be wrong to draw strong inferences from the results.

Secondly, the counterfactual simulations carried out by Dokko et al. (2009, 2011) and Bean et al. (2010), in particular, are on the basis that all other variables (other than the policy rate) are the same. They therefore take no account of how the use of a different policy in the form of leaning against the wind would have involved agents forming their expectations in different ways. Bean et al. (2010) consider the expectations issue, but dismiss it rather quickly: ‘Conducting the counterfactual policy experiment by inputting a different sequence of monetary policy shocks without changing the policy rate reaction function is potentially subject to the Lucas Critique, but seems reasonable as it is likely that private agents would have taken time to alter their beliefs about that reaction function.’ This can be correct only if the simulation is designed to show the effects of a change in policy, from orthodox policy to LATW, in the course of the house price boom, which is surely not the right way to assess the efficiency of the proposal for a (permanent) policy of LATW.²⁹ Dokko et al. (2009, 2011), on the other hand, do not recognise the issue.³⁰

VI. Conclusions

This paper has assessed the three central banks' understanding of and attitudes towards house prices in the years before the financial crisis and since, with a view to assessing whether they could have done more to mitigate or avert the crisis. Two principal conclusions may be drawn. First, in the run-up to the crisis the Fed and the BoE seem to have been so deeply committed to the orthodox view (that a monetary policy response to asset prices was inappropriate) that they failed to devote adequate resources to monitoring house prices. In particular, it is not possible to argue that the Fed or the BoE did all they could to monitor house price rises but just could not be sure that there was any misalignment and that is why they took no action: the Fed and, after 2005, the BoE monitored house prices to only a limited extent, largely because they did not believe house prices could cause serious macro problems which they could not deal with. The ECB, on the other hand, did more monitoring and concluded that there was evidence of misalignment from 2006, particularly in some countries, but it is not clear how much this did, or indeed should (given the differences between euro area countries), have affected its monetary policy decisions.

Second, since the crisis the Fed and the BoE (and Banque de France economists with respect to the ECB) have argued both that their monetary policies played only small roles in the house price inflation that preceded the crisis, and that different policies could not have pre-empted the house price inflation without serious consequences for real economic growth. If those claims were accepted the correct implication would be that the central banks should have tried to initiate some other action to control the dangers involved in the rise in house prices, rather than ignoring them (which is arguably what the Fed, and the BoE after 2005, did). But these claims have to be

regarded as unproven, because of the Lucas Critique argument that the simulations on which the claims are based take no account of how expectations would have been different if the monetary authorities had been committed to some sort of leaning against the wind. In that case the failure to monitor adequately and respond more strongly to developments in the housing markets means that the central banks of the US and the UK, in particular, did not do everything they could and should have done to mitigate the house price movements that were crucial to the incidence and depth of the financial crisis.

Notes

¹ See, for example, the contributions to the panel discussion by Genberg and Heikensten as well as Wadhvani, in Cobham et al. (2010). See also Fatás et al. (2009), Bloxham et al. (2010), Fahr et al. (2010) and Mishkin (2011).

² See, for example, the article on asset price bubbles and monetary policy in the European Central Bank's *Monthly Bulletin*, April 2005; Gallin (2004); and Weeken (2004).

³ For the central banks considered here the only active monetary policy instrument in this period was the interest rate. No macroprudential instruments were then available, but central banks could have made public exhortations about house prices or tried to act through financial regulation (as the Reserve Bank of Australia did in an earlier episode, see Bloxham et al. 2010).

⁴ The main sources of information here are the minutes of the Federal Open Markets Committee (FOMC) and the Monetary Policy Committee (MPC) for the Fed and the BoE, and, following Gerlach (2009) and Galí (2010), the editorials of the ECB's *Monthly Bulletin* (MB) for the ECB. These are supplemented by a range of speeches by committee members, and articles and discussion papers published by the three banks.

⁵ The FHFA (formerly OFHEO) and related indices were available to the Fed at the time, while the Case-Shiller index became available later but may now be regarded as more accurate.

⁶ 2003-4 is the main period for which Taylor (2007) claimed that the federal funds rate was kept well below the rate indicated by the Fed's previous behaviour as captured in the basic Taylor rule.

⁷ Although the transcripts show that Federal Reserve Bank presidents regularly reported on house prices in their districts, the only mention in the minutes for 2000 and 2001 is this (August 2000): ‘reference also was made to indications that wealth effects were continuing to boost housing demand and prices in parts of the country’. On the other hand there are plentiful references to movements in equity prices affecting consumer spending.

⁸ See, for example, his 1999 congressional testimony and his 2002 speech.

⁹ This emphasis on stock market prices rather than house prices is persistent: Gurkaynak’s 2005 discussion paper, which surveys econometric tests of asset price bubbles, is entirely focused on stock prices.

¹⁰ For example, the possible existence of a housing price bubble is mentioned in the transcripts for January 2004, p. 113 ff. In March 2004 Governor Kohn argued that house prices might be a little higher than justified by economic fundamentals but action was not yet called for, mainly because of the degree of slack remaining in the economy at present (pp. 56-8; see also Governor Bernanke’s comments, pp. 68-9). At the June 2004 meeting Board economist Oliner said, “I don’t want to leave the impression that we think there’s a huge housing bubble. We believe a lot of the rise in house prices is rooted in fundamentals. But even after you account for the fundamentals, there’s a part of the increase that is hard to explain” (transcript, p. 85), but this is not reflected in the minutes.

¹¹ See, for example, the Statements and minutes for the meetings in June, August and September 2004.

¹² See, for example, the contributions of Presidents Moskow and Minehan (transcript, pp. 47 and 49).

¹³ According to the November 2005 minutes, for example, ‘The housing market had remained robust, although a slowing in house price gains in some areas and recent declines in home equity lending at banks could be indicating that the long-expected cooling in the housing market was near.’

¹⁴ Between 2000 and 2010 the Nationwide index, shown here, and the Halifax index move very closely together.

¹⁵ See also the box on ‘Structural economic factors affecting house prices’ on page 8 of the August 2002 *Inflation Report* (IR).

¹⁶ See, for example, the IR for May 2003, pp. 10-11; and November 2003, pp. 5-6. Poole (President of the St Louis Fed) reported to the FOMC in December 2002 that ‘Officials at the Bank of England are very, very concerned about price increases in their housing market. House prices have gone up about 25 percent in the last year. They view that as a housing bubble, as something that has the potential to cause a lot of problems in the future when the bubble collapses’ (transcript, p. 59), but there is nothing to confirm this in BoE publications or papers.

¹⁷ This claim drew on the asset pricing approach as set out in Weeken (2004). Nickell also argued that the rise in household indebtedness had not in fact led to a consumption boom over the period, because the accumulation of financial liabilities had been accompanied by an accumulation of financial assets. See Benito et al. (2006) on the weakening relationship between house prices and consumer spending.

¹⁸ The February 2007 IR included a box on common trends in asset prices, including housing, but no separate discussion of house price trends.

¹⁹ There were a number of discussion papers on the relationship between house prices and consumer spending, e.g. Benito and Mumtaz (2006), Benito (2006, 2007). In an October 2007 speech Barker said, ‘Much of the rise in UK house prices in recent

years can be justified by the lower level of interest rates, the greater stability of the economy and the relatively weak supply response to rising demand. However, the level of house prices now is, on many estimates, above a level explained by these fundamentals, and therefore somewhat vulnerable to a major change in expectations about future prices,' but her reference was to a 2005 OECD publication rather than any work done in the Bank. Nickell had left the MPC in May 2006 (and Allsopp in May 2003).

²⁰ These data are taken from the BIS's database at <http://www.bis.org/statistics/pp.htm>. In most cases they refer to existing, but in some cases all, dwellings.

²¹ See, for example, MB August 2000: 9.

²² See also the comparable box in the September 2004 MB.

²³ See also Trichet (2005), and the ECB working paper by Detken and Smets (2004) which distinguishes between high-cost and low-cost asset price booms and finds that the former but not the latter are associated with high rates of monetary and credit expansion. This work is taken further in Adalid and Detken (2007).

²⁴ The ECB also published a structural issues report on housing finance in the euro area in March 2009, but this did not cover house prices.

²⁵ See for example, Roubini (2006: 98), the comments by Poole cited in note 16, and the FOMC transcript for January 2003, p. 77.

²⁶ The only other possible case seems to have been in June 2002, when King argued unsuccessfully for a rise in interest rates, which he said 'might also provide a useful signal, to consumers and to house buyers, which could reduce the extent to which interest rates might ultimately need to rise' (Minutes, §25).

²⁷ It seems to have become somewhat more open to this view in the light of the crisis: see Papademos (2009), Bini Smaghi (2009), Stark (2009), Fahr et al. (2010) and the article on asset prices and monetary policy in the November 2010 MB. See also Issing (2011).

²⁸ However, since credit and house price growth varied widely between countries and the model included relatively few other country-specific distinguishing features, it is not surprising that the authors found that the common monetary policy had limited effects.

²⁹ The LATW proposal has always contained the idea of an effect on and via expectations. Cecchetti et al. (2002: 3), for example, argue that ‘if it were known that monetary policy would act to “lean against the wind” in this way, it might reduce the probability of bubbles arising at all, which would also be a contribution to greater macroeconomic stability.’

³⁰ See Assenmacher-Wesche and Gerlach (2010: 473) for a more complete view of the Lucas Critique issue. They argue that ‘a leaning-against-the-wind policy could be thought of as an entirely new policy framework in which the central bank announces that it will react to financial imbalances and in doing so engenders stabilizing expectations. If this description is correct, there are no estimates that can be used to evaluate the effects of such a policy.’ However, they go on to dismiss the argument, saying, ‘since the estimates presented above suggest that a leaning against-the-wind policy would be costly in terms of real economic activity foregone, such policies must be adopted in the firm belief that the macroeconomic effects estimated here do not come to pass. That is quite a stretch.’ But if the estimates have been made without taking account of changes in expectations, the effects are likely to have been

overestimated (this is the standard implication of the Lucas Critique). In that case the stretch may be quite small.

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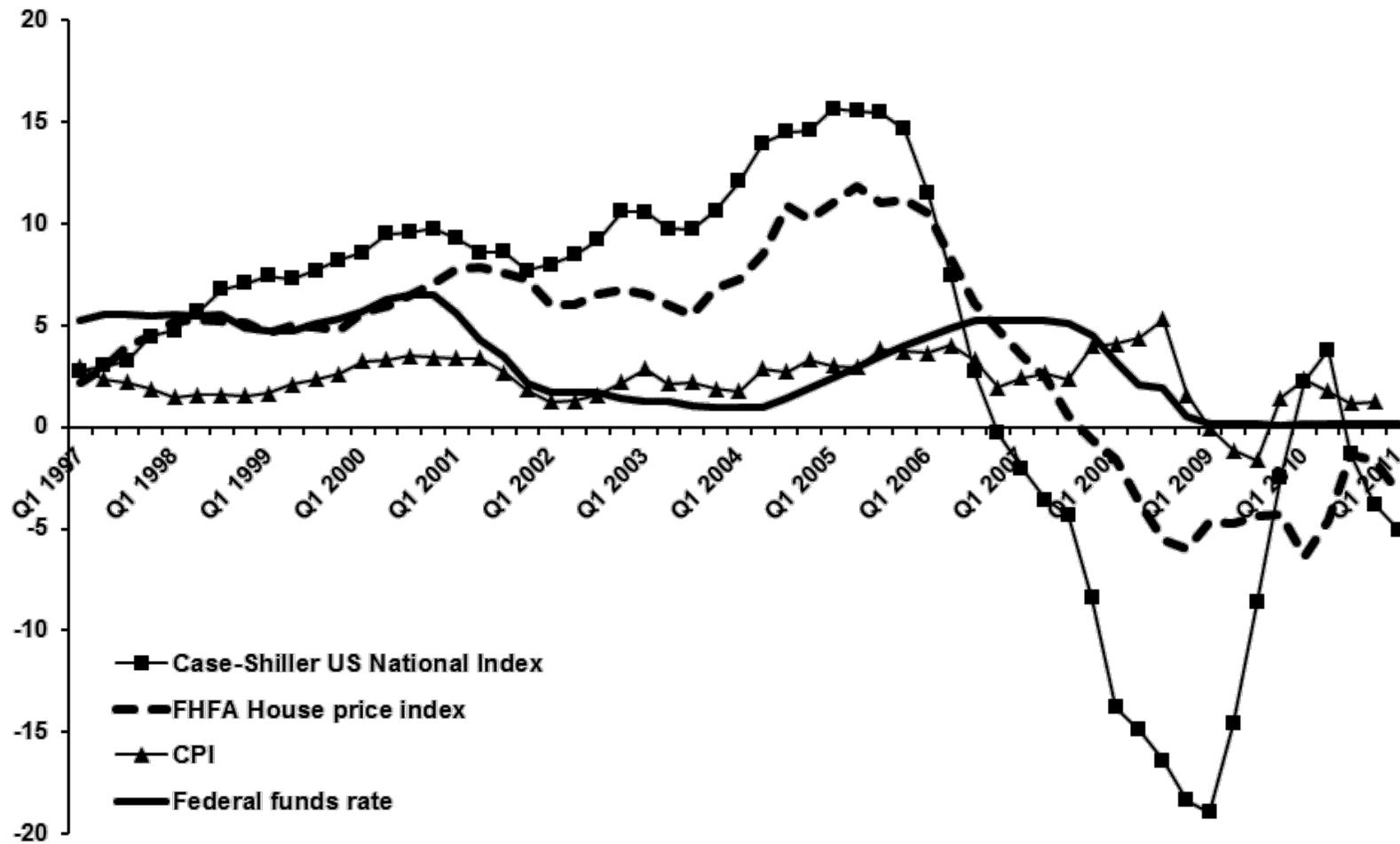


Figure 1: US house price and consumer price inflation (since four quarters before) and the federal funds rate
 Sources: Case-Shiller, FHFA, *International Financial Statistics*

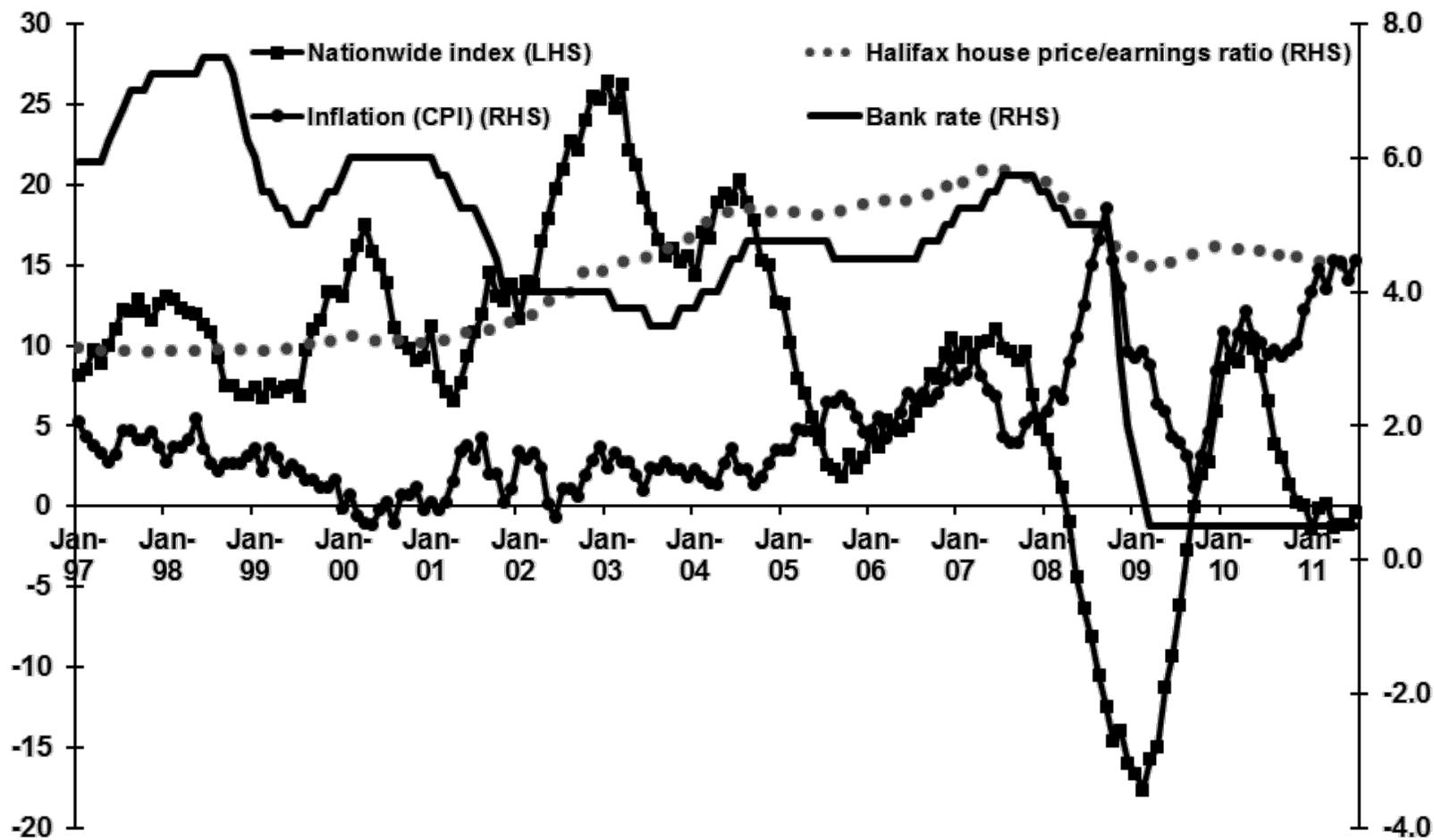


Figure 2: UK house price and consumer price inflation (since 12 months before), the house price / earnings ratio and Bank rate
 Sources: Nationwide, Halifax, Office for National Statistics, Bank of England

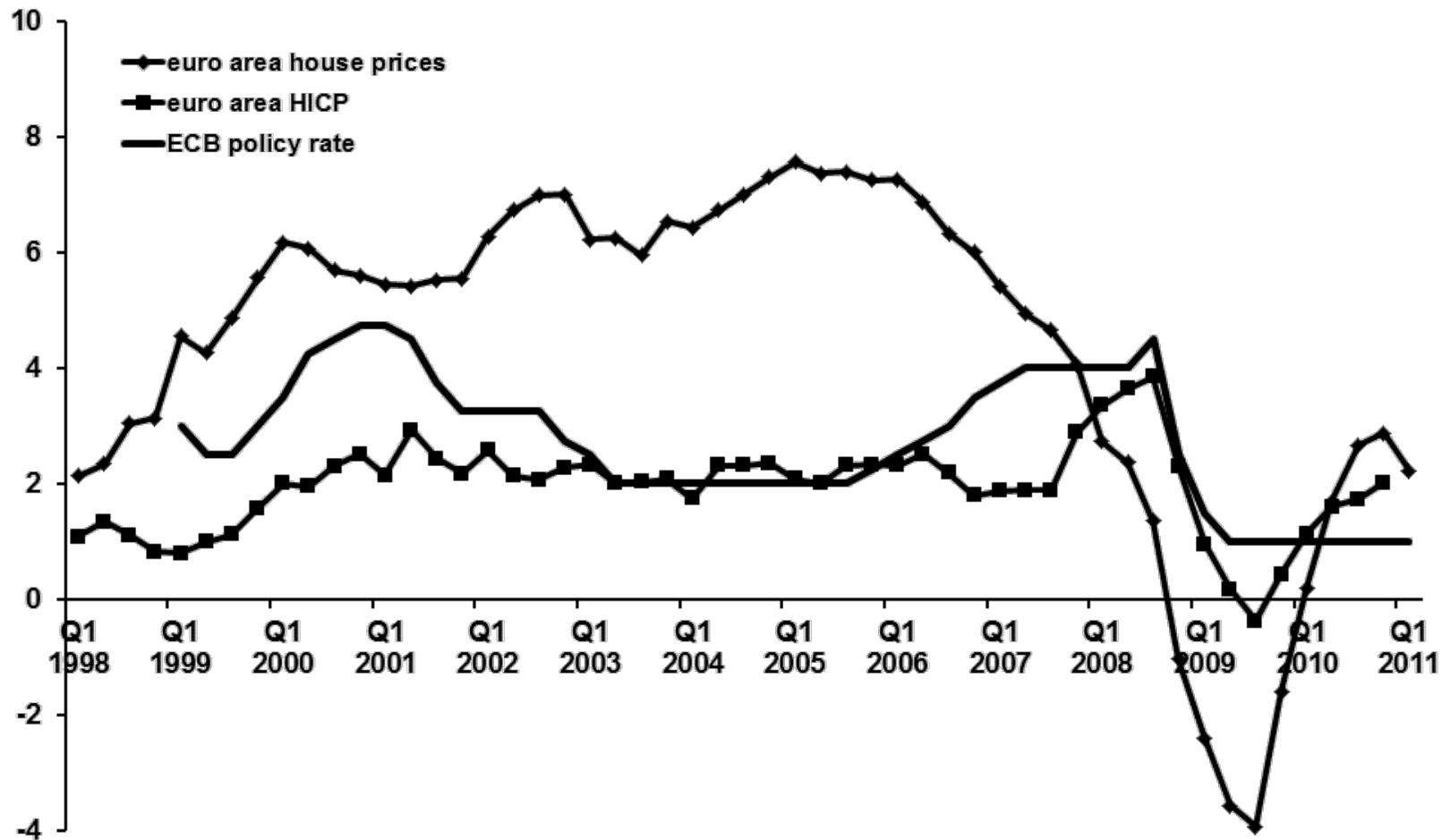


Figure 3: Eurozone house price and consumer price inflation (since 4 quarters before) and the ECB's main refinancing rate
 Sources: BIS property database, IFS, ECB

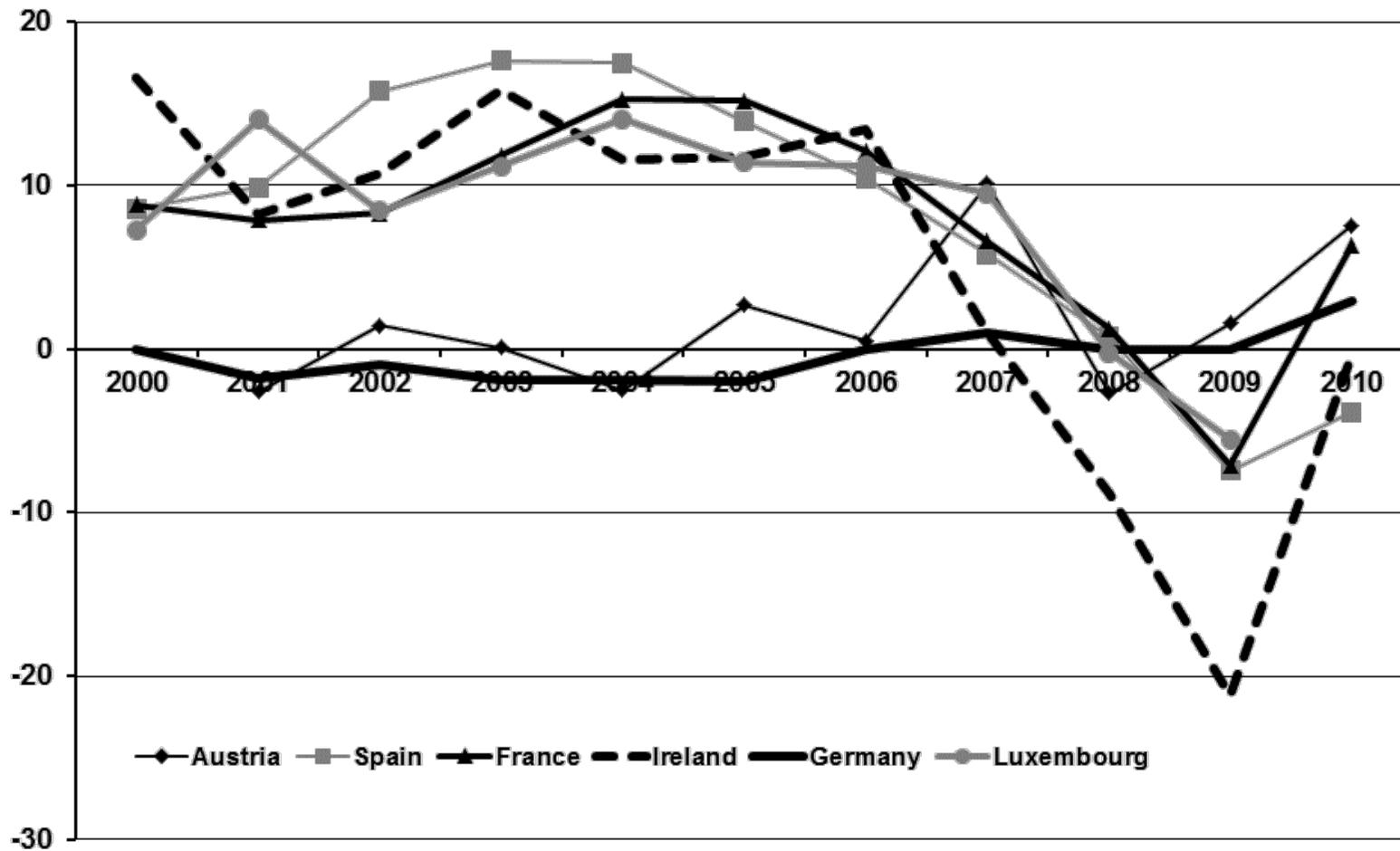


Figure 4: House price inflation (since 4 quarters before) in selected euro area countries
 Sources: BIS property database