

The Financial Crisis: the Debate ‘Benign Neglect’ versus ‘Leaning against the Wind’ Revisited

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Abstract

After the high-tech bubble in 2001-2002, there has been a growing debate on how to integrate financial instability in monetary policy. The central bankers conventional wisdom of ‘benign neglect’ defended an *ex post* integration, central banks intervening only during the burst. On the contrary, some academics preferred the ‘leaning the wind strategy’ approach promoting a policy intervention against financial fragility during both the financial boom and bust. This ‘benign neglect’ *versus* ‘leaning against the wind’ debate is re-examined in light of the current financial crisis that begun in August 2007. Has the crisis challenged the conventional wisdom? Three major central banks practices during the financial turmoil are studied (Bank of England, European Central Bank, Fed) in the controversy perspective. This allows to understand their actions and strategy during the crisis and to highlight their differences. Evolutions of these central banks positioning in this dispute during the crisis are also inspected.

JEL Codes: E44; E52;E58;E61; G10

Key words: financial crisis and instability, bubble, asset prices, credit crunch, monetary policy, central banks, inflation targeting.

Introduction

With the current financial crisis that begun in August 2007, central banks have re-discovered their traditional historical role in financial stability¹ that they had forgotten since the 1990s, hidden by the priority put on price stability. The dramatic developments of financial markets since the 1980s has put the financial stability question on top of central bankers agenda.

Since the New Economy boom-bust in 2001-2002, the common wisdom among central bankers is the 'benign neglect' (BN) strategy: *'the monetary authorities should deal with the financial instability that may result from a crash in asset prices if and when the latter occurs, but they should not adjust monetary policy pre-emptively in the boom phase'* (Bordo and Jeanne, 2002:4). In reference to the Mundell incompatibility triangle, recommending floating exchange rate, it means that central bankers do not have to take directly into account financial instability such as asset boom-bust or credit boom. They should laissez-faire the bubble, i.e. *'surges in prices of assets to unsustainable levels'* (Greenspan, 2002). The BN strategy calls for addressing indirectly financial instability, via the primary goal of inflation. Financial imbalances matter only if they impact on future inflation or output. This BN strategy has been developed in the academic field by Bernanke and Gertler (1999 ; 2001) and comforted by practitioners (Greenspan, 2002).

This common wisdom is criticised by promoters of the *'leaning against the wind'* (LW) strategy defended by Cecchetti et al. (2000; 2002) but also at the Bank of International Settlements². They claim that the high-tech bubble and boom-bust should have been regulated via a more activist interest rate policy. A pre-emptive action to prick the bubble³ could have reduced the bust and so would have improved social welfare.

The financial crisis has challenged the standard BN strategy, calling for a re-examination of the BN versus LW dispute. Despite it concerned New Economy asset prices in 2001-2002, this controversy suits to the current crisis with the problem of toxic assets or houses prices. In the aftermath of the current financial crisis, does the BN consensus among central bankers still hold?

These questions are tackled with a focus not on the literature, but on central bankers' practice and point of view. We study of the practice and strategy of three central banks during the financial crisis. They are chosen because they are three major central banks in the crisis: the Bank of England (BoE), the European Central Bank (ECB) and the Fed. The choice of these three central banks is motivated by the importance of their role in global financial stability and the world economy in general. But also because they represent typical positions in the BN *versus* LW debate. The BoE is the typical point of view of the inflation targeting regime on this opposition. This regime is dominant in both academic and central bankers. The ECB is chosen because it proposes a regime different from inflation targeting. Finally, the Fed is the central bank where the BN was elaborated in practice, under the Greenspan era (1987-2006).

Section 1 introduces the debate BN versus LW and its implications for monetary policy (interest rate). Section 2 inspects separately each central banks interest rate policy during the crisis to the theory to determinate the positioning in the debate. It also examine central bankers explanation of the strategy towards financial stability before and during the crisis.

¹ Defined as *'a condition in which the financial system – comprising financial intermediaries, markets and market infrastructures – is capable of withstanding shocks and the unravelling of financial imbalances in the financial intermediation process which are severe enough to significantly impair the allocation of savings to profitable investment opportunities'* (Papademos, 2009b)

² Borio and Lowe (2002), Crockett (2003), Borio and White (2004), White (2006).

³ 'Pricking' means intervening with a large interest rate increase to reduce the bubble, using the tightening as a signal for market participants.

Finally section 3 compares the three central banks the point of view in the debate and their theoretical foundations.

1. The debate: presentation and policy implications

The pros and cons the Benign Neglect (BN) and the Leaning against the wind' (LW) strategy are presented. We focus mainly on the three central banks officials presentation of this debate. Next, implications for interest rate policy and real interest rate trajectory are drawn.

1.1. *The pros and cons LW*

1.1.1. Cons LW

Identification problem means that LW is impractical: the central bank can not really determinate if a financial imbalance, like a bubble, is under way (Papademos, 2004). As stressed by King (2002:16), '*No honest person actually knows the equilibrium level of asset prices*'. It is difficult to differentiate between movements in asset prices justified by the fundamental value and those which are not (Gieve, 2009:12). In the standard theory of efficient market hypothesis, there is imbalance when assets are out of the fundamental value. The later is difficult to determinate. Thus the central bank can increase the nominal interest rate i while it is not necessary, generating a sub-optimal growth and disrupt asset prices allocation role in the economy, reinforcing growth sub-optimality (Mishkin, 2008). Besides the effect of interest rate policy on the financial imbalance is uncertain: could be totally inefficient, could sustain the imbalance. More generally, if financial disturbance comes from inefficient markets, interest rate increases are inefficient. Consequently, identification is a costly and time-consuming process, with the risk that that it was achieved after a long time, leading to too late (Gieve, 2009:12).

Since by definition the bubble means a situation out of the fundamental value and results instead of animal spirit, there is no reason for irrational markets acting with 'irrational exuberance' to react to the rational action from the central bank.

Besides, because financial markets are not necessary inefficient, but can follow the Keynes' animal spirit psychology, it is difficult to predict their reaction to an active monetary policy. The LW can do more harm than good, adding extra market volatility instead of reducing it (Papademos, 2004). Moreover, because of their herding behaviour, it is difficult to influence market participants, making the LW poorly efficient. Furthermore, due to financial markets complexity and their potential inefficiency, their reactions to large interest rate increase (ECB, 2005:57).

The nominal interest rate i is traditionally use to regulate price stability, not financial stability (Bean, 2009:24). This is a blunt instrument that could generate collateral unnecessary damage to the real economy while attempting to preserve financial stability (Gieve, 2008:9). Finally the interest rate is a blunt instrument affecting the financial sector and assets in general, while in fact only a fraction of the financial sector or of assets is imbalanced. Hence, it is not an appropriate instrument to deal with boom/bust, requiring a better targeted instrument.

Moreover, because of the transmission lags of the interest rate instrument, there is potentially a timing problem: the LW can affect too late the economy, being out of phase with the current situation: when rates increases affect the economy to fight the boom, the economy can already have turn to a burst (King, 2005b:10). This implies that the LW is pro-cyclical for timing reasons.

On top of that, because of markets participants imperfect rationality, very large rate increase are required to reverse their animal spirit. The magnitude of rate increases can damage the real economy while having little effect on financial markets (Bean, 2005b:11; ECB, 2005:57). Bean (2008:7) doubts ‘*that people would be prepared to accept the clear short-term costs of such a strategy in return for the uncertain long-term benefits*’. Consequently, the BN strategy considers that the LW costs are potentially high while the benefits are uncertain and low.

On top of that, markets distorted reaction or overreaction to the stabilising policy cannot be ruled out, hence LW efficiency is not warranted and it can even do more harm than good.

Finally, financial instability, like bubbles, can be only the symptom of an underlying more structural imbalances, suggesting that instability should be address through other more appropriate policy than interest rate policies like prudential regulation or supervision (ECB, 2005:58).

1.1.2. Pro LW

The LW, by stabilising the financial cycles is supposed to improve macroeconomic stability. Being symmetric, it reduces the moral hazard generated by the BN (Trichet, 2009).

The idea that asset imbalances are not identifiable is not specific to financial instability: it is also difficult to estimate potential output (output gap), the NAIRU or the natural or neutral real interest rate. Yet central banks produce forecasts from these variables and publish these variables misalignment state. So it does not seem totally impossible for asset prices. Moreover, the BN claims to be able to forecast the financial instability impact on inflation and output. So there are some reasons to expect them to assess financial instability itself.

1.2. The Benign Neglect (BN): pros and cons

1.2.1. Pros BN

The ‘mop up’ after the bubble burst consists in using monetary policy to offset its negative impact on the economy. So it consists in acting *ex post*, not *ex ante*. The mop up is not supposed to create a bubble, since monetary policy easing is followed by a form of bubble in only one third of case, and because asset prices boom can happen when monetary conditions are not easy⁴. This strategy is based on the efficient market hypothesis and the dichotomy between the real and financial economies. Hence, there is little or no chance that the bubble feeds into the real economy, meaning the boom and the bust are inoffensive. It is also based on historical studies claiming that bubbles do not influence the real economy since market crashes generally do not degenerate into financial instability (Mishkin, 2008).

1.2.1. Cons BN

The identification problem is also contested. Identification is not necessary a problem. First as an institution the central bank is supposed to have more information than the markets and is supposed to be independent from the markets some should have information on them. The fact that the fundamental value cannot be judged precisely, so that the proper action is difficult to assess, does not mean that no action is possible. It simply implies that the precise action to implement is difficult to estimate, but the action direction seems to be identifiable (Issing, 2003:8). During the financial crisis, the exact magnitude of policy action was clearly difficult to determinate, but the direction was clear: stop the housing bubble (boom) and stop the credit crunch (burst). Hence it was not impossible to identify the housing bubble (Trichet,

⁴ Posen (2003).

2009). Moreover the BN rests upon the fundamental value theory that has been challenged by the current financial crisis.

The BN asymmetric nature is an incentive to moral hazard since it stresses that the central bank will help banks and financial actors, what ever the price (Issing, 2009:14). Asymmetric policy also means inactive interest rate policy during the boom period, implying potentially too low interest rates, encouraging excessive risk taking so preparing the burst and threatening risk taking.

The mop up strategy is also perilous since it is not necessary fast working enough. Indeed the current financial crisis has suggested that it could be overwhelmed by the speed and magnitude of the financial crash, in particular because of the zero lower bound on nominal interest rate that constrains the extent of the mop up. The burst is actually non linear and can be brutal and deep, threatening the whole economy, making the mop up inefficient. Moreover, the mop up can lay the ground for the next bubble by setting interest rate too low (Issing, 2009:15; Gieve, 2009:13). Besides, this address of the bubble bursting can relocate the bubble elsewhere, in another part of the financial system or the real economy, meaning that one imbalance is leading to another: ‘So I do not think that mopping up is a doctrine than can be relied upon’ (Tucker, 2008:7)⁵.

Furthermore, the inefficient interest rate policy stressed by the BN during the boom works in both direction: if market participants do not react to rate increases during the boom because of optimism, there are reasons to think they won’t react to rate decreases during the mop up, because of pessimism. Market participants’ panic requires large rate decreases for the mop up, meaning that the 0% lower bound is quickly achieved. Yet, the idea that monetary is ‘too blunt a tool’ to deal with financial instability is now contested in light of the current crisis experience (Papademos, 2009a).

1.2. Implications in terms of real interest rate policy

The BN and LW lead to distinct policy in practice, in terms of interest rate in particular, that is distinct interest rate profile or trajectory. In the spirit of Bordo and Jeanne (2002:21), the typical real interest rate trajectory under the BN and LW strategy are represented (Figure 1)⁶. The BN strategy moves the interest rate only during the crash in asset prices (mopping up), not during the boom phase. On the contrary, the LW strategy adjusts monetary policy pre-emptively in the boom phase to prick the bubble and avoid the future crash and its magnitude.

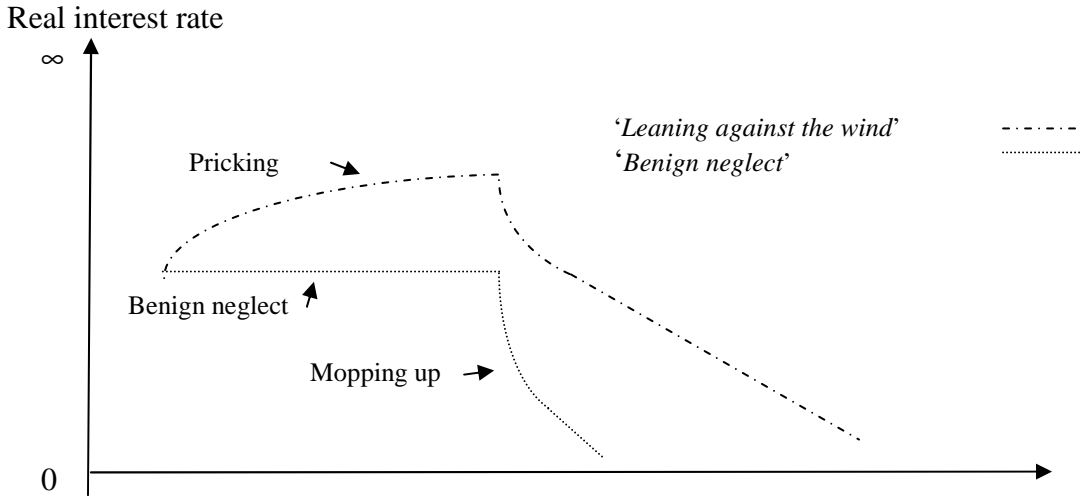


Figure 1: real interest rate profile: Benign Neglect VS Leaning against the wind

⁵ See also Tucker (2006 :18).

⁶ Figure differs from Bordo and Jeanne (2002) , it is an adaptation.

How does the real interest rate profile in the United Kingdom, the Euro and the USA compare with this typical trajectory? This confrontation to typical profiles gives a first indication on the strategy followed by each central bank during the current crisis.

2. The policy and strategy during the crisis in light of the BN versus LW debate.

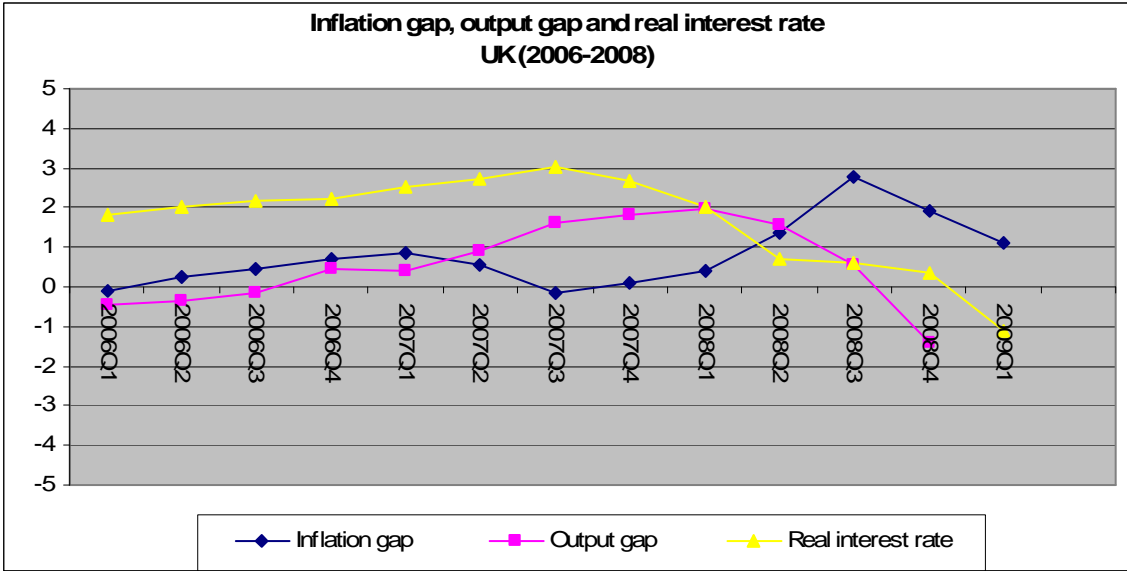
The real interest rate profiles of each three countries are compared with the typical real interest the strategy followed by each central bank to determinate what was their choice in the BN versus LW debate during the current crisis. For each central banks the strategy is examined to give the reasoning behind the profile.

2.1. The Bank of England

First, to have a first indication of whether the Bank of England has followed rather the BN or LW, the United Kingdom real interest rate is studied. Its trajectory during the crisis is compared with the BN and LW interest rate profile. Secondly, investigation is pursued further by examining the nominal interest rate profile of each MPC members. It is aimed at looking at possible divergence in strategy inside the MPC among members, with for instance some of them preferring BN to LW, or the contrary. Thirdly, the presentation of the BoE strategy against financial instability by MPC members is studied.

2.1.1. Interest rate profile

The BoE real interest rate profile is a mix of BN and LW (Figure 2). The BoE implement a small tightening during the boom, but it could be due to the positive output gap. During the burst, there is a light ‘mopping up’ but not a severe easing.



Notes : Inflation gap : CPI, mean of monthly data. Output gap: Hodrick-Prescott filter, 1600 on quarterly GDP; Real interest rate: nominal interest rate - Inflation expectations 1 year ahead (NOP), mean of monthly data.

Figure 2: Inflation gap, output gap and real interest rate, United Kingdom (20006-2009).

The BoE is a monetary policy committee (MPC) publishing individual voting records. These votes (nominal interest rate) confirm a small or inexistent tightening during the boom, preferring the BN to the LW (Figure 3). Blanchflower interest rate trajectory looks like a ‘mopping up’.

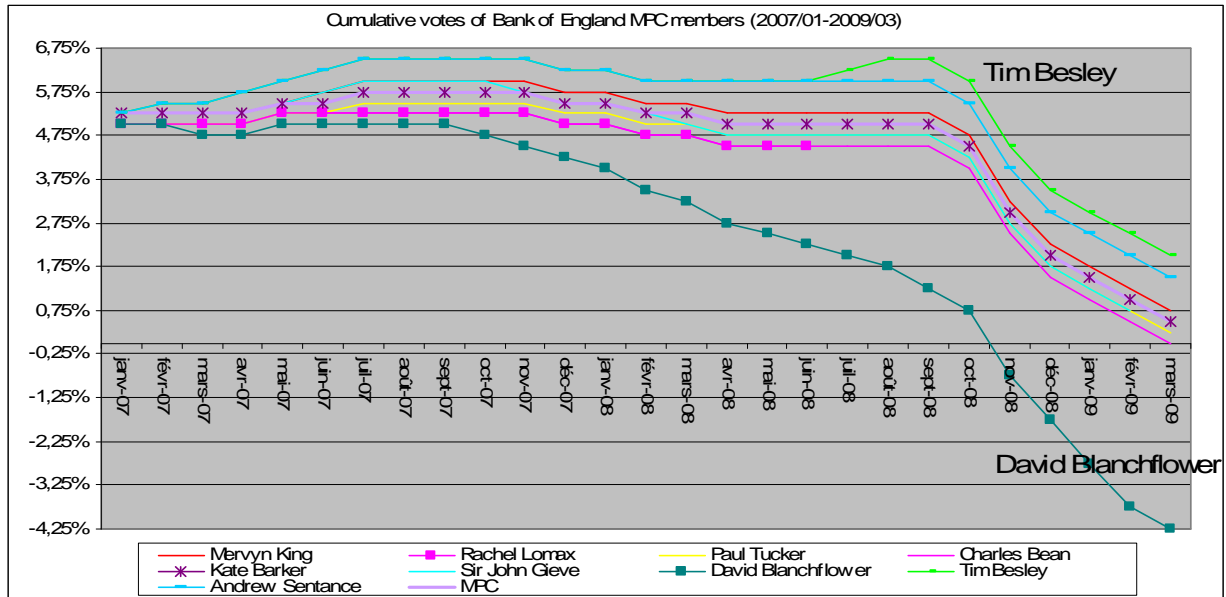


Figure 3: Bank of England MPC members' interest rate trajectory 01/2007-03/2009

These BoE's interest rates profiles are well explained by its inflation targeting strategy. Indeed the BoE claims that inflation targeting suits to financial instability: price stability is enough to deal with financial crisis. They pretend there is no reason to target asset prices or financial imbalances per se. They are supposed to be managed via inflation and output forecasts: financial instability matters only if it impacts on inflation. That is why the interest rate instrument has not be used directly to care about financial instability, but indirectly through inflation. It means that financial instability is addressed through the flexibility optimal inflation target horizon h instead of the interest rate instrument easing (mopping up). Hence in case of financial crisis with a severe burst, the central bank can lengthen h , from 2 to 3 years for instance. Yet during the recent crisis, the BoE has not clearly increased h , with the Swedish Riksbank.

In this inflation targeting strategy, the BoE assert that another instrument is required to deal with the financial crisis: the quantity of money, not its price (interest rate); this is the so called '*quantitative easing*'⁷. The interest rate easing (mopping up) is rejected in favour of unconventional instrument, leading to a strategy close to the BN.

It looks like if quantitative easing was a temporary extraordinary instrument, with the underlying idea that the financial crisis will not last, so a quick return to a 'normal' inflation targeting.

Yet there are important problems with quantitative easing which medium term consequences for the economy are difficult to evaluate, even if inflation is not guaranteed. Hence governor King has been in minority in August 2009 because he wanted to expand the quantitative easing while a majority of MPC members disagree.

Moreover, financial stability is nowadays a goal per se for the BoE, added in the Banking Bill, so that that de jure inflation targeting has evolved even if the BoE acts as if it was 'business as usual'.

This BN for financial stability by the BoE is surprising because it deals traditionally with it, with the publication of the financial stability Review. Nevertheless it seems that the apparent

⁷ Defined as: 'to expand the money supply through large-scale asset purchases' (Benford et al., 2009). This refers to the policy introduced by the Bank of Japan in March 2001; See Baba (2005).

success of inflation targeting during the Great Moderation has put the focus on price stability, putting aside financial stability. The current crisis has reminded to the BoE its classical role of lender of last resort and demonstrated the limits to more than 20 years of myopia looking only to price stability. Contrary to what central bankers and the New Classical school assert, price stability is not the silver bullet producing automatically financial stability. It suggests that during the recent crisis, like MPC member Besley, the BoE put probably too much weight on the credibility of its commitment to inflation target, and not weight enough to interest rate instrument flexibility. The risk of interest rate rigidity was Goodhart famous ‘too little, too late’. But during a severe crisis it is rather ‘too late, nothing possible’. Indeed if the BoE acts when the recession and deflation have already taken place, interest rate cuts are not enough to stimulate the economy, in particular because the zero per cent nominal interest rate bound is quickly attained. As soon as monetary policy transmission channel are impaired by the financial crisis (lack of confidence in financial markets) and that the interest rate is inefficient, the BoE is condemned to unconventional instrument.

From the strategic point of view, this inflation targeting collapse former MPC member Blanchflower to propose not to target asset prices, but at least to integrate a composite financial instability indicator in the price index.

In face of the new financial stability goal, the interest rate inefficiency, the large quantitative easing and the difficult situation of United Kingdom economy, some MPC members had to recognize that the inflation targeting strategy was not enough. But most of them did not admit it explicitly and prefer claiming that a ‘macro-prudential’ framework is necessary. This justifies, *a posteriori*, the BN since prudential policy was supposed to be required, not interest rate cuts.

2.1.2. Explanations of the strategy by the Bank of England.

MPC members’ positions on the BN versus LW debate before and during the financial crisis are examined to highlight their eventual evolution. The BoE strategy towards financial instability and asset prices bubbles has been elaborated during the 1995-2002 high tech bubble (King, 2002; Bean, 2003a-b). This leads to the assimilation of financial instability to asset prices misalignment. Embedded in inflation targeting, it claims that this framework is enough, so that the BN is the best strategy: price stability is enough and financial stability is not a goal *per se*⁸. There is no asset price targeting, meaning that financial instability is not included in the loss function or the reaction function. Yet financial instability is a challenge for monetary policy creating a restricted trade-off: ‘Achieving price stability is no guarantee that financial instability can be avoided’ (Bean, 2003a:18). Nevertheless this trade-off is of limited importance, taken into account not directly but indirectly via its long term consequences on the economy (inflation and output). It is integrated through inflation and output forecasts, i.e. forecast inflation targeting pretending to be forward-looking (Bean, 2003a-b). If the financial imbalances impact on inflation or output, it is taken into account in the interest rate setting. This integration is conform to the academic strategy proposed by Bernanke and Gertler (1999; 2001), i.e. the BN. It suggests that the BoE defends a strategy not far from the Greenspan’s Fed.

In practice this integration means that in case of large financial turmoil the central bank accept a temporary deviation from the inflation target, i.e. a flexible interpretation of inflation targeting (King, 2004). This regime is sufficient because it allows for increase of the optimal temporal horizon h of the inflation target to deal with financial imbalance.

The LW (asset prices targeting) is rejected in this conceptual framework also for practical reasons: difficulty of bubble identification and the Tinbergen principle. Bubble cannot be

⁸ King (2002), Bean (2003a:18, 2006:5)

identified because ‘no honest person actually knows the equilibrium level of asset prices’ (King, 2002:16)⁹. The Tinbergen principle stipulates that the central bank must have as many instruments as goals. It is violated in the LW strategy because the MPC has two goals (price and financial instability) but has one instrument (interest rate)¹⁰. This line of reasoning drives the BoE to a critical adoption of the BN. Indeed it leads to reject the ‘mopping up’ (Tucker, 2006:18). The other reason for its rejection is that low interest rate can prepare the next boom-bust cycle in financial markets. Hence, contrary to the Fed, the BoE propose a different version of the BN which, excluding the ‘mopping up’, looks even more inactive.

During the financial crisis, in 2008, MPC members have continued in their speeches to defend most previous BN strategy elements: asset prices are not a goal nor a target, the LW strategy is not recommendable, once again due to the Tinbergen principle¹¹. Inflation targeting was still enough¹². Moreover, taking the credit crunch directly into account in the interest rate stance would create some confusion on the BoE’s goals, challenging the rhetoric of priority to price stability (instead of financial stability) and the credibility of the commitment to the inflation target¹³.

The case against the ‘mopping up’ was also reinforced since attaining nearly the 0% lower bound, the interest rate was quickly not usable, judged a ‘too blunt instrument’¹⁴. As stressed by Tucker (2008:7): ‘*I do not think that mopping up is a doctrine than can be relied upon*’. Forecast and flexible inflation targeting with the *h* lengthening were considered as more appropriate than the LW too difficult to implement in practice. In a cost benefit/analysis, the LW cost of pricking the bubble were judged to high compared to hypothetical long run benefits (Bean, 2008:7)¹⁵. Yet, the acknowledgment of the interest rate instrument impotence opened the door for to a change: *h* was replaced by the emphasis on the necessity to move to a ‘macro-prudential’ solution to the financial crisis. A new instrument was required to complement the interest rate and let monetary policy free for the price stability goal. This new instrument was supposed to be directly directed to one of the major cause of the crisis: the market failure (Bean, 2008:9). Implicitly it was the signal that financial stability had become a goal.

In the 2009 speeches, the doctrine ‘price stability and inflation targeting are enough’ was declare still alive by most MPC members, but more in the rhetoric than in practice. *De facto* the BoE had adopted the financial stability goal, meaning that the central bank was not regulating finance temporary and indirectly, but permanently and directly. It implies that inflation targeting is not enough, as confessed by a few MPC members: ‘*inflation targeting as currently operated is not sufficient*’ (Dale, 2009:5)¹⁶. But most MPC members continue to pretend that the LW is impossible in practice, due to the Tinbergen principle in particular: ‘*The idea that we can and should use short-term interest rates to quell asset booms or to curb lending practices is intellectually and practically suspect*’ (Besley, 2009:4). A majority of members continues to defend the macro-prudential solution instead of the LW, arguing that it addresses more directly and efficiently the problems of the credit boom-crunch (Bean, 2009a:24). A minority of MPC members have to admit that the financial crisis give some elements in favour of the LW and less for the BN, the collapse of the efficient market hypothesis in particular¹⁷. This limited critique of inflation targeting and the BN means that

⁹ See Also Tucker (2006:18): ‘*we just don’t know enough about the determination of asset prices*’.

¹⁰ Tucker (2006 :18).

¹¹ Gieve (2008 :11).

¹² Bean (2008 :7).

¹³ Sentence (2008:15).

¹⁴ Gieve (2008 :9).

¹⁵ This line of reasoning with a costs/benefits analysis is very similar to the Fed (Kohn, 2006).

¹⁶ See also Gieve (2009 :13-4).

¹⁷ Gieve (2009 :18).

the MPC pursue a less inflation target driven approach to monetary policy. In practice some MPC members recommend to augment the price index from houses prices to deal with financial instability. The BN being less accepted, a more activist policy is required. The MPC implement an ‘aggressive’ action, not based on LW or the mopping up but the ‘quantitative easing’.

2.2. The European Central Bank

We proceed as for the BoE, analysing first the interest rate profile to determinate if the ECB follows rather the BN or LW strategy. Then the ECB strategy vis-à-vis financial instability before and during the recent crisis is inspected.

2.2.1. Interest rate profile

ECB’s real interest rate profile (Figure 4) resembles a LW with a larger interest rate tightening during the boom than the BoE or the Fed. In line with the LW typical profile, the r decrease during the crisis is less vertical than for the BN, so a smaller easing than the BoE or the Fed.

The ECB position in the debate BN versus LW is a compromise. It has a Monetarist tradition where money matters, meaning the quantity of money and monetary indicators (credit) have stayed at the centre of its analysis while it has nearly disappeared at the BoE and the Fed. In the two-pillar strategy, the monetary pillar is then presented by ECB members by a relevant tool to deal with financial instability. The economic pillar focused on the crisis impact on inflation and the real economy looks like what central banks under inflation targeting are doing. The cross-checking of these two pillars is supposed to offer a more accurate portrait of the financial situation than other monetary policy strategy. The ECB is a vigorous opponent to inflation targeting, precisely because neglecting monetary conditions it is not perfectly adapted to financial instability. Implicit in ECB members speeches is the idea that its strategy being superior to the BoE, it better predict financial instability; better anticipating financial imbalances, it can act more pre-emptively and more cautiously, explaining the more smoothed profile of r compared to the BoE.

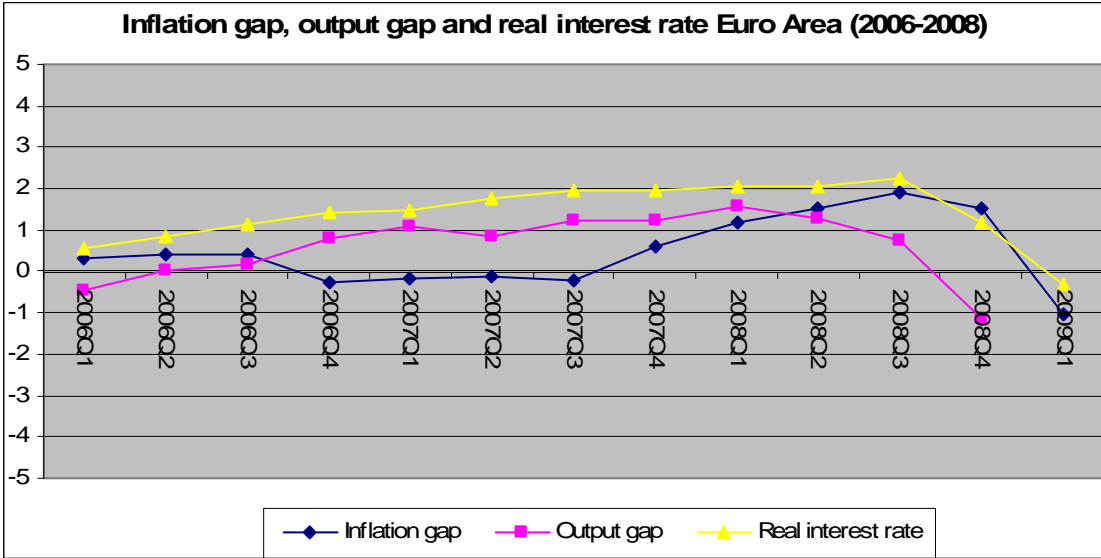


Figure 4: Inflation gap, output gap and real interest rate, Euro Area (2006-2008).

2.2.2. Explanations of the strategy by the ECB

During the period before the crisis, the ECB convincingly integrates financial instability in its two pillars strategy that is the cross checking of the monetary (credit, money) and economic pillars. The idea of taking into account financial imbalances via their future consequences on the economy is also present with the '*medium term orientation*' of the strategy. Those elements seem similar to inflation targeting (BoE) with also apparently the same emphasis on the priority to price stability and the idea that the policy framework is enough so that that asset price targeting is not required. Nevertheless the BoE and ECB strategies are different: the BoE puts little emphasis on credit and money indicators monitoring constituting the ECB monetary pillar.

Because of this two pillars strategy, the monetary pillar in particular, the ECB is more in favour of the LW than the BoE or the Fed, and more in favour of the LW than the BN. Indeed credit and money careful monitoring in the monetary pillar give early warnings on the bubble. Hence, contrary to the BoE and the Fed, the ECB alleges to have some possibility to identify the bubble, even it remains difficult (Papademos, 2004). That is also why the ECB claims its strategy is more appropriate than inflation targeting to deal with the financial crisis (Issing, 2005; Papademos, 2009a).

According to ECB members the financial crisis in 2008 has confirmed these claims: importance of monitoring credit and money, the superiority of the two pillars strategy on inflation targeting. Nevertheless, next to the Lehman Brothers collapse, in October 2008, the ECB has admitted that financial imbalances were so large that the interest rate instrument was not enough for the LW. At short term to save the financial system a new instrument of 'liquidity management' was required, non standard measures of '*enhanced credit support*' in the ECB terminology. Yet, the '*separation principle*' prevails: monetary policy remains focused on price stability, the focus on financial stability being a secondary goal, an emergency and temporary action (Papademos, 2008b). The crisis had little impact on central bankers' doctrine of the priority to price stability. The only change is at the instrument level, revealing that price stability is not enough. In the long run, the solution is not a new goal of financial stability but a reform and development of the regulatory system.

In 2009, as it becomes clear that the financial crisis was a permanent and extraordinary shock, demonstrating that the BN was inappropriate in this case, the ECB has reinforced its case for the LW strategy. It is now clearly in favour of the LW. Yet it should not apply mechanically and should remain embedded in the two pillars strategy and the medium term orientation. ECB members also put the emphasis on the trade-off between price stability and financial stability¹⁸, while it remains only implicit in the BoE case. ECB members consider that the trade-off is present at short term, but nearly absent at long term. It implies that at short term the interest rate instrument cannot pursue both goals, so that another instrument is needed or that price stability should be forgotten temporarily. But the recent crisis has demonstrated that the short-term could be very long, as Keynes stressed with its famous expression that in the long run we all are dead. The ECB has no answer to this criticism, and there is no mention of what will be the post crisis strategy. There is no sign of deep change in the ECB strategy. It does not seem a real problem since the crisis has shown that its strategy was clearly more appropriate than those of the BoE or the Fed. It does not mean that ECB pragmatic Monetarism is still the best strategy but instead that the BoE inflation targeting was apparently wrong in giving little or no role to money and credit. Beyond inflation targeting it

¹⁸ Papademos (2009b).

is the demonstration of the limits to its underlying New Keynesian theory developing model with no imperfection in the monetary side with no banks and no credit crunch.

2.3. The Fed

2.3.1. Interest rate profile

The Fed real interest rate profile is the more conform to the BN: compared to the BoE or the ECB, the boom tightening is reduced. On the contrary, the mopping up is severe compared to the two other central banks.

Since Greenspan (2002), the Fed is actually the leader of the BN policy developed during the boom/burst of the internet economy.

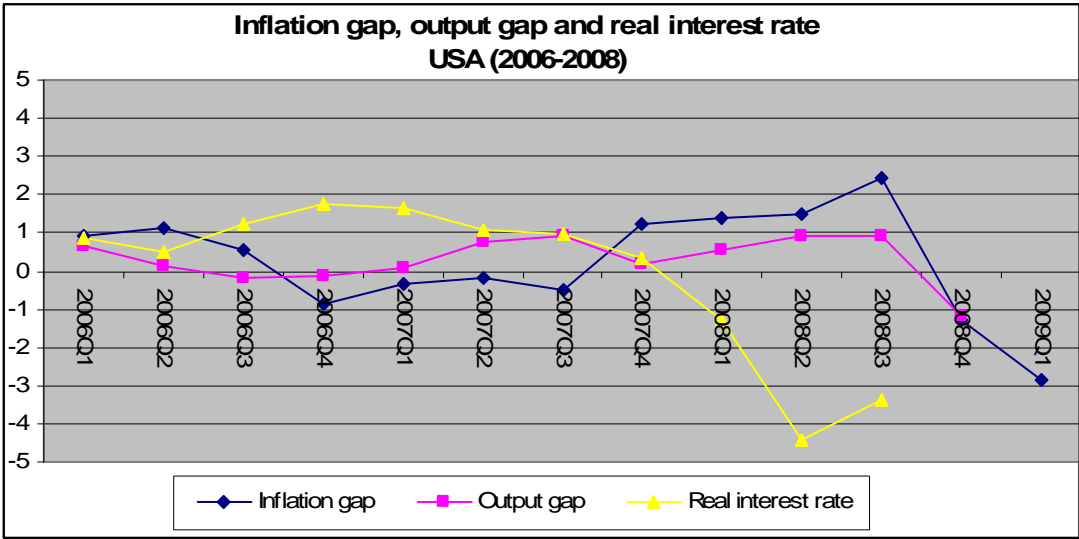


Figure 5: Inflation gap, output gap and real interest rate, USA, 2006-2008.

2.3.2. Explanations of the strategy by the Fed

Fed strategy to deal with financial instability inherited from Greenspan is first analysed, then the strategy during the current financial crisis is examined.

The Greenspan’s standard. Since the high tech bubble the Fed is the champion of the BN strategy, with contrary to the BoE a faith in the ‘mopping up’. This strategy to deal with financial crisis is inherited from Greenspan and this peculiar episode of the high tech bubble. It is *prima facie* quite surprising that this doctrine has survived to Greenspan. Nevertheless Greenspan had apparently a lot of influence on Bernanke way of thinking¹⁹. Moreover Bernanke is the leader of the BN’s school and how to deal with asset prices under the inflation targeting regime. His works are the basis for the BoE strategy and have also inspired the Fed. The belief in the soft version of the efficient market hypothesis²⁰ and the fundamental value theory are the root of the Fed BN. It is a soft version because Greenspan was aware of market participants ‘irrational exuberance’. Despite this imperfection, Greenspan suggests that on average bubbles are beneficial and that market exuberance is beneficial. He considers the fact that asset prices are away from the fundamental value as to some extent a rational behaviour from market participants. Not only because it is financial markets normal functioning, but also

¹⁹ Looking at Bernanke speeches at the Fed during the Greenspan era, v they clearly are more and more influenced by Greenspan in time.

²⁰ Blanchflower (2009a :9) defines this hypothesis as follows : ‘financial sector has price all assets efficiently at all times in the past, and will continue to do so over the infinite future’.

because it is beneficial for them, and also for the rest of the economy. He considers bubble as pro-growth. He also judged as limited and manageable the cost of the bubble burst, so that costs-benefits analysis is pro bubble. This faith in markets functioning is based upon his experience at the Fed. His conclusion from the high tech bubble is that markets and the economy are resilient to shock. It means markets are to a certain extent self correcting so that central bank intervention to prick the bubble is not required and could kill its pro-growth character. Even if the central bank has to intervene during the bubble burst, it is easily done via the 'mopping up', partly because self-correcting markets help the monetary authorities; but also because the markets soft efficiency implies that asset prices misalignment is limited. Finally, he defended the BN because he believed that a large part of asset prices increase was justified by the productivity boom he identified in 1995 and that was caused by the new technologies.

The Greenspan doctrine should not be classified has a total BN. Indeed he proposes to intervene during the bubble burst. On top of that, he tried to prick the high tech bubble with high nominal interest rate from 1995 to 1998, and warns markets about the 'irrational exuberance' since November 1996. But it had little or no impact on markets, so his experience is that the pre-emptive action against bubble is inefficient and so is the LW. Hence the Greenspan BN version is not only theoretical, but also results from practice.

Following Greenspan, Federal Open Market Committee (FOMC) members have developed a case against the LW they re-named the '*extra action*', while the BN has the denomination '*conventional view*' (Kohn, 2006). Based on the Greenspan era experience (1987-2006), they allege that the LW is difficult to implement in practice since market participants following Keynes' animal spirit do not listen to the Fed. Pricking the bubble is not feasible in practice due to markets limited efficiency. LW effects are uncertain; because markets are deaf, the central bank has to increase interest rates a lot before markets react. Those rates increase can destabilise the real economy (recession) before markets react. There is a trade-off between financial and macroeconomic stability that the LW cannot avoid. Since FOMC members claim their official mandate is according to the Federal Reserve Act of 1977 '*maximum employment, stable prices and moderate long term interest rates*', they have no incentive to generate unduly high interest rate to prick a financial instability that is not a priority in their mandate. Like proposed by academics (Bernanke and Gertler, 1999; 2001), asset prices are taken into account only if they affect in the long run the mandate's primary goals: price stability and employment. This BN permits to avoid confusion on monetary policy goals (mandate). In this respect, the Fed resembles the BoE inflation targeting strategy. Furthermore, another major argument against the LW is bubble identification. Based on the 1990s example, FOMC members considers that part of asset prices increase was justified by the fundamentals of the economy with the productivity boom. It was difficult to separate the part of asset prices increase due to fundamentals from the one not caused by fundamentals. The LW would have destroyed the part of asset prices increase justified by fundamentals, causing an undue contraction in the economy.

It demonstrates that the LW calibration is difficult: what is the exact amount of interest rate increase justified by fundamentals? A limited increase has no effect on markets exuberance but preserve the mandate and the part justified by fundamentals. A large increase can affect markets but does not respect the mandate and produces undue fluctuations in the economy.

Another problem with the LW, according to FOMC members, is the timing. The LW can be pro-cyclical instead of contra-cyclical: pricking can happen while the economy has moved from the boom to the burst. This limit to the LW is partly due to the monetary policy transmission lags. Some FOMC members also allege that the LW is also a source of moral hazard. Regulating asset prices can lead market participants that the central bank is taking full responsibility for asset prices, targeting them. Becoming a new target for monetary

policymakers, markets participants can put even more pressure to intervene in case of asset prices collapse (Kohn, 2006). Besides, the high tech bubble, but also the 1929 crash and the 1990s Japan experience is supposed to have demonstrating that monetary policy intervention limited to ‘mopping up’ is enough and efficient.

FOMC members summarize this line of reasoning with a costs-benefits analysis of the LW strategy that is associated with the time horizon (short-term, long run).

	Costs of LW	Benefits of LW
Short term	Recession	No gain
Long run	No costs	Avoiding depression

Figure 6: Costs-benefits analysis of the LW strategy according by the Fed

According to FOMC members the LW is valuable only if the long term depression generated by the asset prices burst is larger than the recession caused by pricking the bubble. According to FOMC members, the high tech bubble has demonstrated this is not the case. The financial burst is not necessary large and is easily reduced by ‘mopping up’. They reject the idea behind the LW that the bubble can lead a non linearity with the risk of collapse of the economy. This is possible but unlikely. The theoretical apparatus underlying this case against non linearity is the efficient market hypothesis and the fundamental value theory that promote a substantial dichotomy between the financial side and the real economy. Furthermore, they note that even if the non linearity does happen, the appropriate instrument is not monetary policy but instead the regulatory framework.

The strategy during the crisis. Until September-October 2008 and the Lehman Brothers collapse, the Greenspan standard against the LW and pro mopping up remains dominant. The bubble identification was still a problem condemning the LW. The belief in the soft efficient markets hypothesis still lead FOMC members that the central bank had no more information than market participants, so that it could not do more than waiting for their self-correction. Moreover the belief that bubbles are not dangerous was strong: recent crisis demonstrate that it has little impact on the real economy. The non-linearity defended by the LW strategy was not judged realistic; and once again if ever the non-linearity is present, the regulatory framework is the solution, not monetary policy. The reason is that the burst is presented as a market failure, in line with textbook micro-economy, not as a global risk threatening the whole economy. Market failure is a neutral and technical description with no mention of the importance of the costs for people. Market failure is an ambiguous terminology suggesting either that the market is imperfect, either the market collapse. It seems that FOMC members defends the first version, pretending that the solution to the crisis is a new institution (regulatory) to complete markets and avoid the future crisis with more regulated markets. Behind the expertise, the Fed claim that the collapse of the economy is nearly impossible and that if happens it is not its responsibility: this is an escape.

The crisis deepening after the Lehman brothers has changed since September-October 2008, slightly, the Fed position in the BN *versus* LW debate. The crisis spill over on the real economy was so large that the LW idea of a non-linearity with the collapse of the economy becomes likely. The Fed had to consider the queue of the probability distribution of the risks. They fear that the insurance policy against the non-linearity was not enough, suggesting some limits to mopping up with the interest rate instrument. The 0% lower bound on the official interest rate was quickly attained. The alleged regulatory solution was rejected since too long too implement due to the necessity of a long reflexion (Bernanke, 2008). The regulatory framework was perhaps part of the solution, but its weaknesses and shortcomings were also a cause of the crisis.

Instead, some emergency solution and some new instrument were needed. The Fed moved to the ‘credit easing’ and had to produce a collection of innovations in monetary policy implementation to give liquidity to the markets and the economy²¹.

This high uncertainty with a risk not considered in the BN strategy of the Fed has forced FOMC members to re-examine the case against the LW. The doctrine inherited from the high tech bubble and Greenspan were apparently under stress: *‘I may have been unduly comforted by the resilience of the U.S. economy to the collapse of the high-tech bubble’* (Kohn, 2008). The efficient market hypothesis, even its soft version, was challenged by the crisis with large market participants mistakes in assets valuation and a limited relation with the alleged fundamental value. The mopping up was also call into question, that was more complicated than during the high tech burst in 2001-2002. This drives some MPC members to the ability to detect the bubble should have been more important during the current crisis, but that in fact it had been not large enough to practice the LW.

After re-examination, FOMC members continue to defend the BN strategy, insisting on the same limits of the LW to reject this strategy. Such maintenance of the BN is not perfectly consistent with the challenge that faced its underlying hypothesis during the current crisis.

The Fed has been very innovative in practice in the implementation of its policy, probably partly due to the inappropriateness of its doctrine, but in the rhetoric its strategy towards financial instability has remained rather unchanged. The Fed’s position in the BN *versus* LW lack of robustness in the light of the recent crisis. The idea that financial instability is not a full goal of the Fed is not consistent with its history: it has been created in 1913 next to the recurrent problem of (banking) panics in 1873, 1884, 1893 and 1907. Indeed the complete Fed’s ‘monetary policy goals’ are: the Fed *‘shall maintain long run growth of the monetary and credit aggregates commensurate with the economy’s long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates’*²². Thus credit is mentioned in Fed’s mandate.

The Fed mopping up strategy was also based on the hypothesis that it has no informational advantage compared to market participants. This is not totally consistent with the fact that it is an institution centralising information, not a market player. Even if it has as much information than market participants it can more intervene than them that cannot act even if they know there is bubble because it is not their interest. In the face of market participants rational herding behaviour the hypothesis that the Fed has no informational advantage is not a reason for inaction (BN). Finally the Fed seems, to use Keynes world, prisoner of past conceptions, the high tech bubble and the Greenspan doctrine. Past experience can help for the future, but it is often a limited or even useless guide since the future is different from the past.

After analysing each three central banks in isolation, their practice and strategy regarding the BN versus LW debate are compared, and their evolution before and after the crisis.

3. A comparison of the BoE, the ECB and the Fed

First, in relation with the BN versus LW debate, the interest rate profiles of the three central banks are studied. Next, the three central banks position in the BN versus LW debate, before and after the crisis, are compared. Finally the underlying hypothesis behind their positioning are confronted.

²¹ This is outside the scope of the article. See Loisel and Mésonnier (2009).

²² Federal Reserve Act, Section 2a, 1977.

3.1. Interest rate policy during the crisis

Pricking the bubble (Figure 7, column A)²³ seems practised by the BoE and the ECB more than the Fed. This is consistent with the Fed considering that pricking can do more harm than good. The mopping up (Figure 7, column B) is strong for the USA and the UK, less for the Euro Area. The previous strategy study explains why the Fed is the ‘mopping up’ champion while the ECB and to a lesser extent the BoE are reluctant to implement this strategy. In USA and the UK the central bank apparently do not act late (behind the curve) in the light of the output and inflation situation (columns C and D). This seems to confirm that asset prices are really embedded in a forward looking strategy, embedded in inflation and output forecasts. The ECB act late in terms of production, suggesting more conservative preferences than the BoE or the Fed, that is less weight on output than these central banks in its loss function. It also confirms ECB more pronounced reluctance to implement the ‘mopping up’, or a more prudent application of this action. Because of its preference for mopping up²⁴ the Fed is the first to decrease the real interest rate to 0% (column E). It does it in about 3 quarters, like the ECB, while the BoE needs 5 quarters. This illustrates that the preference of the ECB for the LW, i.e an activist policy whatever the direction of the financial imbalance. The ECB is against mopping up but lead an activist policy.

	Real interest rate increase (Boom)	Real interest rate decrease (Bust)	Behind the curve (<i>real interest rate falls after output gap</i>)	Behind the curve (<i>real interest rate falls after inflation gap</i>)	Real interest rate heated 0% in 2008
	A	B	C	D	E
United-Kingdom	1,2%	-4,1%	No	No	No
Euro area	1,6%	-2,6%	Yes	No	No
USA	0,8%	-6,3%	No	No	Yes

Figure 7: Interest rate policy of the BoE, ECB and the Fed during the crisis

These practices are justified by central bankers by the policy strategy and framework. Do these doctrines have evolved during the crisis?

3.2. Positioning during the crisis: the evolution

The points of view of the three central banks are inherited from the high tech bubble burst in 2001-2002. The magnitude and nature of the current crisis can lead to change in their positions.

Central bankers seem to have changed their mind during the current crisis, but to be precise we observe a slight movement towards the case for LW (figure). It means that the Fed that was the more against the LW remains rather pro BN. Yet the Greenspan doctrine has clearly been challenged by the current crisis, as stressed by Kohn (2008).

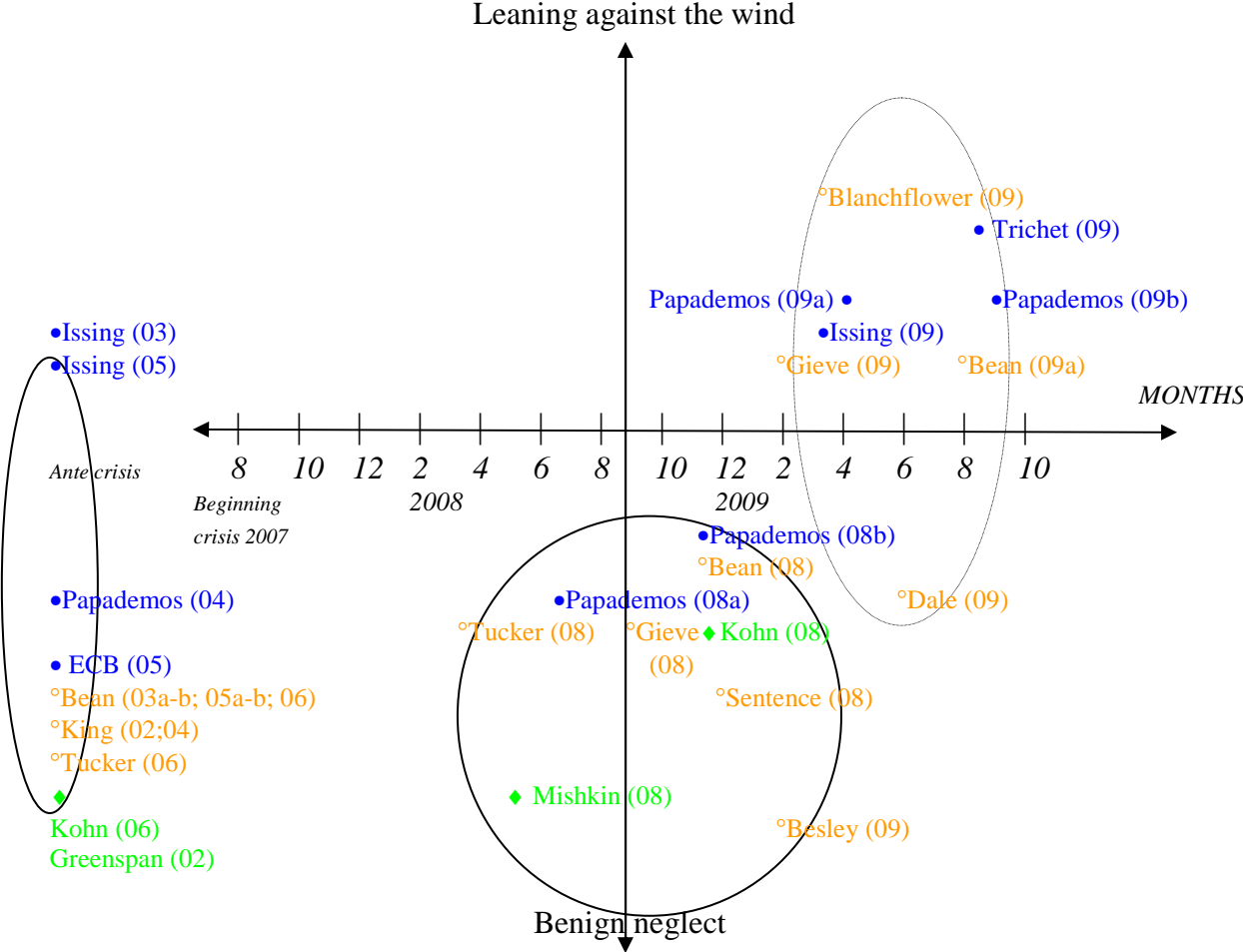
The BoE that was pro BN not totally convinced by mopping up seems sometimes, according to some MPC members (Gieve, Blanchflower) more ready to listen to the LW arguments. Yet other members are still pro BN (Dale). All in all the BoE apparently slightly evolves towards more acceptance of the LW as shown by the Bean example. This is a critique of the academic theory of inflation targeting developed by Bernanke and Gertler (1999 ; 2001).

The ECB, originally a soft defender of the LW has now become a defender, its president Trichet (2009) in particular: ‘Over the past few years, both experience and developments in

²³ The limit to this exercise is that the interest rate and inflation expectation can be driven by other elements than the financial crisis, such as the oil price shock.

²⁴ apparently not because it faces the recession earlier, see table

the literature appear to support a shift in favour of the adoption of some form of leaning against the wind'. Nevertheless it is not a strong defender of the LW that is applied with prudence, embedded in the two pillars strategy and the medium term orientation. Hence the three central banks positions in the BN versus LW dispute are in the same vertical order but have moved north to more acceptance of the LW and less of the BN. The case for the BN has been under pressure during the recent crisis.



Notes: 30 studies are included (BoE: 17; ECB: 9; Fed: 4)
 Figure 8: The evolution of the BoE, ECB and Fed points of view on the BN versus LW debate during the financial crisis.

Why these central banks propose different approaches to this debate, what are the foundations of their differences in strategy?

3.3. Differences in foundations

Differences in monetary policy regime among the three central banks are crucial to explain the differences in positioning. The inflation targeting (BoE) and the Fed are post monetary targeting strategy with little or no emphasis on monetary aggregates and credit. They have abandoned monetary aggregates since the end of the 1980s. The underlying theory of inflation targeting developed by some New Keynesian is anti-monetarist and do not include banks or credit crunch. It leads to little or no credit monitoring so difficulty in identifying the credit bubble of the current crisis, or at least difficulties in justifying a focus on credit, that is the BN. The Fed case is more difficult to understand since Bernanke is one the best specialist of the credit channel and of the 1929 crash. The predominant role of the BN can be due to the

presence of Kohn (close to Greenspan) or of Mishkin, a typical New Keynesian. Moreover Bernanke and Mishkin are one the best specialists of the inflation targeting regime they want to implement at the Fed, what could explain the choice of the BN, like the BoE.

It contrasts with the pragmatic monetarist of the ECB and its monetary pillar offering the ability to monitor credit and to justify its role in the policy decision. It also allows for a better and early identification of the credit bubble and beyond the LW.

	BoE	ECB	Fed
Policy regime	Inflation targeting	Two pillars	Risk management
Preferred strategy vis-à-vis financial instability	BN	LW	Mopping up
Bubble identification	Very difficult	Possible	Impossible
Belief in the fundamental value theory	Yes, but limited	No	To a certain extent
Efficient market hypothesis	No	No	To a certain extent
Self regulated markets	No	No	To a certain extent
Financial/real economy dichotomy	Small	No	Moderate
Boom/bust	Limited risk	Costly	Mostly beneficial
Financial stability considered as a goal	No	Yes	No
Priority to price stability	Yes	Yes	Yes
References	Bernanke and Gertler (1999; 2001)	Cecchetti et al. (2000; 2002)	Greenspan (2002)

Figure 9: Positioning of the BoE, ECB and Fed in the BN and LW debate: the foundations.

The BoE's MPC members sometimes mention the fundamental value theory²⁵, but they do not really believe in hypothesis such as efficient market, the dichotomy or self-regulated markets. That is why some MPC members judge that mopping up is uneasy because irrational markets are not ready to react or overreact to monetary policy. The fact that the dichotomy between the real and financial sectors, albeit imperfect, exists, is another reason for not intervening under inflation targeting. Hence, even if credit boom/bust can destabilise the economy, the magnitude is small. For all these reasons financial stability has not to be a goal per se: inflation targeting is enough to address the crisis.

The ECB, unlike the BoE and the Fed, is not really in favour of Neo-classical hypothesis. Because of irrational market participants there is a risk of boom/bust or credit cycles threatening the whole economy. Financial markets and financial stability should be monitored and managed permanently, not only in case of crisis. Financial stability is a goal per se, even if it remains less important than price stability, like at the BoE and the Fed. At the centre of this positioning is the belief that financial crisis are perilous for the economy because it can easily transmit to the economy.

The Fed is closer to the BoE than the ECB in terms of positioning in the BN versus LW debate. Indeed they both believe that identification is difficult, and that there is a form of dichotomy prevailing, the resilience. Yet they differ on most Neo-classical hypothesis like the efficient market hypothesis or the fundamental value, the latter being frequently mentioned in FOMC members speeches to explain the Fed policy (Kohn, 2008). This Fed Neo-Classical rhetoric, inherited from Greenspan, leads to the idea that bubbles are not necessary dangerous. The BoE and the ECB are defending the opposite view. Contrary to the BoE that defends the BN because inflation targeting is enough, the Fed defends this strategy because of Neo-classical beliefs. They justify the refusal to consider financial stability as a goal, even with

²⁵ Bean (2003b).

priority to price stability. While it sounds strange for FOMC members belonging to the New Keynesian school (Bernanke, Mishkin), it could be caused by the difficulty and fear to change the strategy established by Greenspan. Moreover, the dramatic magnitude and quickness of the credit easing can be justified by the fear of the 1929 deflation, but it looks like a temporary priority to financial stability over price stability. From this point of view the ECB strategy seems clearer and more appropriate, not because of its monetarism, but because of its transparent monitoring of money and credit.

Conclusion

Aftermath of the 2001-2002 New Economy boom-bust, the debate BN versus LW seems relevant to understand the BoE, ECB and Fed actions during the current crisis that begun in August 2007. The latter has slightly changed the positioning of these three central banks, evolving from the BN to the LW strategy. But at the end their positions remain more or less the same. This is in sharp contrast with the extraordinary magnitude of this crisis with the triumph of Keynes' ideas: speculation, inefficient markets with optimistic-pessimistic animal spirit. It reveals that despite a new situation, central banks have the temptation, as stressed by Keynes, to remain prisoner of past concepts. On the contrary the current crisis tends to prove that this time the past wisdom of the BN was less appropriate than the LW. That is why the ECB following this strategy was more ready to deal with this new situation than the BoE or the Fed believing in the old BN.

The crisis also suggests that the inflation targeting regime, that was the dominant paradigm before the crisis, is not necessarily the one best way to deal with Minsky's financial fragility that has become a major question with financial markets development. Indeed in the face of the current severe crisis, central banks have implemented less price stability focused strategy. In the face of high uncertainty and risk they have been able in practice to produce innovations. It is in sharp contrast with their theory and rhetoric that stick to past ideas, the Fed and the BoE in particular. This gap between theory and practice could mean that the call for change stressed by the current crisis with the adoption of Keynes ideas will not happen. This possible rapid return to 'business as usual' could presage that we could be quick back in a new crisis.

References.

- Baba, N., Nishioka, S., Oda, N., Shirakawa, M., Ueda, K. and H. Ugai (2005), 'Japan's deflation, problems in the financial system and monetary policy', BIS Working Papers No.188.
- Bordo, M. and O. Jeanne (2002), 'Monetary policy and asset prices: does benign neglect make sense?', IMF Working Paper No. 2002/225.
- Bean, C. (2003a), 'Asset prices, financial imbalances and monetary policy: Are inflation targets enough?', Speech, July.
- Bean, C. (2003b), 'Inflation targeting: the UK experience', Speech, October.
- Bean, C. (2005a), 'Monetary policy in an uncertain world', speech, February 22.
- Bean, C. (2005b), 'Is there a new consensus in monetary policy?'
- Bean, C. (2006), 'comments', August 26.
- Bean, C. (2008), 'Some lessons for monetary policy from the recent financial turmoil', speech, November 22.
- Bean, C. (2009a), 'The great moderation, the great panic and the great contraction', speech, August 25.
- Bean, C. (2009b), 'Quantitative easing: an interim report', Speech, October 13.
- Benford, J., S. Berry, K. Nikolov and C. Young (2009), 'Quantitative easing', *Bank of England Quarterly Bulletin*, Q2: 90-100.
- Bernanke, B. (2008), 'U.S. financial markets', testimony, September 23.
- Bernanke, B. and M. Gertler (1999), 'Monetary Policy and Asset Price Volatility', Federal Reserve Bank of Kansas City, *Quarterly Review*, December 1999.
- Bernanke, B. and M. Gertler (2001), 'How Should Central Bankers Respond to Asset Prices', *American Economic Review Papers and Proceedings*, 91: 253-7.
- Besley, T. (2009), 'Opening Remarks', Speech, February 17.

- Blanchflower, D. (2009a), 'Macroeconomic policy responses in the UK?', speeches, January 29.
- Borio, C. and P. Lowe (2002), 'Asset prices, financial and monetary stability: exploring the nexus', BIS Working Papers No.114.
- Borio, C. and W. White (2004), 'Whither monetary and financial stability? The implications of evolving policy regimes', BIS Working Papers No.147.
- Cecchetti, S., Genberg, H., Lipsky, J. and Wadhvani, S. (2000), *Asset Prices and Central Bank Policy*, Geneva Reports on the World Economy, No. 2, International Center for Monetary and Banking Studies and Centre for Economic Policy Research, July.
- Cecchetti, S., Genberg, H. and Wadhvani, S. (2002), 'Asset prices in a flexible inflation targeting framework', in Hunter, W.C., Kaufman, G.G. and Pomerleano, M. (eds), *Asset Price Bubbles: Implications for Monetary, Regulatory, and International Policies*, Cambridge, Mass., MIT Press, pp. 427–44.
- Crockett, A. (2003), 'International standard setting in financial supervision', Institute of Economic Affairs Lecture, February 5.
- Dale, S. (2009), 'Inflation targeting: learning the lessons from the financial crisis', Speech, June 23.
- European Central Bank (2005), 'Asset price bubbles and monetary policy', ECB Monthly Bulletin, April, pp.47-60.
- Gieve, J. (2008), 'The credit crunch and the UK economy', speech, September 22.
- Gieve, J. (2009), 'Seven lessons from the last three years', speech, September 22.
- Issing, O. (2003), 'Introductory statement', ECB workshop, 11/12 December.
- Issing, O. (2005), 'The monetary pillar of the ECB', Speech, June 3.
- Issing, O. (2009), 'In search of monetary stability: the evolution of monetary policy', BIS Working Paper No.273.
- King, M. (2002), 'The inflation target ten years on', speech, November 19.
- King, M. (2004), 'Comments', AEA Annual conference.
- Kohn, D. (2006), 'Monetary policy and asset prices', Speech, March 16.
- Kohn, D. (2008), 'Monetary policy and asset prices revisited', Speech, November 19.
- Loisel, O. and J.S. Mésonnier (2009), 'Les mesures non conventionnelles de politique monétaire face à la crise', Focus, Banque de France, No.1, April.
- Mishkin, F. (2008), 'How should we respond to asset price bubbles?', Speech, May 15.
- Papademos, L. (2004), 'The economic outlook and the ECB's monetary policy: some key issues', speech, November 11.
- Papademos, L. (2008a), 'Financial market excess and corrections: a central banker's perspective', June 26.
- Papademos, L. (2008b), 'Opening address', November 13.
- Papademos, L. (2009a), 'Monetary policy and the Great Crisis: lessons and challenges', May 14.
- Papademos, L. (2009b), 'Financial stability and macro-prudential supervision: objectives, instruments and the role of the ECB', September 4.
- Posen, A. (2003), 'It takes more than a bubble to become Japan', in A. Richards (ed), *Asset Prices and Monetary Policy*, Reserve Bank of Australia.
- Sentance, A. (2008), 'The current downturn – A burst without a boom?', Speech, December 9.
- Trichet, J.C. (2009), 'Credible alertness revisited', Speech, August 22.
- Tucker, P. (2006), 'Reflections on operating inflation targeting', speech, May 25.
- Tucker, p. (2008), 'The structure of regulations: lessons from the crisis of 2007', speech, March 3.
- White, W. (2006), 'Is price stability enough?', BIS working papers No. 205.