

A New Two-Pillar Strategy for the ECB

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1. Introduction

The financial crisis of 2007-08 called into question the mainstream view that price stability should be not merely the primary, but effectively the only objective of a central bank. After all, the major central banks, including the ECB, were quite successful in maintaining price stability during the last decade. Yet this remarkable success in keeping inflation low did not prevent a financial crisis from erupting. This leads to the question of whether *financial* stability is not equally important as an objective of the central bank.

Before the emergence of the crisis the standard response to that question was, first, that by maintaining price stability the central bank did all it could to maintain financial stability. In other words, price stability was seen as a strategy that would minimise the risk of financial instability. Second, the main responsibility for maintaining financial stability was in the hands of the supervisors and regulators.

There can be no doubt that the responsibility resting on the supervisors and regulators is a formidable one. But does this absolve the central bank from its responsibilities? To answer this question we have to formulate another one. Is it conceivable that there is a trade-off between price stability and financial stability (much in the same way as there can be a trade-off between price stability and output stability when supply shocks occur)? If there is none, the central bank can indeed claim that by maintaining price stability it does all it can to also maintain financial stability. If there is a trade-off between price stability and financial stability, the central bank will have to make a choice. In that case the issue arises of which of the two objectives should take precedence: price stability or financial

stability? We analyse how such a trade-off can arise in Section 2. Section 3 then turns to the issue of how to define and monitor financial stability. Section 4 looks at the policy instruments the ECB could deploy to maintain financial stability, and Section 5 concludes.

2. Is there a trade-off between price stability and financial stability?

Much of central banking has to do with resolving trade-offs. The one that has most occupied the attention of practitioners and theoreticians is the trade-off between inflation and unemployment (output growth). There is now general agreement that while in the short run a powerful trade-off exists; in the long run it vanishes. This is why central banks were given one target: price stability, and one instrument, namely the interest rate, to achieve it.

Is there a similar trade-off between inflation and financial stability? At first sight, there does not seem to be a similar trade-off to the one between price stability and unemployment. Thus, the choice faced by the central bank does not seem to be comparable to the choice between inflation and unemployment.

Nevertheless, trade-offs between inflation and financial stability may appear in a different form. Financial stability is a complex concept and more difficult to define than price stability, which can be summarised in a single number, namely CPI inflation. In what follows financial stability is taken to mean an absence of financial instability, i.e. a situation of distress that does not allow the financial and, in particular, the banking system to function normally.

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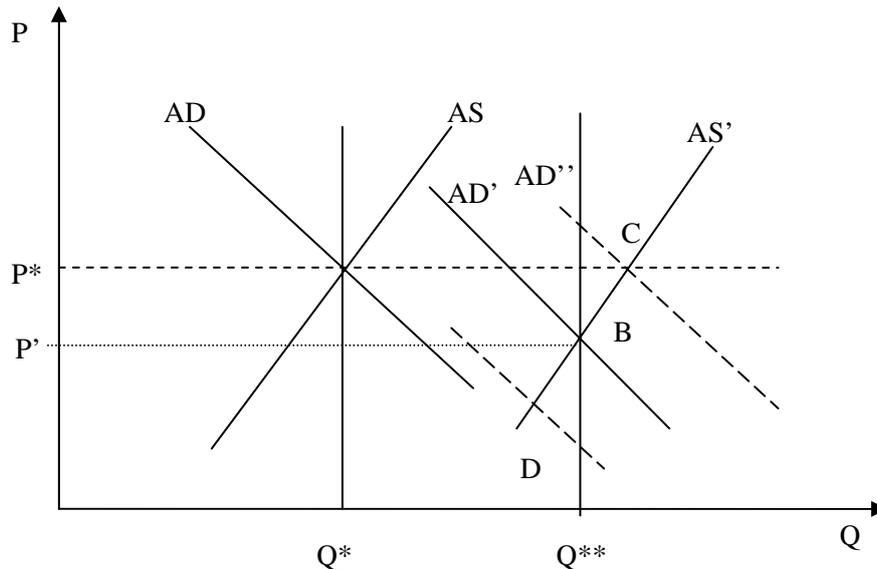
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In order to analyse these different trade-offs it is useful to trace how bubbles work through demand and supply, and in so doing, create trade-offs between inflation and financial stability.

Let's take the case of the IT-driven asset bubble of the late 1990s as our prototype bubble (see Kindleberger, 2000 for an analysis of similar technology-driven bubbles in history). A new

technology leads to great optimism about the future potential of that technology. This leads to large increases in stock prices. These reduce the cost of attracting capital, which in turn increases investment in these new technologies. The primary effect of such a shock is to increase productivity so that the aggregate supply curve shifts to the right.

Figure 1. The trade-off between price stability and financial stability due to a technology-driven shock



The same shock, however, also increases aggregate demand. New technologies create new products and thus lead consumers to spend more. We will assume here that the supply effect is larger than the demand effect, and show this scenario in Figure 1. The new technology shifts demand and supply to the right (from AD to AD' and AS to AS'), but the supply effect is stronger than the demand effect. As a result, in the new equilibrium given by point B, the aggregate price level has declined to P'. Much of the subsequent dynamics now depends on the policy regime. Suppose the central bank targets the price level at the level P*.¹ We then immediately see that the central bank will respond by a policy of monetary stimulus (lower interest rate, higher money stock) so as to raise demand and the price level from P' to P*. We show this by a shift of the demand curve from AD' to AD''. The economy settles at point C.

The result of this monetary accommodation is to keep the price level at its pre-technological shock,

P*. Thus the central bank maintains price stability. The monetary stimulus, however, also increases the level of the asset prices even further relative to the position that was attained when the price level was P'. This creates a risk that the asset price increase degenerates into a bubble. Since bubbles inevitably lead to crashes and since financial institutions are usually involved in asset price inflation financial stability is endangered.

There would thus appear to be a trade-off here between price stability and financial stability in the presence of a technology shock. The trade-off arises because the technology shock has the effect of reducing the aggregate price level. The central bank, however, targets a price level corresponding to the pre-technology shock. As a result, it is forced to react to the shock by a monetary stimulus, creating an environment that makes a bubble more likely, while keeping the price level unchanged.²

¹ Note that in practice the central bank targets inflation, but the argument could be phrased in terms of inflation.

² Borio (2003) argues that while low and stable inflation promotes financial stability, it also increases the likelihood that excess demand pressures show up first in

This analysis comes close to what Kindleberger has identified to be the main sources of the development of a bubble. These are first a technological revolution, and second a monetary accommodation. The two together make for the cocktail mix that in history most often leads to bubbles and later crashes.³

The equilibrium reached in point C is unsustainable (the long run equilibrium is in point B) and can therefore only be temporary. Output is beyond full capacity. It is sustained at that level by an interest rate that is too low and by the high level of asset prices that create a positive wealth effect on aggregate demand. Because point C is unsustainable a crash is inevitable. The crash leads to a decline in aggregate demand. It is likely to lead to an overreaction, as consumers and producers who have indebted themselves have to improve their balance sheets again. Thus the demand curve shifts to the left. A new (temporary) equilibrium is reached at point D. The economy is in a recession, with output at below full capacity. It should be noted that once at point D, the trade-off for the central bank disappears. The latter, by targeting the price level, will stimulate aggregate demand, thereby allowing the price level and the output level to increase. Whether this monetary stimulus is effective is another matter (not analysed here). Experience has shown that during major busts monetary stimulus may become ineffective (as a result of a liquidity trap, as in Japan in recent decades).

The analysis underlying Figure 1 stresses the importance of technological shocks. The latter were important in explaining the IT bubble of the late 1990s that crashed in 2001. Not all bubbles are technology-driven, however. The stock market bubble that started in 2003 and crashed in 2007-08 does not appear to have been driven by a technology shock. It is not fully clear how this bubble was triggered. It appears though that it was mainly caused by a combination of 'animal spirits', i.e. optimistic beliefs of investors, and excessive credit creation.

We analyse this case in Figure 2 because we believe this is the type of bubble most relevant to understanding the macroeconomic disequilibria in the euro zone during 2003-07. We start from the initial equilibrium at point C. A bubble is now set in motion as a result of 'animal spirits'. This raises

credit aggregates and asset prices, rather than in goods and services prices.

³ It is also the dynamics underlying the IT bubble during the second half of the 1990s. The US monetary authorities identified this shock as a productivity shock that tended to lower prices and thus made a monetary expansion desirable. See Greenspan (2007).

stock prices and lowers the cost of capital. The supply curve shifts down from AS to AS'. At the same time the bubble in asset markets raises aggregate demand due to wealth effects and to the increased availability of credit. The latter arises because the banks' balance sheets move upward with the bubble. The mechanism is that the higher price of assets increases the collateral value of these assets and thus the potential for bank credit. 'Mark-to-market' rules reinforce this effect (both during the upturn as later during bust). Moreover, in the benign economic environment (high growth, but stable prices) generated by a positive supply shock, as risk apparently has fallen, leverage increases. All this implies that for any given supply of capital to the banking system the availability of credit⁴ increases, which increases the opportunities for marginal (subprime) consumers to finance additional consumption (or the purchase of durable consumer goods like cars or houses).

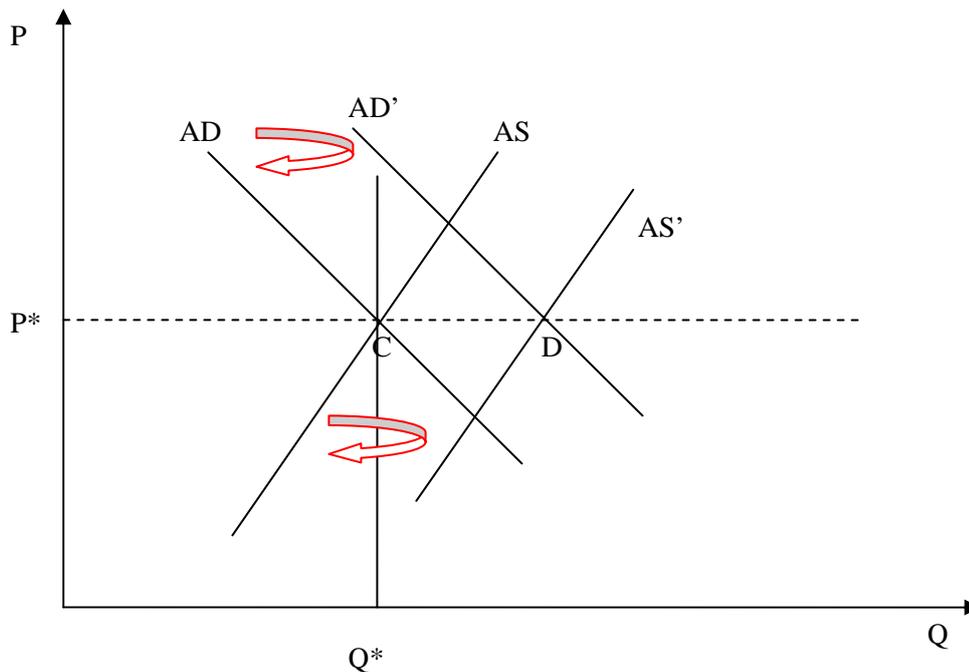
This increase in the availability of credit, also often dubbed 'liquidity' implies thus that aggregate demand curve shifts to the right, e.g. from AD to AD'. We assume that these two effects are of the same magnitude. It does not have to be, but we use this assumption because it presents a useful benchmark. Moreover, it appears to characterise the case of the euro area well since the external current account of the euro area has remained in rough equilibrium over the last ten years, suggesting that supply and demand have moved in parallel.⁵ The important general point is that both demand and supply shift. As a result, the central bank that is targeting P at the level P* decides that there is nothing to worry about.

There is, however, a lot to worry about. The expansion of output is unsustainable because it is based on credit creation, which is linked to artificially high asset valuations. In addition, in this process of excessive credit creation, households and firms accumulate excessive debt which will have to be scaled down. This happens when the bubble bursts. At that moment both demand and supply shift to the left. They will typically undershoot creating a recession. All this will lead to banking problems and a financial crisis as all the mechanisms that reinforced the availability of credit during the boom go into reverse.

⁴ See Brunnermeier et al. (2009).

⁵ The case of the US is obviously different. Its increasing current account deficit (until 2006 at least) shows that demand growth was higher than supply growth. For the US one would have to add to the model imports, which would render the supply curve (at least of tradables) much flatter.

Figure 2. The trade-off between price stability and financial stability due to 'animal spirits'



From the preceding analysis we conclude that important trade-offs between price stability and financial stability arise when technological developments trigger booms in asset markets or when 'animal spirits' create a cycle of booms and busts. A central bank that uses a lexicographic ordering favouring price stability over other objectives is likely to fuel the boom inadvertently (in the case of a technology-driven bubble) or will decide to do nothing (in the case of an 'animal spirit bubble') allowing a process of excessive credit creation. The latter is what happened during the last ten years. Major central banks (including the ECB) focused exclusively on price stability, and were quite successful in keeping inflation low. (The Federal Reserve did focus on financial stability only when financial markets (especially stock markets) fell and it had the feeling that a lack of availability of credit might hamper a recovery).⁶ They failed, however, to see the bubbles in asset markets that were threatening financial stability, and that they fuelled inadvertently by allowing excessive credit creation to develop. In doing this they failed to achieve their ultimate objectives. These are situations in which central banks should have put their inflation target aside so as to guarantee financial stability.

⁶ This approach is known in the literature as the 'benign neglect'. According to this view monetary authorities should deal with financial instability that may result from an asset bubble crash if and when the latter occurs. See Bordo & Jeanne (2002).

We also conclude that the lexicographic ordering of the objectives of the ECB should be abandoned. Strict inflation targeting cannot be maintained because it can conflict with financial stability. Our contention is that when such a conflict arises, the central bank should allow its inflation target to be overridden by the objective of financial stability (see Borio & Lowe, 2002 and White, 2006 for a similar conclusion).⁷ We do not suggest that the trade-off between price and financial stability is always present, but it is clear that this trade-off has been present over the last decade and has been neglected at great cost.

Promoting financial stability to a level at par with price stability creates a number of issues, however. We discuss two issues here. The first has to do with the definition and monitoring of financial stability; the second with the instruments a central bank, including the ECB, can use to reach the objective of financial stability. We will not deal with the possible legal issues that arise from the fact that the statutes of the ECB may have to be changed.

⁷ This is certainly not the mainstream view. The latter is represented by Svensson (2002) who argues that the central bank should focus on its objective of price stability with financial stability concerns only entering an extreme scenario when a crisis is underway. This was also the Greenspan (2007) view and was very much influenced by Bernanke & Gertler (2000).

3. How to define and to monitor financial stability

While the definition of price stability and thus its monitoring is relatively easy, this cannot be said of the objective of financial stability.⁸ Defining financial stability is more difficult than defining price stability because the former has different dimensions that do not lend themselves to be captured by one index in the way this is done to describe price stability. As a result, the monitoring of financial stability is also inherently more difficult than the monitoring of price stability (through the use of the Consumer Price Index).

The literature offers few formal definitions of financial stability. For example, Ferguson (2002) defines financial stability through its opposite: financial instability. Financial instability is a situation in which: “a) some important sets of financial asset prices seem to have diverged sharply from fundamentals; and/or b) market functioning and credit availability, domestically and perhaps internationally, have been significantly distorted; with the result that c) aggregate spending deviates (or is likely to deviate) significantly from the economy’s ability to produce.”

Borio & Lowe (2002) use a similar definition of financial instability. According to these authors, sustained rapid credit growth combined with large increases in asset prices increases the probability of an episode of financial instability (see also Borio, 2003). This view of the simultaneous occurrence of bubble-like developments in asset markets and excessive credit growth as twin indicators of threats to financial stability is also to be found in Kindleberger (2000) and formed the basis of our theoretical analysis.⁹

In a recent paper, Alessi & Detken (2008), argue that credit growth at the *global* level is a better predictor for the emergence of financial crisis than national credit growth. This means that the ECB should not be looking only at euro area variables when it wants to evaluate potential dangers to financial stability. Recent experience has shown that excessive mortgage lending in the US can lead to financial distress in Europe. An institution

⁸ We are not implying that the definition of price stability does not create problems. See De Grauwe (2007) for a discussion of this.

⁹ The ECB’s definition of financial stability is too vague to be useful in tying down its responsibilities. According to the ECB (2008, p. 117), “financial stability is a condition in which the financial system – comprising financial intermediaries, markets and market infrastructures – is capable of withstanding shocks and the unraveling of financial imbalances.”

concerned with financial stability in the euro area should have taken this into account when setting its own policy. Moreover, given that euro area variables constitute an important share of global averages this result still implies that euro area variables contain an important signal about potential risks for financial stability.

Thus by focusing on two types of variables, i.e. asset prices and credit growth, the monetary authorities can obtain important information about ongoing developments that can threaten financial stability.

We show the evidence of the most recent episode as an example.

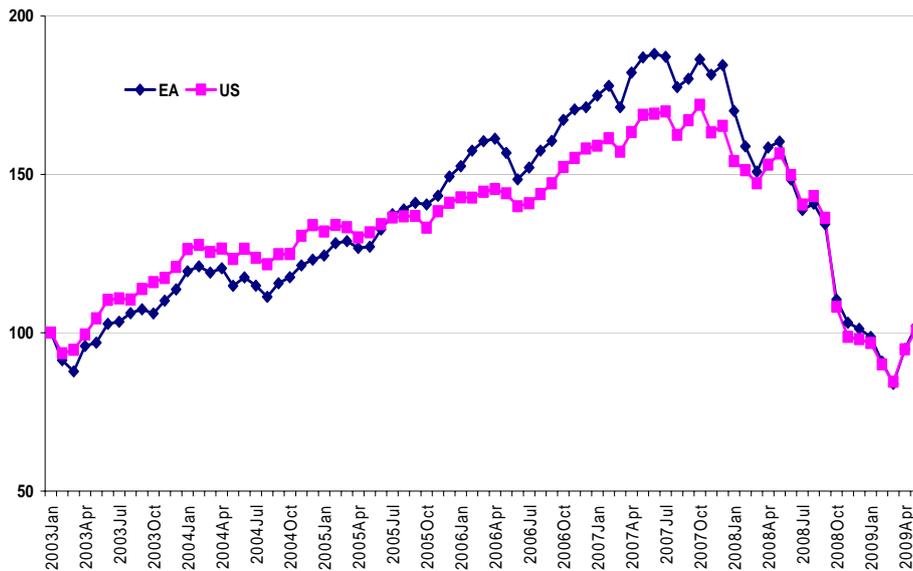
In Figure 3 we present the stock prices in the euro area and the US. In both cases we observe a bubble-like development from about 2003 onwards up to mid-2007, followed by a steep crash (for the US). Note that the bubble appears to have been as pronounced in the euro area as in the US.

The bubble in stock prices appears to have coincided with a strong acceleration of bank credit from 2003 on. We show the evidence for the euro area in Figure 4. We observe that the yearly growth rates of total bank loans in the euro area increased from less than 4% per year in 2003 to double-digit growth rates during 2006-07 (which was the period during which stock prices reached their peaks). Thus during the bubble in the euro stock markets from 2003 to 2007, during which stock prices almost doubled (as rents also increased the ratio of prices to rents shown above increased much less), bank credit in the euro zone increased by 60% (from 95% of euro area GDP to 115%).

Thus during the period 2003-07 statistical evidence was available to detect threats to financial stability.¹⁰ The period 2003-08 showed the classic combination of asset price booms fuelled by excessive bank credit, which ultimately leads to a crash and a financial crisis. (See also Borio, 2003 on this issue with more empirical evidence of the importance of these twin variables to explain subsequent financial crisis.) We conclude that it is possible for a central bank to monitor the risk of financial crisis by focusing on a limited number of indicators, i.e. on indices of stock prices, housing prices and bank credit.

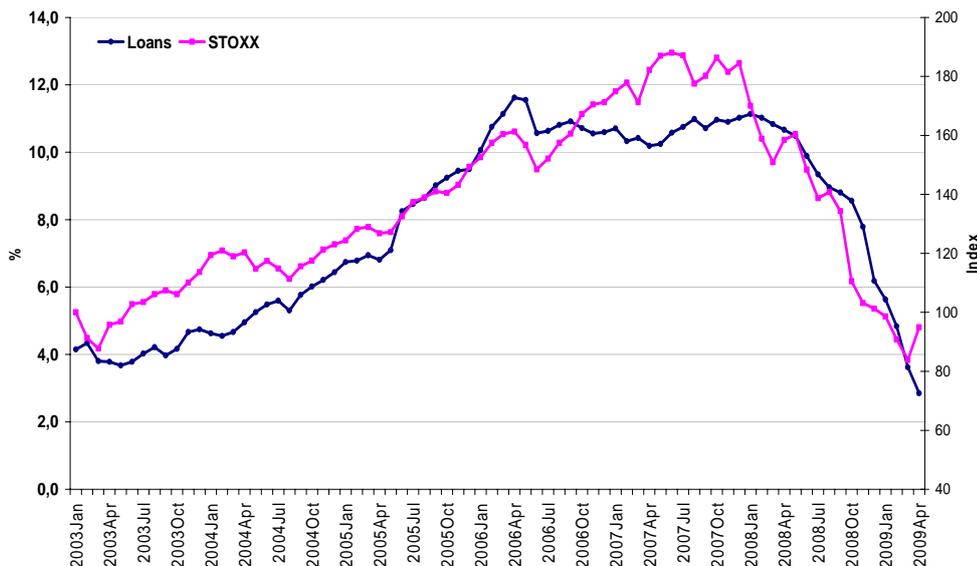
¹⁰ There were also observers at the BIS and in academia who, based on similar evidence, warned of imminent financial crises.

Figure 3. Stock price indices in the euro area (Euro-Stoxx-50) and in the US (S&P-500)



Source: European Central Bank, Statistical Data Base, various issues.

Figure 4. Growth rate of total bank loans (left) and stock price index (right) in the euro area



Source: European Central Bank, Statistical Data Base, various issues.

One issue that arises here is why central bankers in Europe (the ECB, the Bank of England) and the US (the Federal Reserve) placed so little weight on these indicators? There are probably many factors that have influenced the failure of central bankers to detect the threats to financial stability. There is one factor that we wish to stress here. Central Bankers were ‘fed intellectually’ by macroeconomic models developed in academia. These models were based on the assumption of perfectly informed and superbly rational agents who cannot make systematic errors, and who understand the great complexity of the world in which they live. In these

‘dynamic stochastic general equilibrium’ models (DSGE models) that are now widely used in central banks, bubbles and crashes cannot occur. Prices always reflect underlying fundamentals. There is no need to do anything about asset prices.

These models tell the policy-makers to focus on price stability and all the rest – growth and stability – will be given to them by the efficient working of the markets.¹¹ Such an intellectual framework can

¹¹ For a strong formulation of this view see Stark (2008) in a speech in November 2008: “The mandate of the ECB is to maintain price stability over the medium term. This

easily work as an intellectual device that prevents policy-makers from seeing emerging problems in the financial markets, because in the models these problems simply can not arise. And when they arise, they are just exogenous shocks that could not be foreseen.

4. Policy instruments for financial stability

Giving the responsibility for financial stability to central banks is one thing, providing the instruments to achieve the objective of financial stability is quite another. Clearly, with just one instrument: the interest rate, the central bank will have great difficulties achieving price stability and financial stability, let alone output stability. In fact, adding an objective without giving the central bank additional instruments to achieve that objective is not very sensible. In addition, without additional instruments it is difficult to make the central bank accountable for the additional objective.

Fortunately, there are instruments at the disposal of the central bank that can be used to maintain financial stability. These instruments are 1) legal reserve requirements and 2) macro-prudential control. We discuss these instruments below.

Legal reserve requirements

The ECB has the formal legal authority to impose the minimum reserve holdings by banks in the euro zone. It has, however, not used this variable as an instrument of monetary policy, and has not changed the levels of minimum reserves since the start of its operations.

Required reserves work like a tax on bank deposits because it forces banks to hold funds equal to a certain percentage (at present 2%) of their deposits with the central banks. In the euro zone reserve requirements are remunerated at close to market rates. This was done because it was feared that otherwise banking business would migrate outside the euro area. However, reserve requirements still work like a tax at the margin, as can be seen from the fact that during normal times banks do not leave any excess reserves with the ECB.

There is no reason why the ECB could not use this instrument in the context of its objective of

mandate must be adhered to both in normal times and in times of crisis. The monetary policy stance appropriate to fulfil our mandate depends exclusively on our assessment of the balance of risks to price stability, and nothing else. [...] There is no trade-off between price stability and financial stability". For another sceptical note on the existence of a trade-off between financial stability and price stability, see Bini-Smaghi (2008).

preserving financial stability. We propose that 2% would be the normal percentage to be used in normal times. During periods of excessive credit growth, like during the period 2003-07, the ECB could raise the minimum reserves to be held by banks to a higher level depending on the size of the credit growth. In so doing the ECB would increase the cost of extending bank credit and would discourage credit expansion in the banking system. Such an action would of course have been deeply unpopular with the banking system and might have led to some migration of deposits off shore. However, in light of recent events such a reaction might actually not have been contrary to the longer-term interests of the euro area.

If the ECB had increased reserve requirements (say from 2004 onwards) to rein in credit growth, deposits might have migrated to London. However, this would have actually made it easier to support the euro area banking system during the crisis as the fiscal cost of guaranteeing all these deposits would have had to be borne by the UK authorities.

Macro-prudential control

Macro-prudential control refers to the use of prudential control of the banks with the aim of achieving a macroeconomic outcome conducive to financial stability. The two instruments most often cited in this context are loan to value ratios and leverage ratios.

Some form of macro-prudential control has been applied by a number of national central banks (NCBs), most prominently by the Bank of Spain, which has implemented a system of counter-cyclical reserve accumulation that required banks to set aside more funds for bad debt than appeared to be needed during the boom (so called dynamic provisioning).

There is a consensus today that while this policy has not prevented a boom in the Spanish construction sector, it has mitigated the impact of the now ongoing bust in shielding the Spanish banking sector from taking excessive risks, thereby limiting the impact of the financial crisis on the sector.

The issue that arises here is whether such a macro-prudential control mechanism could be transferred to the ECB. Our opinion is that it can be done without having to change the statutes of the ECB. In our view a macro-prudential control exerted by the ECB should be restricted to the systemic banks that have activities throughout the euro zone.¹² The exact

¹² Several members of the Governing Council have recently proposed to give the ECB more authority in supervising the systemic banks. See the *Financial Times* (2009). The ECB position on financial stability in the past and during the current financial crisis can be found in

numbers of the banks that would fall into this category could be determined on the basis of objective criteria (mainly the size of cross-border, especially interbank operations).

Transferring the authority for banking supervision to the ECB would not require a change in the Treaty. A (unanimous) decision of the Council would be sufficient under Article 105 of the Treaty (Maastricht Treaty). This might be difficult to achieve, but an alternative route exists: the ECB could simply decide that it would deal only with banks whose solidity it can control itself. The ECB could then set simple criteria (e.g. overall leverage and liquidity ratios) and invite banks that wish to participate in its tenders to open their books to the appropriate department in the ECB. This would de facto create a group of 'clearing banks', which would have the explicit stamp of approval of the ECB. All financially strong banks would have an incentive to be part of this group so there would be no need to force them to open their books to the ECB, which would then, de facto, become a sort of supervisor to them (because it could take away access to its facilities if the bank does not fulfil its criteria).¹³

A new two-pillar system

The previous discussion allows us to propose a new two-pillar system for the ECB. This is a system in which the interest rate would continue to be used for achieving the inflation objective, while the other instruments (legal reserve requirements and macro-prudential control) would be used to achieve financial stability. Thus we propose a separation of the two sets of instruments which is akin to what the ECB has been doing since the start of the liquidity crisis in the summer of 2007, when it used the interest rate to achieve its macroeconomic objectives and used quantitative liquidity provisions independently from the interest rate decisions. This allowed the Eurosystem to provide all the necessary liquidity independently from the interest rate.

several sources: ECB press releases and publications (see for example ECB, 2008; Trichet, 2008, but also Cecchetti & Schoenholtz, 2008).

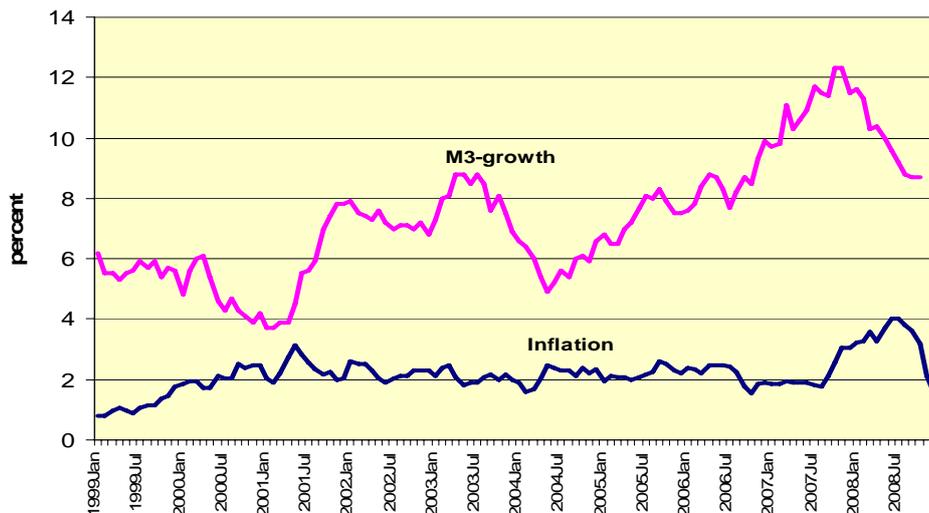
¹³ We are indebted to Tommaso Padoa Schioppa for pointing out this idea. We realise that it would require a decision of the ECB's Governing Council to implement this change. Unfortunately the national central bank presidents have a large majority on the Governing Council and they face a conflict of interest: this change might be in the interest of the ECB (and the eurozone), but might not be in the interest of 'their' banks, many of which might no longer qualify for access to the ECB's financing facilities.

A similar separation would be possible between the use of legal reserve requirements and macro-prudential control on the one hand, and the use of the interest rate on the other hand. Such a separation would allow the ECB to reserve the interest rate as the privileged instrument to control inflation (which is the present situation) and the other instruments, legal reserve requirements and macro-prudential controls, as the privileged instruments to maintain financial stability. The advantage of such a separation is that it would be easier for the ECB to handle the difficult trade-offs that can occur between financial stability and price stability.

Thus the ECB could have applied such a separation during the period 2003-07. This would have allowed it to set the interest rate as its privileged instrument to keep inflation within the target zone. At the same time, observing that bank credit was increasing in an unsustainable way and that this coincided with several bubbles in asset markets, the ECB could have increased the minimum reserve requirements, lowered the loan-to-value ratio, and imposed lower leverage ratios on systemic banks. There is little doubt that this would have reduced the expansion of bank credit during that period. Since a large part of the expansion of bank credit was channelled into asset markets (including housing markets) this would also have reduced the bubbles in these asset markets. The attractive feature of this separation of instruments is that the ECB could have achieved this without the need to raise the interest rate. This is an important advantage, because the use of the interest rate to counter asset bubbles encounters a lot of political opposition and criticism.

It will be remembered that in its initial monetary policy strategy, the ECB had set the growth rate of M3 as a reference value (intermediate target) for guiding the economy towards price stability. It is clear that this strategy has failed, as can be seen from Figure 5. We observe that the growth rate of M3 by far exceeded the reference value of 4.5% which was the number the ECB announced to be the maximum that should not be exceeded if the inflation target of 2% is to be achieved. The facts are that the ECB came very close to achieving its inflation objective during 1999-2008 (it was 2.2% on average per year) while the growth rate of M3 wildly exceeded the 4.5% benchmark (it was 7.4% on average per year).

Figure 5. Inflation and money growth (M3) in the euro area



Source: ECB, Monthly Bulletin.

The failure to control the growth rate of monetary and credit aggregates, while inflation was very close to the objective of 2%, is related to the phenomenon documented earlier, i.e. the excessive expansion of bank credit that was channelled mainly into asset markets, while leaving goods markets relatively unaffected. The two-pillar strategy proposed here would have solved this problem and kept the growth rate of M3 (and of bank credit) under control while not driving the interest to very high levels.

Monetary and credit aggregates refer to two different sides of the balance sheet of banks, however, in reality they tend to move together. We illustrate this in two ways. Figure 6 shows the

growth rate of M3 and two credit aggregates *relative to GDP* because only strong increases in this ratio signal dangers to financial stability (if credit growth is in line with nominal GDP there is no increase in leverage and hence no danger to price stability). It is apparent that since 2003 the ratios of money and credit relative to GDP were increasing every year, and at an increasing rate (until 2008).

Table 1 shows the correlation coefficients between the ratios of M3 to GDP and different ratios of loans to GDP. We observe that these correlations are very high, which again is not surprising as they are different sides of the banks' balance sheets.

Figure 6. Monetary and credit aggregates in the euro area: Loans, M3 and total assets (annual growth rates of ratios to GDP)

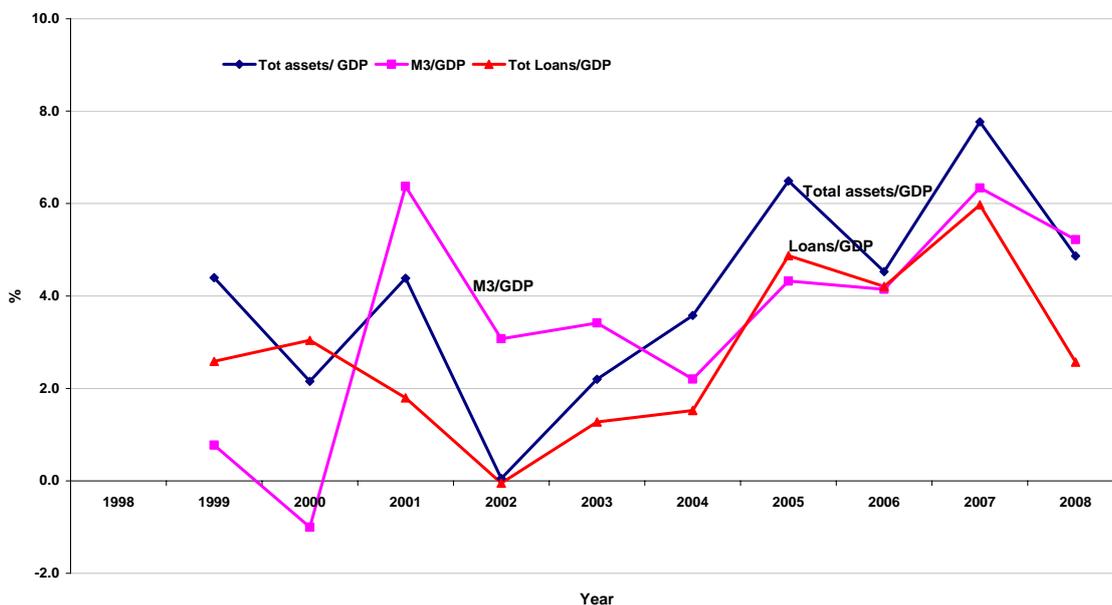


Table 1. Correlations between M3 and loans

	Total assets/ GDP	M3/GDP	Loans/GDP
Tot assets/GDP	1		
M3/GDP	0.99	1.00	
Tot Loans/GDP	1.00	0.98	1.00

It is thus not surprising that in reality the ratios of credit aggregates to M3 (the credit/money multipliers) have been roughly constant. This suggests that the warning signs that one would have detected from looking at M3 would have been identical to those coming from broader credit aggregates. However, the ECB did not detect dangers for financial stability because of its exclusive focus on price stability.

We conclude that financial stability can become an explicit objective of the central bank. In addition, the central bank has a number of instruments that can be geared towards this objective. There remains, of course, the distribution of responsibilities between the supervisors and the central bank. We have argued that part of the supervisory responsibility (macroprudential control) can be transferred to the ECB. The ECB would then have powerful instruments (including legal reserve requirements) that would allow it to control the growth rate of bank credit. By narrowing down the ECB's responsibility to bank credit, the ECB could also be made accountable for excessive growth in bank credit.

Our proposal does not in any way diminish the need to strengthen the supervisory framework in the euro zone. The ECB alone cannot guarantee financial stability. There is a need for a more effective supervision in the eurozone. In order to achieve greater effectiveness of the supervisory framework some further centralisation of supervision will be necessary. The de Larosière report (2009) provides a blueprint for such a stronger and more effective supervision in the euro zone.

5. Concluding remarks

We have argued that financial stability should be an objective of the ECB which is at par with its 'primary' objective of price stability and that at times there might be conflict between price and financial stability. We did not argue that this is always the case. However, booms and busts in financial markets have had a major influence on the global economy over the last decade. Preventing them must thus be a major task of public policy.

The experience of the 1970s and 1980s showed that maintaining price stability in the face of unfavourable external shocks required never-ending vigilance and the courage to take unpopular

decisions at times. The experience of the 1990s and the first decade of this century should remind us that maintaining financial stability also requires constant vigilance and even more political courage since measures to stop bubbles are also deeply unpopular and have to be taken when the danger to financial stability is least apparent. Moreover, it is never straightforward to diagnose a bubble. A central bank that has also among its explicit objectives financial stability might thus at times be wrong. It could thus be seen as stifling the developments of financial markets without a good reason.

However, if one wants to reduce the likelihood of future major financial busts in the euro area one should accept that the ECB cannot only be responsible for price stability. Maintaining financial stability by preventing excesses in financial markets should be an equally important objective.

While the objective of price stability can be quantified relatively easily this is much less the case with financial stability. Thus the pursuit of financial stability as an objective of the central bank involves more judgement. We argued though that the trends in two variables, asset prices and bank credit, usually provide a sound basis for the detection of dangers to financial instability.

It is important to stress here that conflicts between the two objectives of price stability and financial stability can be resolved by making it possible for the ECB to use two instruments. This is the separation principle we propose. The ECB could continue to use the interest rate to achieve its inflation target while using reserve requirements and macroprudential controls to maintain financial stability.

There is little reason to fear that this change would lead to higher inflationary expectations (or in general to an un-anchoring of expectations). On the contrary, markets would then know that the ECB would have an instrument to prevent asset bubbles from getting out of hand, which should stabilise expectations.

Following the European Council meeting of June 2009 the EU has embarked on the creation of a European Systemic Risk Council (ESRC, as proposed originally in the de Larosière Report) whose main task will be to monitor systemic risk in the financial system of the EU. It is foreseen that the ECB will be closely involved in the running of the ESRC. However, this new institution will only be able to issue recommendations. It will in all likelihood not have any instruments to prevent dangers to financial stability. The establishment of the ESRC thus does not diminish in any way the need to update the mandate for the ECB by adding financial stability as a second key objective.

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