# THE MONETARY PILLAR AND THE GREAT FINANCIAL CRISIS[1]

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## I INTRODUCTION

The Great Financial Crisis that has swept the global economy since mid-2007 and whose strong ripples are still being felt, has posed serious challenges for central banks. The European Central Bank (ECB) has been no exception. The nature of both the challenges and the responses that they have triggered has had (and keeps having) several dimensions: the need for stimulus, coping with dysfunctional money markets, bank support, the ongoing debt crisis, etc. Rather than attempting an overarching review of the possible lessons from the crisis for monetary policy, I will focus on a much narrower aspect, one that is largely specific to the ECB: the performance of the so-called monetary pillar during the crisis and the lessons that we can draw from the latter regarding the "future of money" at the ECB.

Over the past six years, which include both the financial crisis episode and the run-up to it, the euro area has experienced large and persistent swings in M3 growth. This is clearly illustrated by Chart 1, which displays the annual growth rate of M3 since the birth of the euro in January 1999.

Thus, between May 2004 and October 2007 annual M3 growth in the euro area increased from 5% to 12.5%, an increase of more than 7 percentage points, leading to an eventual 8 percentage point deviation from the reference value of 4.5%. Since then, it has declined gradually but steadily. At the time of the fall of Lehman in September 2008, annual M3 growth was already down to 8.7%. It has kept declining ever since, almost monotonically. It turned negative in November 2009 for the first time since the creation of the euro. In March 2010 (the latest month with available data) it stood at -0.1%, implying a negative deviation from the reference value of nearly 5 percentage points. The peak-to-trough decline in the growth rate during the recent episode has thus been of more than 12 percentage points. That experience provides the material for a "case study" that may shed some light on the potential advantages and drawbacks of the monetary analysis at the ECB.

Such large and highly persistent swings in M3 growth should have raised concerns at the ECB, for the main tenet of the monetary pillar is that shifts in "underlying monetary growth" are expected to bring about inflationary (or deflationary) pressures in the medium to long run, thus imperiling the goal of price stability. But have those concerns been raised in practice at the ECB,

1 I thank Axel Weber, Lars Svensson and conference participants for their comments, and Tomaz Cajner and Lien Laureys for excellent research assistance.

**Chart 1 M3 growth in the euro area**


Source: ECB.

and have they influenced its policy? Or is the evolution of money growth effectively viewed as a sideshow, to which some lip service has to be paid to? As I discuss below, a reading of the monthly bulletins, including the articles devoted to this specific issue do not provide, in my view, a clear answer to those questions.

Before I turn to that discussion, I provide some background on the monetary pillar, as well as a quick summary of some of the main criticisms it has drawn.

## 2 THE TWO-PILLAR STRATEGY OF THE ECB

### 2.1 BACKGROUND

Since its inception, a most distinctive – and controversial--feature of the ECB monetary policy strategy has been its "two-pillar" structure. As explained at its announcement on 13 October 1998, that strategy consists, in addition to a quantitative definition of price stability, of two key elements:

- A prominent role for money, with a reference value for the growth of a monetary aggregate (the "monetary pillar")

- A broad-based assessment of the outlook for price developments (the "economic" pillar)

In December 1998 the Governing Council announced a reference value for M3 growth of 4.5% per annum, a rate deemed consistent with the ECB's

own definition of price stability.[2] The ECB made clear from the time of the announcement of its strategy that the reference value should *not* be taken as a target, but only as a benchmark. Deviations from that value should thus not lead to an automatic adjustment of monetary policy, but instead they should prompt further analysis to identify the nature of that deviation, and its implied risks to price stability.

Despite this important qualification, the large and persistent deviations of M3 growth from that benchmark, shown in Chart 1, have not gone unnoticed, and the ECB has made a considerable effort to offer an explanation of their nature and the extent to which they constitute or not a threat to price stability.

In particular, and at least since the review of its monetary policy strategy in 2003, the ECB has chosen not to attach much weight to raw measures of M3 growth, aiming instead much of its monetary analysis effort at uncovering potential shifts in "underlying monetary growth." The latter is viewed by the ECB as the relevant factor for the assessment of the risks to price stability in the medium-to-long term. Uncovering potential shifts in "underlying monetary growth" involves a broad-based analysis of monetary developments, encompassing a detailed study of "the components and counterparts of M3, including loans to the private sector, and various money gap measures and concepts of excess liquidity" (ECB (2003)). Whether the concept of "underlying monetary growth" is a well defined one and has been applied in a consistent manner by the ECB is the subject of further discussion below.

## 2.2 THE MONETARY PILLAR AND ITS CRITICS

Since the inception of the ECB, a majority of academic economists have expressed skepticism about the two-pillar structure of its strategy.[3] In particular, the critics have questioned the need for, and the desirability, of a separate monetary pillar, both on theoretical and practical grounds. Next I summarize the main criticisms, before addressing the questions raised above regarding the role of the monetary pillar in the crisis and its aftermath.

A first and, in my view, most fundamental criticism of the monetary pillar has aimed at its justification based on Friedman's celebrated dictum that "inflation is always and everywhere a monetary phenomenon" along with the evidence, presented in its support, of a strong long-run correlation between money growth and inflation.[4] But, as it has been argued by many authors, neither the dictum nor the companion evidence imply that a central bank must necessarily target or even monitor closely the evolution of monetary aggregates in order to keep price inflation close to a pre-specified target level. The latter proposition is clearly borne by modern monetary analysis, which illustrates how a variety of policy

2 The reference value was determined under the assumptions of an average growth rate of potential GDP of 2-2.5% and an average decline in velocity of 0.5-1% each year.

3 See, e.g., Svensson (1999), Galí (2003, 2008), Alesina et al. (2001), Galí et al. (2003), and Woodford (2008, 2009), among many others.

4 See, e.g. Papademos (2008) for a description of the theoretical and empirical case for the monetary pillar.

rules may achieve an acceptable degree of price stability, with no reference whatsoever to monetary aggregates. Furthermore, such policy rules can be generally shown to be more efficient at achieving the central bank's desired price/output gap objectives than conventional monetary targeting rules, especially (but not exclusively) in the face of large money demand disturbances.[5] Instead, the observed high long-run correlation between money growth and inflation can be interpreted, through the lens of modern monetary theory, as an unavoidable consequence of equilibrium, given a reasonably stable demand for real balances by households and firms. It is no different in that regard from the evidence of a high long-run correlation between inflation and the nominal interest rate or the rate of exchange rate depreciation, even though that evidence has not been used to justify the existence of an interest rate or an exchange rate "pillar" as part of the ECB monetary policy strategy.

A second criticism of the ECB two-pillar strategy has focused on the dilemma that significant discrepancies between the diagnoses arising from the two pillars could potentially pose on policymakers. Thus, and at least on paper, it is not obvious how the ECB should respond to a situation in which the outcome of both the monetary and economic analyses pointed to strong threats to price stability, but of an *opposite* sign.

Possibly due to its relatively short life, the ECB has not had to live through a dilemma in such stark terms. Yet, one can uncover several instances in which a strong acceleration of M3 and other monetary aggregates should have signaled the presence of inflationary pressures, even though the latter were not backed by the outcome of the "economic analysis." In none of those instances, however, the signals from the monetary analysis seem to have been given much weight in actual monetary policy decisions. And in at least one of them--namely, the period between April 2001 and July 2003--the inflationary pressures signaled by a strong and persistent acceleration of monetary aggregates were altogether ignored if one is to be guided by the fact that they were met by a round of interest rate cuts that brought the policy rate down to 2% from an all-time high 4.75% level.

It is a widely held view among academic economists (which I largely share) that the monetary policy stance of the ECB, as reflected in its interest rate decisions, has been, in general terms, appropriate, i.e. in accordance with a conventional economic analysis of the medium-term risks to price stability facing the euro area at each point in time. In other words, I believe it would be very hard for an external observer to point to specific decisions that would not have been taken had the ECB followed a "conventional" inflation targeting strategy, attaching no distinctive weight to monetary developments. Yet, the fact that monetary factors may not have influenced significantly the policy decisions of the ECB (at least up to this date) does not necessarily render the monetary pillar totally innocuous. To the extent that monetary policy consists of "expectations management" more than anything else, the conspicuous presence of the monetary pillar in ECB communications (e.g. as a fixture of the editorial of the monthly bulletin, and the subject of a full chapter of the monthly bulletin) could be a source of noise that could potentially distort the

5 See chapter 4 in Galí (2008a).

public understanding of ECB policies, rendering the latter less effective. Whether this has occurred in practice, and to what degree, is an open issue.

A final criticism that has been raised regarding the role of money in the ECB strategy pertains to the use of monetary aggregates as explanatory variables in reduced form forecasting equations for inflation. As argued by Fischer et al. (2008) in their detailed account of the monetary analysis at the ECB, the fact that some monetary aggregates appear to have predictive power for future inflation, above and beyond that of other macro variables, had led to a newfound role for money in recent years (at least before the recent crisis), and one that had become increasingly important. But, while it is hard to deny that potentially useful role for money and its relevance in informing monetary policy decisions, it is not obvious why this would make money special and deserving of its own "pillar" relative to other macro variables that have similar properties. Leaving that formal question aside, in my discussion of Fischer et al. (2008) I raised two weaknesses regarding the forecasting role of money.[6] Firstly, while money-based forecasts seem to get the mean of inflation more or less right, their performance at tracking future movements in that variable seems rather poor. This should not be viewed as surprising in an environment in which inflation displays relatively small and transitory fluctuations around its target. Secondly, reduced form forecasting equations involving inflation and money growth do not represent a structural relationship. As a result their coefficients are likely to vary over time as a result of structural changes in the economy, including changes in the monetary policy regime or as a result of instability of money demand equations. Thus, money may have predictive power for inflation over a certain period, but may lose it after a while. This is precisely what may have occurred in the euro area: much of the significance of adjusted M3 growth in the bivariate inflation-forecasting equations considered by Fischer et al. (2008) seems to originate in the strong low frequency comovement between those two variables during the 80s, a property which seemed to have vanished by the 1990s and early 2000s.

## 3 THE MONETARY PILLAR IN PRACTICE

The ECB has described in some detail the role played by its monetary analysis during the recent crisis in ECB (2009). A similar description, applied to the period leading to the crisis can be found in ECB (2007). In addition, a real-time perspective of the outcome of the monetary analysis during the crisis can be found in the ECB's Monthly Bulletin, whose Editorial invariably includes an early paragraph summarizing the conclusions of that analysis that are relevant to policy, with the more detailed description of the underlying analysis being found in Section 2 of the same publication.

A reading of those publications sheds some light on what monetary analysis at the ECB is about in practice and, in particular, on how that analysis may have helped the ECB interpret some key developments during the recent financial crisis and the period leading to it.

6 See Galí (2008b).

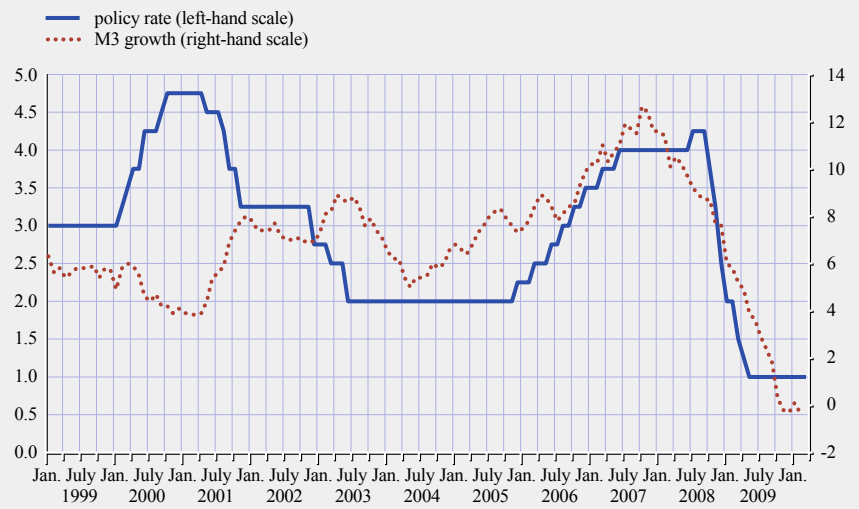
What follows offers my personal interpretation of the monetary analysis at the ECB, its content, objectives and potential uses, with a focus on the recent crisis episode and the run-up to it. Needless to say, many of my observations are likely to be inaccurate or plain wrong. But in all cases they reflect what I view as an objective reading of the documentation available to the public.

## 3.1 THE MONETARY ACCELERATION IN THE RUN-UP TO THE GREAT FINANCIAL CRISIS

Starting sometime in mid-2004, the euro area began to experience a rapid increase in the growth rate of M3 and other monetary and credit aggregates, i.e. a "monetary acceleration". More specifically, between May 2004 and October 2007 annual M3 growth in the euro area increased from 5% to 12.5%, an increase of more than 7 percentage points, leading to an eventual 8 percentage point deviation from the 4.5% reference value.

That monetary acceleration led the Governing Council, as early as the fall of 2004, to identify growing upside risks to price stability on the basis of its monetary analysis. In later statements the ECB pointed to that diagnosis as a key input to the Governing Council's decision in December 2005 to start raising its policy rate, after a two-year long spell with the latter unchanged at a 2% level. At the time the decision to raise the policy rate was made, the annual growth rate of M3 was standing at 7.3%, having reached a level of 8.3% in September. The sequence of interest rate rises, from a low of 2% in December 2005 to 4% in June 2007, did not prevent a further acceleration of M3, whose growth rate reached a peak of 12.5% in the fall of 2007. This is clearly illustrated in Chart 2, which plots both the policy rate and the annual growth rate of M3 from January 1999 to the present.

**Chart 2 M3 growth and the policy rate**




Source: ECB.

The ECB's explanation for the monetary acceleration since mid-2004 stressed the following factors:

- The low level of short-term interest rates and a flattening of the yield curve combined to lower the opportunity cost of holding monetary assets. Though the observed decline in velocity was larger than in similar past episodes, this could have been due to a higher sensitivity of money demand to interest rate changes in an environment characterized by low interest rates. The overall conclusion seemed to be that conventional money demand determinants can account reasonably well for changes in M3 growth, as well as shifts between components of M3 (in particular, the varying contribution of M1 to that growth).

- Some additional, less-conventional factors that may have also accounted for the strength of M3 include (i) the creation of "retail derivatives," (structured deposits and the like), (ii) the increase in the demand for deposits by non-monetary financial intermediaries linked to banks through loan securitization schemes, (iii) the expansion of monetary assets associated with transactions with the rest of the world, in an environment with high global liquidity, (iv) the rapid expansion of overall wealth, driven by the boom in stock and housing prices, and, especially relevant after the rise in short-term rates, (v) an increase in the demand for short-term deposits and related assets for portfolio management reasons, due to the risk of capital losses on longer term bonds.

Interestingly, and as shown in Chart 2, another episode of robust monetary acceleration had taken place in the euro area between 2001 and 2003. In particular, annual M3 growth reached a peak of 8.9% in April 2003, i.e. a growth rate slightly above that observed in December 2005. Yet, the former episode was accompanied by a loosening of monetary policy, as reflected in a series of interest rate cuts, from a level of 4.75% down to 2%.

What led the ECB to conclude that the observed monetary expansion posed some risks to price stability that would justify the rise in interest rates in the recent episode? Why was the apparently similar monetary acceleration of 2001-2003 viewed as benign and, even more, consistent with the downward risks to price stability identified by the economic analysis?

The discussion in ECB (2007) suggests that the differential diagnosis was based on the following observations, regarding the underlying components and counterparts:

- M3 growth in the recent episode was mainly driven by high growth in M1, its *most liquid* component. By contrast, in 2001-2003 it was largely driven by "marketable instruments" included in M3-M2, and arguably the least liquid component of M3.

- From a sectoral perspective, the increase in M3 growth starting in mid-2004 was driven by strong growth in the deposits of non-financial corporations and

non-monetary financial intermediaries, along with a more gradual, but steady growth in household deposits. This is interpreted as signaling a potential shift in underlying trends. By contrast, during the 2001-2003 episode, the bulk of the increase in M3 growth resulted from a dramatic and sudden rise in household deposits, caused by the flight to safety in an environment characterized by heightened financial market volatility.

- Looking at M3 counterparts, the increase in M3 growth in the run-up to the crisis has come hand in hand with an increase in the growth rate of loans to households and non-financial corporations. By contrast, growth of loans during the 2001-2003 showed a declining pattern, consistent with an environment characterized by weak consumer and business confidence and relative stagnation of economic activity.

The outcome of the monetary analysis, summarized above, led the ECB, as early as mid-2005, to the conclusion, that "the strengthening of monetary growth signaled clear medium to longer-term risks to price stability," thus contributing, according to the ECB itself, to the decision to start raising interest rates in December 2005. Was that conclusion founded? And if so, were the arguments leading to that conclusion consistent with the intellectual framework underpinning the monetary pillar? Before I try to address these questions I summarize the ECB's analysis of monetary developments during the crisis episode, starting in mid-2007, and up to the present.

## 3.2 THE MONETARY DECELERATION DURING THE GREAT FINANCIAL CRISIS AND BEYOND

Conventional accounts of the Great Financial Crisis take August 2007 as the date marking the beginning of the period of financial turmoil. Annual M3 growth in that month had already reached a rate of 11.7%, and would keep increasing until it reached a maximum of 12.5% in October of the same year. After that, it declined gradually but steadily. At the time of the fall of Lehman in September 2008, annual M3 growth was already down to 8.7%. It has kept declining ever since, almost monotonically, despite the (mild) turnaround in GDP by mid-2009, and the end of the short-lived period of negative HICP inflation. M3 growth in the euro area turned negative in November 2009 for the first time since the creation of the euro. In March 2010 (the latest month with available data at the time of writing) it stood at -0.1%, implying a deviation from the reference value of nearly 5 percentage points. The peak-to-trough decline in the growth rate during the recent episode has thus been of nearly 13 percentage points.

The analysis of the monetary developments by the ECB during this period, described in detail in ECB (2009), led it to conclude that "monetary trends point to subdued inflationary pressures, but not to a deflationary outcome." This assessment has been confirmed by more recent statements once M3 growth had already shown negative readings for several months. Thus, the Monthly Bulletin of April 2010 states that "the underlying pace of monetary expansion is moderate and that, in the medium term, the inflationary pressures associated

with monetary developments are low." "All in all", it concludes, "the Governing Council expects price stability to be maintained over the medium term." In other words, the existence of an unprecedented monetary implosion does not trigger any concerns about possible deviations on the downside from the price stability objective, including the possibility of deflation.

In order to justify such conclusions, the ECB argues that "aggregate M3 growth is likely to have overstated the decline in the underlying rate of monetary expansion" (ECB (2009)). According to the ECB, there are a number of factors that warrant that assessment:

- The decline in economic activity experienced by the euro area since the spring of 2008 can account for the moderation in the growth of monetary assets. In particular, this is a likely factor behind the strong decline in M3 holdings by non-financial corporations, which tend to be more cyclical.

- The steepening of the yield curve, due to the decline in short-term interest rates, has raised the opportunity cost of holding M3 assets, and induced portfolio reallocations into non-monetary assets, especially among non-monetary financial intermediaries, which are particularly sensitive to changes in the configuration of interest rates.

- The higher uncertainty regarding future economic and financial conditions should be expected to increase monetary holding for precautionary reasons. This may account for the resilience in households' M3 growth, and may be reflected by the strong one-off increase in currency holdings after the intensification of the financial turmoil in the fall of 2008. But this has been more than offset by the large outflows from short-term deposits, due to the rising opportunity cost.

- Holdings of M3 by households – which are argued to have a stronger and more immediate link with consumer price inflation than corporate holdings – continue to exhibit more resilient growth.

- A protracted period of low or even negative growth may be required in order to unwind the excess monetary balances built over recent years.

The previous observations have led the ECB to downplay the steady decline in M3 growth over the past two years, notwithstanding the fact that the current growth rate has been hovering about a plateau well below the reference value of 4.5% for several months at the time of writing this piece. Even though no explicit measures of "underlying monetary growth" are reported by the ECB, they must be sufficiently high not to warrant any warnings of risks to price stability in the medium run.

Having described succinctly the key elements and outcome of the ECB analysis of monetary developments in the euro area over the past few years, including the crisis and the run-up to it, I next turn to a critical discussion of that analysis.

## 3.3 DISCUSSION

The analysis by the ECB of euro area monetary developments before and during the financial crisis episode, summarized above and discussed in more detail in ECB (2007, 2009), can be largely viewed as a multi-faceted effort to understand the factors behind variations over time in M3 growth. The analysis combines various formal models (which are not always made explicit) as well as detailed, more qualitative, institutional information, and includes a more or less systematic analysis of the evolution of the M3 components, counterparts and sectoral distribution. The ultimate goal of that analysis is to detect potential shifts in "underlying monetary trends" that could pose risks to price stability in the medium to long-term.

My concerns with such "monetary analysis in practice," as illustrated by its working over recent years, are manifold. But they can be summarized in the following proposition: *The concept of "underlying monetary growth" does not seem well defined, in practice*. More specifically, it appears to take different meanings at different times.

Thus, the notion of underlying money growth is sometimes presented as a "statistical" concept, corresponding to the permanent (or unit root) component in M3 growth (e.g. ECB (2009), Chart 3 and related discussion). Since an important component of short-term fluctuations in M3 is the result of transitory variations in the "regular" factors explaining money demand (the pace of economic activity and the opportunity cost of holding monetary assets), as well as other "extraordinary" factors that may be specific to a given episode (e.g., possible portfolio shifts triggered by increased uncertainty in the wake of the Lehman collapse), uncovering and analyzing the behavior of both those "regular" and "extraordinary" factors may help assess the extent to which observed variations in M3 growth are likely to be permanent or not and, hence, whether they may represent a genuine shift in underlying monetary trends or not.

On other occasions, however, the emphasis is placed on a more qualitative assessment of the "content" of M3 growth, one that gives unequal weights to different components. Thus, the behavior of M1 is sometimes given a special weight in the discussion, given its "stronger liquidity." Thus, for instance, the differential behavior of M1 is pointed to as the first reason why the acceleration in M3 after 2004, but not that between 2001 and 2003, is perceived as a risk to price stability (see, e.g., ECB (2007)). Similarly, the risks to price stability associated with the recent deceleration of M3 growth have been downplayed on the grounds that "holdings of M3 by households – which have a stronger and more immediate link with consumer price inflation--continue to exhibit more resilient growth." Under that view, the analysis of the components and counterparts of M3 – rather than the evolution of the latter variable itself-- would take center stage, in the monetary analysis.

Of course, the often emphasized *broad-based* nature of the ECB monetary analysis may be such that all those dimensions are taken into account simultaneously, and that any attempts by an outsider to reduce it to a single variable or indicator is

necessarily bound to provide a oversimplified – and hence distorted – view of the nature of that analysis and its uses by the ECB.

But if such broad-based view is to be meaningful, each of its elements or dimensions must have *some* merit when considered in isolation, even if none may be decisive in itself. Whether this is true in the case in the case at hand, however, is not clear. For the sake of concreteness let me focus on the two perspectives mentioned above to argue my point.

First, it is not clear why a permanent change in M3 growth should necessarily signal a risk to price stability, at any horizon. To illustrate this, assume a stylized money demand function

$$m_t - p_t = y_t - \eta i_t + \xi_t$$

where $m$ denotes (log) nominal money holdings, $p$ denotes the (log) price level, $y$ is (log) output, $i$ is the relevant nominal interest rate and $\xi$ is an exogenous liquidity preference shifter. Taking first differences, and evaluating the previous condition along a steady growth path we have

$$\Delta m = \Delta p + \Delta y + \Delta \xi$$

It should be clear that permanent changes in average output growth ($\Delta y$) and/or velocity growth (which corresponds to minus $\Delta\xi$) *require* a permanent change in average money growth if average inflation is to remain unaltered. Stationarity in output or velocity growth may often be a convenient assumption in theoretical macro models. In practice, however, permanent changes in trend GDP growth or velocity growth are not only possible but likely: there is no reason to believe that either variable must necessarily revert back to some constant value, determined by some deep, time-invarying factors. To illustrate this point, note that when determining its reference value for M3 growth (December 1998), the ECB assumed a trend GDP growth in the range of 2-2.5%, and an average annual decline in velocity of 0.5-1%. By way of contrast, over its first eleven years, the euro area has experienced an average GDP growth of 1.4% and an average decline in velocity of 3.6%, both representing quantitatively important deviations from the original assumptions. Neither deviation has prevented the ECB from keeping inflation close to its 2% target, though this has required accommodating an average annual M3 growth of 7%. Since there is no reason to rule out further permanent changes in either trend GDP growth and/or trend velocity growth, it is hard to think of a justification for allocating much effort at trying to identify potential permanent changes in M3 growth, since the latter are unlikely to signal by themselves any risks to price stability at any horizon.

The previous criticism can be re-stated as follows. As long as the ECB is successful at stabilizing inflation in the medium-term (as it has been until now) inflation will display short-lived fluctuations around its 2% target. But if that is the case, there cannot be any permanent or persistent deviations of inflation that could be potentially predicted by persistent or even permanent deviations of M3 from target. Thus, by definition, the latter would be reflecting persistent

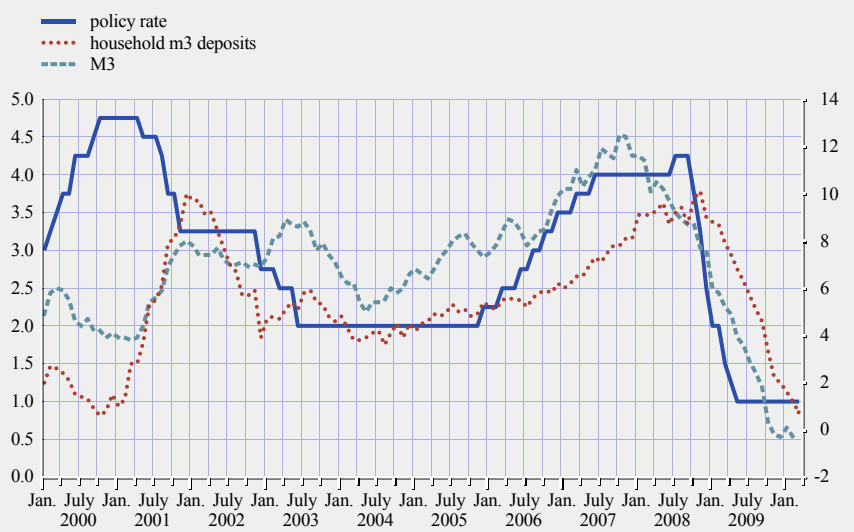
(or permanent) variations in velocity or GDP growth, and will be of no value in signaling risks to price stability. Any historical correlation between M3 growth and inflation in the euro area is the result of earlier regimes that did not guarantee the stationarity of inflation around a constant value.

Consider next the second perspective of the monetary analysis mentioned above, the one associated with a more detailed study of the "content" of M3 growth. A reading of the relevant sections and articles of the Monthly Bulletin gives one an impression of certain *ad-hocness* in the use of that analysis. To put it in other words: there are so many monetary components and counterparts, and so many factors that potentially underlie their relative movements that it must always (or most of the time) be possible to construct an ex-post narrative that could justify *any* diagnosis regarding the evolution of underlying monetary growth. Let me illustrate this point with an example pertaining to the recent euro area experience.

As discussed above, one of the reasons pointed out by the ECB to downplay the current deceleration of M3 growth is the sustained positive growth in household monetary holdings (in the form of short-term deposits), which are claimed to have a stronger link with inflation than M3. But a closer look at the evidence suggests a number of observations.

First, while the growth of household deposits remained resilient once the period financial turmoil of 2007 and accompanying rapid deceleration of M3 were underway, that seeming decoupling came to an end in early 2009. Since then, the growth rate of household deposits has followed a steep downward trend, reaching a historical low of 0.7% in the latest observation available (March 2010), as shown in Chart 3. Yet, the discussion of monetary trends in the most recent

**Chart 3 M3, household deposits and the policy rate**



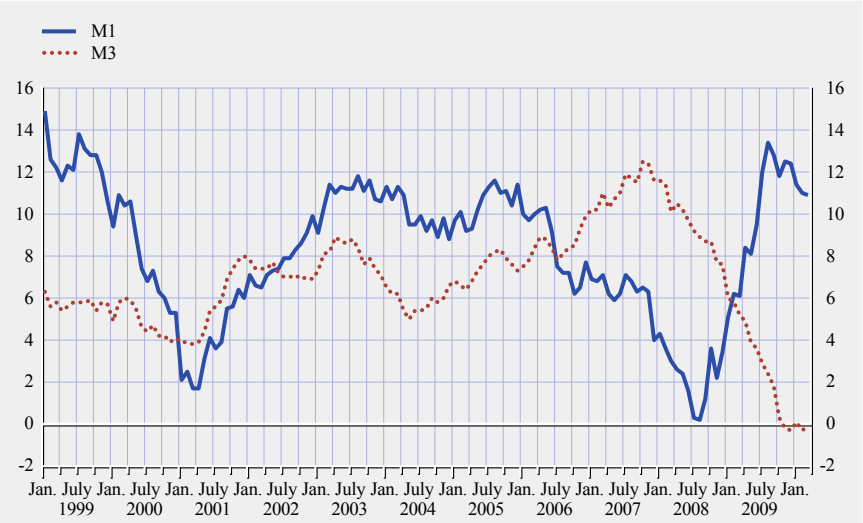

Source: ECB.

issue of the Monthly Bulletin (April 2010), while pointing to the observed rapid deceleration of household deposits, makes no reference its potential deflationary risks, even though its earlier "resilient" growth was singled out as a key factor to dismiss those risks.

Two other episodes suggest some inconsistency in the extent to which the differential behavior of household deposits is emphasized or not. Thus, when the policy rate was finally raised by the ECB in December 2005, the annual growth rate of household short-term deposits had reached a level of 5.4%, less than one percentage point above the 4.5% reference value, and well below the 7.3% growth rate for M3 as a whole. In fact, the December 2005 issue of the Monthly Bulletin was pointing to the rise in the growth of deposits held by non-financial corporations and other financial intermediaries as the main sources of the rise in M3 growth. Yet no case was made at that time for downplaying the acceleration of M3 growth on the grounds that the growth in household deposits remained moderate. Similarly, the low growth rate of M3 throughout 2000 (hovering around 4.5%) did not prevent a round of interest rate increases at that time (from 3% to 4.75%), despite the fact that household deposits were increasing at an even lower rate than M3.

Similar inconsistencies may apply in connection to the value attached to M1. When explaining the rationale behind its detailed analysis of M3 components, the ECB stressed the "particular attention" that must be given to highly liquid components like M1, for "they more closely reflect the transactions motive for holding money, and are thus the most tightly related to aggregate spending" (ECB (2003)). Thus, under the previous view, the current high growth of M1-- close to 10%-- can be pointed to as a factor that would warrant interpreting

**Chart 4 M1 vs. M3 growth**




Source: ECB.

the near-zero growth in M3 as "understating the pace of underlying monetary growth" (ECB (2010)).

But, independently of its merits, the previous guideline seems to have been used in a rather selective way. Thus, as shown in Chart 4, in June 2002 the rate of growth for M1 overtook that of M3, and remained above the latter uninterruptedly for four years. In particular, between December 2002 and June 2004, the average annual growth rate of M1 was 10.8%, more than 3 percentage points above the corresponding growth rate of M3 over the same period. Yet, that observation did not prevent the ECB from downplaying the high growth of M3 (relative to its reference value) on several grounds (see discussion above), while expressing no concern regarding the even higher growth of M1. In fact, the ECB lowered the policy rate from 3.25% to 2% during that period, in response to the lower inflationary pressures suggested by the economic analysis, and associated to low output and employment growth.

Beyond the apparent inconsistencies pointed to above, there is a more general and, thus, more important issue at stake regarding the detailed analysis of M3 and its connection with the price stability objective: It is far from obvious why large, persistent changes in the most liquid components of M3 (e.g. M1 or household deposits) should be given any special status when assessing the medium-to-long term risks to price stability. In particular, it is not clear through which mechanism changes in those components of M3 could have a *direct* influence on the aggregate price level (or, at least, a stronger direct influence than the remaining components). On the other hand, if their eventual impact on inflation works through their possible influence on aggregate demand (or some of its components), and hence on output, employment and, ultimately, firms' marginal costs or competitive pressures, it is hard to understand why that detailed analysis of M3 components is not just turned into an important part of the so called economic analysis, at the same level as other indicators deemed valuable for forecasting aggregate demand (e.g. economic sentiment or, as discussed below, financing conditions).

## 4 RETHINKING THE MONETARY PILLAR

The implications for the monetary pillar of the ECB's 2003 evaluation of its monetary policy strategy were manifold. Firstly, its weight in the overall strategy was arguably reduced. Most visibly, this was reflected in the shift in the order of presentation of the monetary and economic analyses outcome in the President's introductory statement to the ECB's monthly press conference. It also manifested itself in the clarification that the monetary analysis "mainly serves as a means of cross-checking, from a medium to long-term perspective, the short to medium-term indicators coming from the economic analysis," (ECB (2003)) as well as the decision "to no longer conduct a review of the reference value on an annual basis." Both announcements were interpreted by many commentators as suggestive of a more limited role of the monetary pillar in the future. On the other hand, it was also made clear that the content of the monetary analysis had been extended over time beyond the assessment of M3 growth in relation to the

reference value. In particular, the "comprehensive" nature of that analysis was emphasized, with a combined use of models and institutional expertise, and a greater focus on a detailed analysis of "the components and counterparts of M3, in particular loans to the private sector, and from various money gap measures and concepts of excess liquidity" (ECB (2003)). In other words, far from dismantling the monetary pillar altogether, the ECB was signaling an effort to broaden the content of the monetary analysis and to enrich the tools at its disposal.[7]

Interestingly, though, the recent financial crisis and the challenges that it has posed to central banks, including the ECB, contains the seeds for a further and, in my view, natural and desirable re-assessment of the latter's monetary analysis. The essence of the proposed rethinking would consist in shifting the focus of that analysis from monetary developments to financial stability issues. The rationale for that shift in focus rests on two grounds, which I discuss in turn below.

- The importance of financial stability for monetary policy

- Many aspects of financial stability analysis are a natural evolution of the current monetary analysis

## 4.1 FINANCIAL STABILITY AND MONETARY POLICY

The recent crisis has brought to the fore the need for stronger financial regulatory and supervisory frameworks. It is widely agreed that an important dimension of that strengthening involves the need to further the macro-prudential orientation of those frameworks, i.e. an orientation that focuses on the financial system as a whole, as opposed to the individual financial institutions that constitute it. While the main supervisory and regulatory duties currently fall under the responsibility of national institutions (typically the central bank or the supervisory authority) and international organizations (e.g. the Basel Committee), the ECB cannot remain on the sidelines of that effort. In fact, the Treaty explicitly assigns it with the task of contributing "to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system."

To be sure, the ECB is already involved in a number of initiatives that share that motivation and which are already underway. Thus, since 2004, the ECB has published, in cooperation with the Banking Supervision Committee, the *Financial Stability Review*, a semi-annual report on the stability of the euro area financial system. Most recently, the ECB has been entrusted with the secretariat function of the newly created European Systemic Risk Board (ESRB), the main body responsible for the macro-prudential oversight of the EU's financial system. That secretariat function will entail, among other duties, the provision of analytical and statistical support to the ESRB.

7 The paper by Fischer et al. (2008) contains a detailed description of the evolution of monetary analysis, before and after the 2003 evaluation.

But the relevance of financial stability for monetary policy goes well beyond any "supporting role" that the ECB staff may provide based on its knowledge and capabilities. As the recent episode has made clear, the impact of financial crises on monetary policy is potentially huge, and likely to overshadow that of any other adverse shock impinging an economy. That impact has at least two dimensions:

First, the transmission of a financial shock to the real economy, amplified by well known adverse feedback loops, typically brings about a severe and long-lasting contraction of output and employment.[8] That contraction, in turn, could generate deflationary pressures that, were they to become entrenched in expectations, could seriously endanger the ECB medium-term inflation objectives. The challenges posed by that scenario are only aggravated by the possibility that the policy rate approaches or hits its zero lower bound, as well as the constraints on the possible size of discretionary fiscal stimulus programs, given the likely strains on public finances. The prolonged stagnation and deflation experienced by Japan after the banking crisis triggered by the burst of the housing bubble should act as a reminder that financial crises are far more than a sideshow, and can leave scars deeper than any other cyclical episode.

Secondly, and as illustrated by developments in the euro area money markets since the summer of 2007, a financial crisis is likely to disrupt the normal operation of the monetary transmission mechanism, thereby preventing policy rate decisions from being quickly passed through to the market interest rates that are relevant to consumption and investment decisions. Reducing the large and highly variable spreads that ensue may require the implementation of "non-conventional" monetary policy measures, some of which may stretch the mandate of the central bank and involve significant risk-bearing by the taxpayer.

The magnitude of the potential disruptions brought about by a financial crisis is sufficiently large to warrant the allocation of the necessary resources by the ECB to help prevent the occurrence of such a crisis to begin with, and were this to fail, to respond swiftly in order to minimize its damaging consequences on the economy, always in accordance with its medium-term price stability goal. Thus, a close monitoring of financial developments, broadly understood, but with a focus on the potential accumulation of the kind of imbalances that, time and again, have been shown to lie at the root of financial crises, should be given a high priority by central banks that have an stability-oriented strategy, including the ECB and the NCBs of the euro area countries. The indicators of potentially threatening imbalances are numerous, and their relative importance likely to be controversial, but they are likely to include the following:

- Stock and housing prices and corresponding price/earnings ratios
- Bank credit to households and non-financial corporations (e.g. relative to nominal GDP)

8 See, e.g. IMF (2008) for historical evidence pointing to the greater severity of recession that are preceded by a financial crisis.

- Leverage and liquidity measures for the banking sector
- Measures of household indebtedness (e.g. household debt/disposable income)
- Current account imbalances and composition of their financing.
- Government debts and deficits

The existence of imperfections of various kinds in financial markets, including poor information or distorted perceptions about risks, perverse incentives, and even plain herd behavior, may lead to inefficiently large movements in some of the variables above, and result in unsustainable imbalances. There is no reason to think of monetary policy – understood as the setting of short-term interest rates – as providing the optimal tool to respond to *any* of the imbalances above.[9] Other policy instruments – already in place or to be created – should be able to provide a more "surgical" response by targeting more closely the inefficiencies underlying those imbalances, without affecting "healthy" sectors of the economy. Thus, e.g., time-varying capital and liquidity ratios for banks and other financial institutions have often been pointed to as likely candidates to dampen excessive leverage or to enhance the liquidity of banks asset portfolios or cap their reliance on short-term funding. Minimum value-to-loan ratios for home mortgages may limit excessive risk taking by banks, limit household indebtedness, and dampen excessive fluctuations in housing prices. Cyclical variations in required margins, statistical loan provisions, or capital gains taxation are additional tools that are often mentioned as having the potential of being used more actively in order to help address some of those imbalances. To put it in the words of Borio (2008), a long time advocate of active macro-prudential policies, "the basic principle would be to encourage the build-up of cushions in good times, when imbalances emerge, so that they can be run down, up to a point, in bad times as imbalances unwind," while the range and flexibility of the tools potentially available would "permit the policy response to be tailored to the specific characteristics of the imbalances, which vary in shape and size, such as in terms of the sectors affected."

Does this mean that monetary policy should stay on the sidelines and watch passively the unfolding of some of those imbalances and their eventual winding-up, when they call for a response that may be in conflict with the price stability goal? The answer to that question is, in my opinion, a qualified no. To be precise (conceptually, not operationally), the following requirement should be met, in my view, to warrant the use of monetary policy in those circumstances: the imbalances remaining after the application of other financial stability policies must be perceived to imply a divergence between the levels of *natural* output (i.e. aggregate output in the absence of nominal rigidities) and *efficient* output (i.e. the level of output that would prevail in the absence of any imperfections, real or nominal). In that case a meaningful trade-off emerges for monetary

9 See Svensson (2010) for a discussion of the integration of financial stability concerns into an inflation targeting framework.

policy, which will generally imply the desirability of temporary deviations from the inflation target.[10] Thus, for instance, in response to an episode of excessive risk taking by banks and abnormally high growth of credit to households, the natural level of output is likely to rise faster than its efficient counterpart. This may warrant a tightening of policy and a temporary (though possibly persistent) negative deviation of inflation from target.

Needless to say, the previous criterion may not be easy to implement in practice, since neither the natural nor the efficient level of output are directly observable. The development and estimation of DSGE models for the euro area that incorporate realistic financial imperfections (in addition to the usual nominal frictions), already underway, should eventually prove helpful in guiding the response of the ECB to financial shocks and imbalances.[11]

## 4.2 FINANCIAL STABILITY ANALYSIS AS A NATURAL EVOLUTION OF MONETARY ANALYSIS

Once we accept the importance of financial stability--on its own and given its consequences for real and nominal stability – it is natural to inquire the place it should occupy and the status it should be given in the ECB's overall monetary policy strategy. Here I would like to put forward the proposition *that the analysis of financial stability in the euro area, insofar as it is relevant to the conduct of monetary policy, may be viewed as the natural evolution of the monetary analysis currently undertaken at the ECB*, and which has been discussed extensively above. In fact, that evolution – and its explicit acknowledgement by the ECB--would only be an additional stage in the process of rethinking the monetary pillar that has been ongoing since the creation of the ECB and the announcement of its monetary policy strategy in October 1998.

At the risk of oversimplification, and on the basis of the information published in the Monthly Bulletin and related outlets, one can identify three different stages so far in that evolution:

- *From the strategy announcement to its 2003 review.* A central element – and, arguably, the most distinctive feature--of the monetary policy strategy announced by the ECB Governing Council in October 1998 was the prominent role it gave to money, reflected in the establishment of a separate "monetary pillar" and the "signaling" of that prominent role by the announcement of a quantitative reference value for the growth rate of M3. The existence of a stable demand for M3 is viewed as an important requirement behind that approach, and one that is thought of as being satisfied for the euro area. Most revealingly, neither in the article devoted to a description of its strategy in the opening issue of the Monthly Bulletin (ECB (1999a)) nor in the one describing in more detail the monetary pillar in the second issue (ECB (1999b)) a reference can be found to the term "financial stability."

10 The above principle is an application to an environment with financial market imperfections of the one laid out in Blanchard and Galí (2007) in the context of labor market imperfections.
11 See Christiano, Motto, and Rostagno (2010) for recent work in that direction.

- *From the 2003 review to the financial crisis*. The monetary analysis is relegated to providing a medium to long-term cross-check of the risks to price stability emerging from the economic analysis. The reference value for M3 growth is de-emphasized, and its annual review suspended. The monetary analysis is broadened, with an emphasis on the study of all components and counterparts of M3 growth, in particular loans to the private sector. Alternative models of excess liquidity are used and expertise on institutional features is relied upon. The emphasis is shifted to the concept of underlying monetary growth.

- *The financial crisis and its aftermath.* Triggered by the financial crisis, the monetary analysis places a growing emphasis on a comprehensive discussion of the availability of credit to households and firms, beyond the simple measures of reported bank loans growth. That includes analyses of the funding of credit institutions, variations in the composition of their balance sheets, securitization, size of interbank market, etc. (ECB (2009)).

The evolution described above is facilitated by the fact that both the narrow monetary analysis of the early years and the one focusing on financial developments draw from similar information sources: ultimately, they both rely on the analysis of stocks and flows pertaining to the assets and liabilities of financial institutions, households, firms, and the government. A natural question, however, is whether the current emphasis on financial issues is only temporary, and will thus go away when the financial crisis comes to an end and financial conditions are back to normal. As argued above, I believe this would be a mistake, since financial considerations and, in particular, the continuous monitoring of the potential risk of systemic financial disruptions should be given a high priority by central banks, including the ECB. Interestingly, the ECB itself seems to recognize implicitly that the financial elements of its monetary analysis are likely to have an increasing importance in the future when it states, in the concluding remarks of its review of monetary analysis during the financial turmoil in which it has stressed those elements, that "*the necessity of generating a broader set of insights will remain a prevalent feature of monetary analysis, as was the case, for instance, during the period of extraordinary portfolio shifts into M3 between 2001 and 2003 and more recently during the financial turmoil*" (ECB (2009).

But the previous development also uncovers an interesting paradox: the elements of the monetary analysis that are gaining weight and that may end up being more useful are also the ones that are more disconnected with the original objective of that analysis, namely, to provide an assessment of the medium-to-long run risks to price stability *based on the "fundamental" link between money and the price level*.

In connection with the previous discussion it is worth referring to recent evidence by Schularick and Taylor (2009). Using long-run data for 12 developed countries, the authors uncover a generalized decoupling of money and credit aggregates since World War II, due to the large leverage increase in the financial sector. They also show that credit booms (but not monetary expansions) are a powerful predictor of financial crises. Similarly, one may argue that several

recent trends in financial markets brought to light by the crisis warrant a growing emphasis on credit and other financial variables, rather than on money and its components. In other words, much of the action takes place outside the scope of M3. Among those trends one can list the use of off-balance sheet vehicles to channel lending, the widespread use of non-deposit sources of funding, and the rise of the so-called "shadow banking system."

Given the questionable "practical usefulness" of the monetary analysis (as argued above), together with its weak theoretical underpinnings, many academics and commentators have long called for an overhaul of the two-pillar strategy of the ECB, including the abolition of the monetary pillar. The interest in financial stability triggered by the recent financial crisis, and the growing consensus on its connections with monetary policy, suggests an alternative route: *a "rethinking" of the monetary pillar as a financial stability pillar*. Interestingly, given the evolution that the ECB monetary analysis has experienced over the past eleven years, that transition could turn out to be a smooth one, in addition to a desirable one.

## 5 CONCLUDING REMARKS

Controversies around its monetary pillar have not prevented the ECB from carrying out its job effectively over the past eleven years: it has attained (at least to a reasonable degree) its quantitative objective for inflation; it has anchored medium-term inflation expectations around that objective; and it has responded effectively and pragmatically to the stream of challenges, big and small, that the crisis has given rise to. But "not being harmful" does not mean "being useful." The evidence reviewed in the present paper calls into question the usefulness for policymaking of the money-focused analysis, as illustrated by limited weight that the monetary analysis seems to have played during the crisis and in the run-up to it.

Paradoxically, the financial crisis may end up vindicating the monetary pillar, and restoring its weight in monetary policy analysis. But the resulting pillar is likely to be a highly reconstructed version of the original one, with a strong emphasis on financial stability issues rather than monetary developments.

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