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HIGH GROWTH RATES OF MONEY AND LOW INFLATION
IS THERE A CONTRADICTION?

Executive Summary

The answer is "no", for the following reasons: First, contrary to some solid theoretical arguments, most available empirical evidence shows that the growth of money is not correlated with inflation in the short or even medium term (which is the ECB inflation target) and that it is, somehow, in the long run. Thus, inflation can still be low even if money aggregates have been growing faster than output for sometime. Moreover, long run correlation among money and inflation does not necessarily mean that there is a clear causal relationship among the two, because there are many other factors which can also affect inflation in the short and medium term (transitory nominal and real shocks, like oil shocks) and in the long term as well (institutional factors, like increasing globalization and deregulation, nominal rigidities in wages or prices or technological developments and innovation in financial products). This is the reason why, when some correlation was found, it was quite blurred and imprecise. Therefore, in economics, a theory can be contrasted by empirical evidence with different or even opposite results depending on the time lag.

Second, according to the relevant monetary theory and empirical evidence, money growth can affect output in the short and medium term, but only the price level in the long term, because money tends to be neutral to output in the long run while keep being positively correlated with inflation.

Third, the effect of money on inflation tends to be even less relevant in low inflation countries or when inflation expectations are low or well anchored (as are both in the Euro Area). Inflation expectations tend be low when are not expected by market agents, either because of their credibility in the central bank or their own rational behaviour or conduct or because there are major changes in the monetary transmission mechanism due to financial innovation or technological developments or even all of them at the same time.

Based on the previous evidences, most leading central banks have abandoned, in the last two decades, money growth targets and have switched to inflation targeting. Nevertheless, this does not mean that money cannot still play a role in monetary policy. First, money and credit growth may affect asset price inflation, which in turn may produce boom and busts in economic activity, which may affect the financial stability of the system and thus price stability as well. The present situation of high world liquidity chasing hard assets (whether real state, energy, commodities or corporate assets) is a clear example. Second, monetary aggregates, when properly analysed and used, can also provide incremental information about the inflation outlook in the medium term even in the case they are not used as targets or even as reference values. Third, The ECB should try to use money and credit aggregates information in the same pillar than economic factors by fusing both pillars into one, to avoid introducing more confusion about its monetary policy decisions, which tend to be supposedly based on the prominence of one over the other.

HIGH RATES OF MONEY GROWTH AND LOW INFLATION

The recent ECB Monetary Conference about the role of money in the conduct of monetary policy has shown what it was to be expected, that the monetary academic world has compelling evidence about the lack of role of money as a determinant of inflation in the short or medium term and sometimes even in the long run. This large evidence and their own unsatisfactory experience with those aggregates, has made most leading central banks to slowly abandon monetary aggregate targets and adopt inflation targeting which, until now, has proved to be more effective and reliable than monetary targeting. Such is the case of the Bank of England, New Zealand, Australia, Canada, Sweden, Japan, South Africa and Brazil among others.

The ECB modelled its monetary policy strategy to that of the Deutsche Bundesbank and rightly so, as it needed from the start to gain high reputation and credibility and the latter was the central bank in continental Europe with the highest credibility in the world, thanks to having accumulated the longest history of price stability. But at that moment, monetary targeting was already not an option, given the high uncertainty about the demand of money in the Euro Area (EA). Thus, the decision to go to some weighted average of inflation targeting and monetary targeting was a sensible and pragmatic choice (Buiter, 2006).

Moreover, money growth targets were chosen in the sixties by most central banks because the quantity theory of money had been revived by Friedman (1956) becoming the new paradigm and because money growth targets had many advantages: they were easily observable and controllable by the central banks than inflation, they reacted more quickly and decisively than inflation, deviation from monetary targets were more easily perceive by financial markets making the central bank more accountable and money demand was supposed to be less unreliable and more stable at the Euro Area (EA) level than at the national level, given the high substitutability among EA assets.

In spite of all these advantages, in the last decade and a half, the link between money growth and inflation has become increasingly imprecise and blurred and the combination of low inflation, financial deregulation and innovation has been eroding the stability of monetary targets, making it progressively difficult for central banks to use money growth as a target.

Some monetary policy research started to show new evidence about these shortcomings in the second half of the 1990s. The large increase in financial deregulation and innovation was producing increasing changes in money demand eroding the link between money growth and inflation (Teles and Uhlig, 1996). Even the stability of money demand at the European level was found to be more of a mirage created by the law of large numbers than a reality given that it has not passed the test of the so-called "Lucas critique". (Lucas, 1976) European-wide aggregates were washing out country-specific idiosyncrasies and could render money demand less stable and reliable (Arnold and de Vries, 1998 and 1999). The introduction of Euro notes and coins tended

to change, even more, money demand behaviour (Scacciavillani and Sobczak, 2001)

Although the Bundesbank was very successful in keeping inflation under control for some decades, new evidence appeared Bernanke and Mihov, 1997) showing that it missed its monetary targets very often. Between 1979 and 1997, it did miss them eleven times out of nineteen therefore its success was probably due to something more than to its money growth targeting. Thus both authors asked to themselves: Was then the Bundesbank, in reality, an inflation targeter?

Other research pointed out to the fact that is that there was no systematic relationship between monthly variations of M3 and central bank money (defined as the sum of bank deposits with the ECB and bank notes in circulation), which the ECB tries to influence directly trough its refinancing operations. Moreover, the correlation between the stocks of central bank money and M3 appears to be very loose even over longer periods of time. This outcome contradicted textbook assumptions of a fixed money multiplier and pointed to the importance of the banking system in generating money growth. Therefore, manipulations of the stock of central bank money through refinancing operations would not help to bring M3 growth closer to its reference value. Rather, the ECB needed to use interest rate changes to influence money creation in the banking sector as well as real GDP and the portfolio preferences for liquid funds, which really determine the money demand (Mayer, 2000).

Moreover, M3 reference value was not been well measured. Using the same model of estimation of a stable function of the demand for M3 (that is, using an error-correction model, ECM) published by the ECB (Coenen and Vega, 1999), it was found that the money growth target of M3 compatible with a stable function of money demand was around 6%, instead of 4.5% (Dolado, 2000). At the same conclusion arrived other economists. Both higher potential GDP growth (due to a larger labour input growth and capital stock growth) and lower velocity of money (due to an increasing preference for liquidity, thanks to low inflation) increased the M3 compatible reference value up to 6.25% (Mayer and Walton, 2000), therefore, when the ECB justified the 0.50 p.p. increase in interest rates on the basis of M3 growing 6.1% 1.6 p.p. above the reference value, its decision was not well founded. The opposite happened when its decision in May 10 2001 to lower interest rates 0.25 p.p. was based on the perception that M3 was not a risk to price stability, because its Governing Council had probably realised that M3 was not being measured correctly and the reference value was not so relevant. This is the reason why the ECB had to revise the statistics behind the evolution of M3 in May and revise them again at the end of 2001.

The same happened before to most central banks that were using money growth targeting. They had to be continuously changing the measurement of M3, due to financial deregulation and innovation, until they decided to move to inflation targeting because it proved to be more efficient. Moreover, even a situation of a stable money demand function did not imply that monetary targeting was advisable or that the money growth indicator was a good predictor of future inflation (Rudebusch and Svensson, 1998). There was no evidence

that current money growth helped to predict future inflation in the Euro Area because there was no information in money growth that was not already available in other indicators (Trecroci and Vega, 2000) and (Gerlach and Svensson, 1999).

Finally, the two pillars seemed to stand next to each other with little apparent connection and the ECB related to one or the other to justify interest rate changes. Such a strategy led to confusion, the reason being that interest rate changes affect variables in both pillars. Thus, it would be wrong for the ECB to set interest rates with a view to specifically address M3 growth since an interest rate increase affects not only M3 growth but also economic activity. It would make only sense when strong M3 growth is associated with above potential economic growth which was not the case in the Euro Area, where inflation has been dominated by supply shocks (higher oil prices, due to heavy European oil dependency, higher food prices, due to serious health problems, and labour market rigidities and not by demand pressures.

Thus, the two pillars are interconnected and should be seen in conjunction. Although there are no signs of instability of the demand for money in the very long run, the short-term demand for money tends to be very unstable, inducing money growth to fluctuate substantially and over significant periods of time around its inflation neutral level without creating inflation. A reaction of monetary policy to these fluctuations could destabilise the economy (Mayer).

More recent evidence by some of the academics who prepared papers or were discussants at the ECB Conference in Frankfurt in November 6, 2006, insisted in the same issues and made very clear that:

"Money demand is no longer seen as the framework for monetary policy analysis… Conducting a rich monetary analysis is thus not contingent on the stability or otherwise of any single specification of money demand for a particular monetary aggregate"… (Fischer, Lenza, Pill and Reichlin, 2006)

"The rapid pace of financial innovation in the United States has been an important reason for the instability of the relationships between monetary aggregates and other macroeconomic variables: Forecast errors for money growth are often significant and the empirical relationship between money growth and variables such as inflation and nominal output growth has continued to be unstable", (Bernanke, 2006)

"As a matter of logic, monetary aggregates become irrelevant and uninformative for the design and prediction of monetary policy whenever the central bank uses the interest rate as an instrument of monetary policy, as in the case practically everywhere" and…"monetary policy can be effectively conducted to control price and output developments without any use or reference to monetary aggregates", (Woodford, 2006)

"A stable money demand relationship does not imply that monetary indicators are useful in assessing the risks to price stability … and… money

demand instability has only made things worse.. but it has facilitated the downgrading of monetary indicators"… or … "there is no evidence of a single episode in which interest rate decisions were made in accordance with the signals of monetary analysis, but against the evidence coming from the economic pillar (especially, consumer confidence)" (Galí, 2006).

Given this diverging views between most academics and some central bankers, the ECB Vice President, Lucas Papademos, who, as Ben Bernanke, is both and academic and a central banker, tried in his speech to achieve a consensus view for the Conference by including the following points:

First, that economic theory supports, both at the microeconomic level and the macroeconomic level, the view that money is the fundamental determinant of the price level over the medium and long term, and that money and its counterparts (notably credit) play a key role in the transmission of the effects of monetary policy to the economy.

Second, that today this theoretical consensus framework for monetary analysis is a synthesis that combines New Classical models of Lucas, real business cycle models of Kydland and Prescott, forward looking rational expectations models, nominal rigidities Neo Keynesian models, as those of Phelps, Calvo, Fischer and Taylor and "financial friction" models with wealth effects, asset price variations and credit and liquidity constraints.

Third, that the main problem today is that this major role of money developed in these models and apparently obvious by looking to reality, cannot be captured at all, or in a reliable manner, by empirical evidence tests conducted through econometric models. This apparent paradox could be due to several factors: to a low rate of inflation environment, to the fact that these models cannot be invariant over time to the central bank strategy, to technology advances, to financial innovation or to changes in preferences as a result of demographic shifts or to changes in the monetary transmission mechanisms.

Fourth, that, nevertheless, it still can be achieved incremental information at the ECB monetary analysis by employing a variety of tools in a manner that is mechanical but that it combines judgment and analytical rigor in reaching money-based assessments of the risks to price stability. By also developing new empirical research which could help to find better results about the role of money in inflation, such as using VARs of vector auto-regressions and, finally, by recent new econometric research, which develops a "state of the art" dynamic stochastic general equilibrium model for the Euro Area economy, based in more solid micro-foundations, which may one day find out enough evidence about the role of money in predicting inflation in the medium run.

Fifth, that when these tools will be well developed and perfected, it would be possible to merge the two pillars of the ECB analysis into a single one, in which money will continue still to play a prominent role in guiding monetary policy decision making.

This idea of merging the two pillars was initially proposed by Svensson (2000), when he pointed out that a combination of the first and second pillar would be a good decision, given that all the information in the monetary aggregates, which have implication for future inflation, should be combined with other relevant information such as the output gap estimates, cost and wage developments, international developments, exchange rate developments and private inflation expectations, in order to construct more reliable inflation forecasts, make monetary policy decisions less confusing and easier to explain to the markets and thus, gain more credibility both with markets and with academics.

Sixth, that, by contrast, there is ample empirical evidence about the role of excessive growth of money and especially of credit in developing asset bubbles and that excessive liquidity growth can be associated with asset price boom episodes followed by post-boom recessions, therefore, affecting financial stability. A very narrow focus of monetary policy on price stability in the short run might pose risks to price stability in the long term, if the potential consequences of financial stability for long term price developments are overlooked. Thus, there is no conflict between the conduct of a monetary policy focused on the preservation of price stability over the medium and long term, and the safeguarding of financial stability, they should be mutually reinforcing.

Finally, that it is also worth keeping in mind the implications of the rapidly changing global economy, which is affected not only by productivity developments related to technological advances and the process of globalization but also by financial innovation and increasing complexity of financial instruments. All theses factors have a bearing on the dynamics of the inflationary process and the evolution and information content of monetary and credit aggregates.

The ECB President Jean Claude Trichet, in his final remarks at the closing of the Monetary Conference, was much more cautious and he recognized that:

First, the initial choice of strategy by the ECB was a natural continuation of previous best practice, while, at the same time, incorporating new insights from economic theory and the experience of other central banks. That initial decision has been essential to the high credibility that the ECB has enjoyed since its inception as it was explained by Issing (2006).

Second, that there were many good reasons to recognize explicitly the monetary nature of inflation and by assigning an important role to money in the formulation of monetary policy decisions, both aimed at the maintenance of price stability.

Third, that new state of the art macroeconomic models being developed at the ECB were eventually going to better reflect the role of money and credit aggregates in such a framework, so that monetary analysis be used to monitor and possibly offset macroeconomic risks which are not related to price stability at shorter horizons, but which may nevertheless have important consequences

for maintaining price stability over the medium and long term, like risks to financial stability.

Fourth, that the present practical challenge of conducting monetary analysis requires the adoption and employment of practical and fully operational tools. Thus, the careful analysis of monetary developments in real time is helping the ECB to shape its assessment of the economic situation and of the associated risks to price stability in order to better identify the nature of shocks impacting the Euro Area economy.

Fifth, that it is particularly important to present the monetary analysis to the markets and the public in a manner that serves to stabilize private sector long-term inflation expectations by clearly signalling the ECB alertness with respect to risks to price stability at longer horizons, by being very transparent in order to enhance the effectiveness of monetary policy and by communicating very clearly its policy objective.

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