

Do QE programmes create bubbles?

By [Christophe Blot](#), [Paul Hubert](#) and Fabien Labondance

Has the implementation of [unconventional monetary policies](#) since 2008 by the central banks created new bubbles that are now threatening financial stability and global growth? This is a question that comes up regularly (see [here](#), [here](#), [here](#) or [here](#)). As [Roger Farmer](#) shows, it is clear that there is a strong correlation between the purchase of securities by the Federal Reserve – the US central bank – and the stock market index (S&P 500) in the United States (Figure 1). While the argument may sound convincing at first glance, the facts still need to be discussed and clarified. First, it is useful to remember that correlation is not causation. Secondly, an increase in asset prices is precisely a transmission channel for conventional monetary policy and quantitative easing (QE). Finally, an increase in asset prices cannot be treated as a bubble: developments related to fundamentals need to be distinguished from purely speculative changes.

Higher asset prices is a factor in the transmission of monetary policy

If the ultimate goal of central banks is macroeconomic stability [\[1\]](#), the transmission of their decisions to the target variables (inflation and growth) takes place through various channels, some of which are explicitly based on changes in asset prices. Thus, the effects expected from QE are supposed to be transmitted in particular by so-called portfolio effects. By buying securities on the markets, the central bank encourages investors to reallocate their securities portfolio to other assets. The objective is to ease broader financing conditions for all economic agents, not just those whose securities are targeted by the QE programme. In

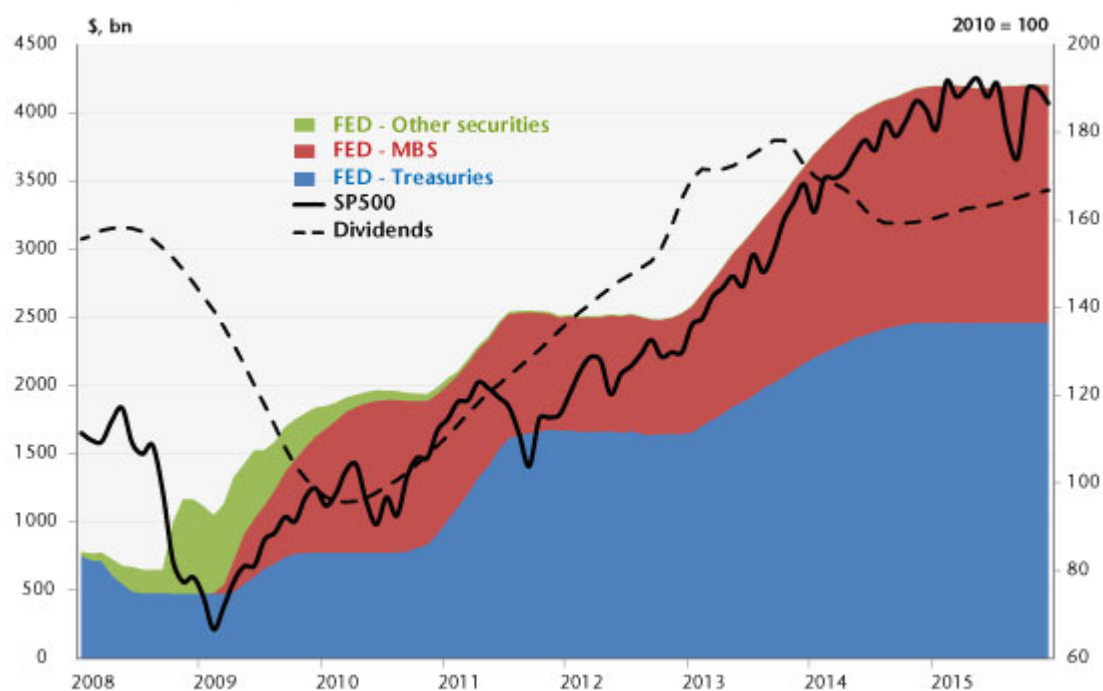
doing this, the central bank's actions push asset prices up. It is therefore not surprising to see a rise in equity prices in connection with QE in the US.

Every increase in asset prices is not a bubble

Furthermore, it is necessary to make sure that the correlation between asset purchases and their prices is not just a statistical artefact. The increase observed in prices may also reflect favourable fundamentals and be due to improved growth prospects in the United States. The standard model for determining the price of a financial asset identifies its price as equal to the present value of anticipated income flows (dividends). Although this model is based on numerous generally restrictive assumptions, it nevertheless identifies a first candidate, changes in dividends, to explain changes in stock prices in the United States since 2008.

Figure 1 shows a clear correlation between the series of dividends [\[2\]](#) paid and the S&P 500 index between April 2010 and October 2013. Part of the rise in equity prices can be explained simply by the increase in dividends: the usual determinant of stock market prices. Looking at this indicator, only the period starting at the beginning of 2014 could then indicate a disconnect between dividends and share prices, and thus possibly point to an over-adjustment.

Figure 1. Quantitative easing and stock market prices in the US



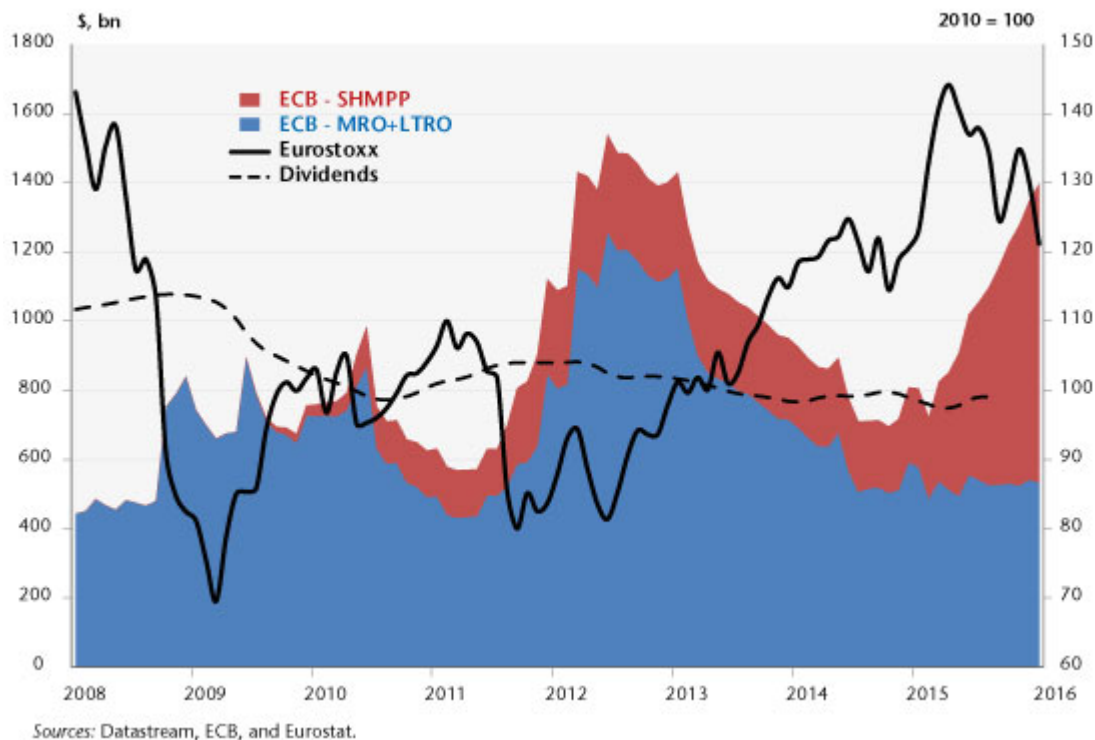
Sources: Datastream, Federal Reserve, and Bureau of Economic Analysis.

A correlation that isn't found in the euro zone

If the theory that unconventional monetary policies create bubbles is true, then it should also be observed in the euro zone. Yet performing the same graph as the one for the United States does not reveal a link between the liquidity provided by the European Central Bank (ECB) and the Eurostoxx index (Figure 2). The first phase in the increase in the size of the ECB's balance sheet, via its refinancing operations starting in September 2008, came at a time when stock markets were collapsing, following the bankruptcy of Lehman Brothers. Likewise, the very long-term refinancing operations carried out by the ECB at the end of 2011 do not seem to be correlated with the stock market index. The rise in share prices coincides in fact with Mario Draghi's statement in July 2012 that put a halt to concerns about a possible breakup of the euro zone. It is of course possible to argue that the central bank has played a role, but any link between liquidity and asset prices is simply not there. At the end of 2012, the banks paid back their loans to the ECB, which reduced the cash in circulation. Finally, the recent period is once again

illustrating the fragility of the argument that QE creates bubbles. It is precisely at a time when the ECB is undertaking a programme of large-scale purchases of securities, along the lines of the Federal Reserve, that we are seeing a fall in world stock indices, in particular the Eurostoxx.

Figure 2. Quantitative easing and the stock market index in the euro zone



So does this mean that there is no QE-bubble link?

Not necessarily. But to answer this question, it is necessary first to identify precisely the portion of the increase that is due to fundamentals (dividends and companies' share prospects). A bubble is usually defined as the difference between the observed price and a so-called fundamental value. In a forthcoming working paper, we endeavour to identify periods of over- or undervaluation of a number of asset prices for both the euro zone and the United States. Our approach involves estimating different models of asset prices and thereby to extract a component that is unexplained by fundamentals, which is then called a "bubble". We then show that for the euro zone, the ECB's monetary policy broadly speaking (conventional and unconventional) does not seem to

have a significant effect on the “bubble” component (unexplained by fundamentals) of asset prices. The results are stronger for the United States, suggesting that QE might have a significant effect on the “bubble” component of some asset prices there.

This conclusion does not mean that the central banks and the regulators are impotent and ignorant in the face of this risk. Rather than trying to dissect every movement in asset prices, the central banks should focus their attention on financial vulnerabilities and on the ability of agents (financial and non-financial) to absorb sharp fluctuations in asset prices. The best prevention against financial crises thus consists of continuously monitoring the risks being taken by agents rather than trying to limit variations in asset prices.

[\[1\]](#) We prefer a broad definition of the end objective that takes into account the diversity of institutionalized formulations of the objectives of central banks. While the mandate of the ECB is primarily focused on price stability, the US Federal Reserve has a dual mandate.

[\[2\]](#) The series of dividends paid shows strong seasonality, so this has been smoothed by a moving average over 12 months.

What would be the risks of extending QE?

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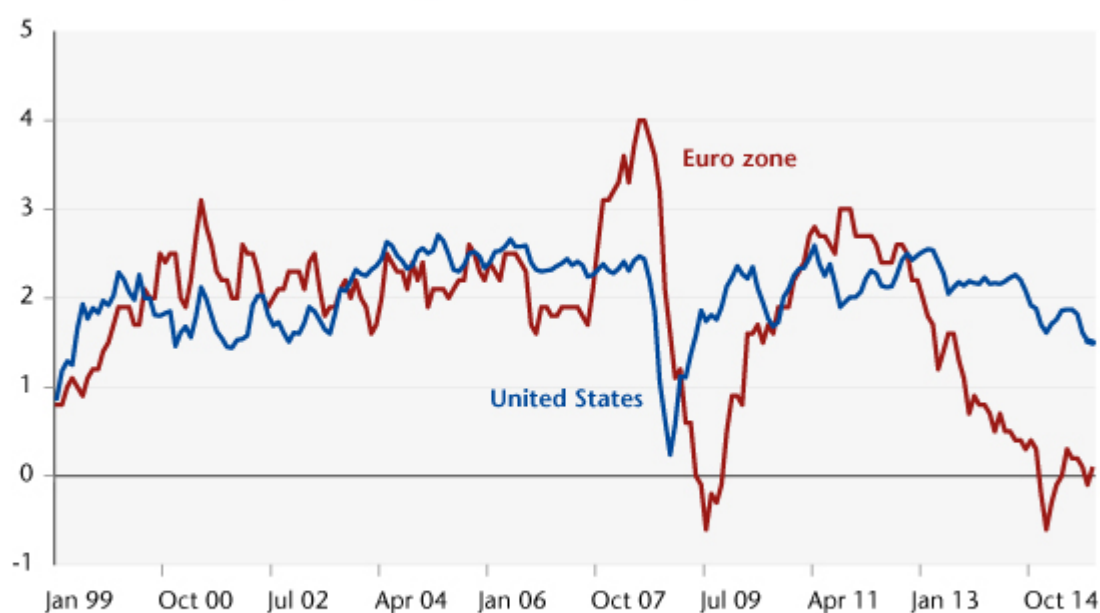
Following the [last meeting of the ECB Governing Council on 22 October](#), Mario Draghi said that on Thursday, December 3rd, the Bank would review the orientation of its monetary policy in

the light of economic and financial developments and the new Eurosystem staff forecasts, which will be disclosed at that time. The main issue facing the meeting is whether the ECB will take new steps to support activity. It could for instance announce further cuts in the [deposit facility](#) rate or an extension of quantitative easing (QE). Up to now the ECB has been careful to show its determination to meet its primary objective of price stability, even though in return it is encountering criticism that these waves of monetary expansion have had little effect on inflation but are fuelling asset price bubbles.

With inflation at 0.1% in October, the ECB is far from meeting its goal of achieving inflation rates below but close to 2% over the medium term. While the low level of euro zone inflation is due in part to lower oil prices, the fact remains that, even when adjusted for energy and food components, so-called "headline inflation" has not exceeded 1% since September 2013, reflecting a persistent state of low inflation. Note that the figure for October is the last observed value of inflation and provides only imperfect information about how it is changing in the medium term. The central banks are thus particularly sensitive to changes in inflation expectations. Market indicators however point to a further decline in long-term inflation expectations, whereas these rose in January after the announcement of QE (see graphic). So while there has been only very gradual confirmation of a recovery in the euro zone, the fear of deflation has not abated, which should push the ECB to strengthen its support. [In a previous analysis](#), which was based on quantitative easing programmes undertaken by the US Federal Reserve and the Bank of England, we emphasized the positive effects that QE was expected to have in the euro zone. The trends in euro exchange rates seen after the ECB's announcements in January 2015 and at the October meeting suggest that there is an impact via exchange rate channels.

Beyond these channels is the question of how QE affects asset prices. Several studies show that an expansionary monetary policy based on asset purchases supports financing and results in higher asset prices. However, some observers are also concerned about the risks associated with these operations, arguing that they feed asset price bubbles, that is to say, increases in prices that are not justified by economic fundamentals. Nevertheless, this kind of analysis relies solely on the rise in share prices to support these arguments. In a [recently published study \(Revue de l'OFCE, issue 144, November 2015, in French\)](#), we focus on the effects of monetary policy on three asset prices in the euro zone: the markets for equities, bonds and property. Our analysis suggests that monetary policy decisions would have no impact on asset prices that is not due to fundamentals. Thus, an interest rate cut does not seem to fuel bubbles, just as a tightening of monetary policy does not lead to a decline beyond what is indicated by the usual determinants of asset prices. While the channel of asset prices [\[1\]](#) does seem to be at work, monetary policy has no additional effects on the component of asset prices beyond what is due to economic fundamentals.

Figure. Long-term inflation expectations



Note: Expectations are measured here by the difference between the yields of 10 year indexed and non-indexed bonds. The measure obtained thus reflects inflation expectations over this 10 year horizon.

Source: ECB, Federal Reserve.

[\[1\]](#) This channel may be divided in two: Tobin's Q channel and the channel of wealth effects. The first suggests that a reduction in interest rates is likely to have a favourable impact on share prices, since share prices correspond to the present value of future dividends. An increase like this in share prices lowers the cost of capital for businesses, and supports their investments (like traditional capital, but via a different mechanism, as higher share prices make share issues more attractive). The second suggests that household consumption may also benefit from lower interest rates: the increase in the prices of financial or property assets resulting from lower interest rates increases their total value and promotes consumption. In a model where households seek to smooth consumption over the life cycle, they spend more when their wealth rises.