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## **Quantitative easing for the Eurozone: origin, impact and unintended consequences**

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# Quantitative easing for the Eurozone: origin, impact and unintended consequences

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The article describes the functioning of the traditional monetary policy framework, and why the traditional tools were not sufficient to restore the Eurozone economy after the crisis of 2008. Unconventional tools had to be implemented, such as Quantitative Easing. This tool remains controversial as history has shown that “printing” money to finance deficits often leads to bigger problems later on, such as inflation and the collapse of confidence in the currency. However it is also the last remaining tool of monetary policy. The consequences of quantitative easing in the short term and in the long term are analyzed; leading to the conclusion that quantitative easing can be helpful for the recovery of the economy if at the same time the necessary structural reforms are implemented which tackle the weaknesses that were at the origin of the crisis.

The Eurozone has still not recovered from the crisis of 2008. What started as a banking crisis quickly developed into a sovereign crisis of some member states. According to the European Treaties, the role of the ECB is focused on maintaining the purchasing power of the currency as its primary goal. But gradually the crisis became increasingly political and a threat for the existence of the Euro. The traditional approach of monetary policy was extended to stabilizing the banking system and stabilizing weak member states. Ultimately, unconventional measures, such as quantitative easing were implemented. The article analyzes the advantages and risk of quantitative easing.

In the first part of the article, the mechanisms of monetary policy in normal times are described. In the second part, it is explained why that traditional monetary policy was not able to stabilize the situation during the crisis. Gradually the range of tools used for monetary policy was extended as explained in part 3, and ultimately also quantitative easing is now part of the toolbox of the ECB, as described in part 4. Part 5 analyzes the potential effects of QE. Part 6 describes two scenarios, one where QE leads to a more stable Europe, and one where QE fails and Europe has to find more fundamental and intrusive solutions.

## 1. Monetary policy in normal times: the standard approach

Over the centuries, a “standard” approach of monetary policy has been developed by an experimental process of “trial and error”.

With the development of modern means of payments since the 17th century, like bank notes and deposit money with commercial banks, the original direct link of money with a “real” asset such as gold or silver, gradually weakened, and the value of money became increasingly dependent on confidence. When the link of money with gold was officially broken in the Western world in 1973, the Bretton Woods system of fixed exchange rates collapsed (Hubbard, O'Brien, 2014) and the value of money became even more based on trust. Within a country, the official currency could still be imposed by law as a “legal tender”, but there are limits of this type of enforcement: when confidence disappears, money gets less accepted, its value goes down and the country risks to get into a financial and often political chaos. It is impossible to impose confidence by law.

Since the 19th century, monetary policy, the policy to maintain confidence in the currency has become a standard ingredient of the economic policy of governments. It is normally executed by a central bank, which gets the monopoly to issue the base money under the form of banknotes or coins. That central bank is in most countries a public institution, but rather independent from the government and protected against its direct influence. History has shown that trying to organize monetary policy within the government or through an institution that is under its direct influence often leads to problems. Governments in need of funds to finance deficits, as is the case most of the time, will be tempted to use “monetary financing”, which means pushing the central bank to issue money in order to finance government bonds. While this is a very convenient solution in the short run because governments do not have to increase taxes or convince investors to finance the deficit, it leads to excessive money supply which will ultimately undermine the value of the currency and its public confidence (Kindleberger, 1996).

Several ultimate goals of monetary policy are possible. The most frequently used objectives are maximizing economic growth and/or minimizing inflation. Maximizing growth is chosen because

higher economic growth increases general prosperity and strengthens the economic and political power of a country. Minimizing inflation is chosen as it is directly linked to the purchasing power of the currency, which is important to create confidence in its stability. However both objectives are negatively correlated. Fully maximizing growth could lead to an overheating economy, which will create upward pressure on prices, a synonym for inflation. To eliminate inflation completely, requires intervention as soon as the economy takes off, which could ultimately undermine growth. Slow growth normally goes together with low inflation or even deflation. High inflation is normally linked to overheating, excessively growing economies. Therefore, a balanced approach is needed, and the priorities for monetary policy will have to be clearly defined. In some countries, like the US, the priority is on growth and employment, while keeping inflation at an “acceptable” level (Federal reserve Act, 1977). In the Eurozone, the goal of the monetary policy is in the first place to limit inflation, and only when that goal is reached can growth be stimulated (Treaty on the functioning of the European Union, Art 127). The difference in how the priorities of monetary policy are defined often explains why central banks in similar circumstances, behave differently.

To implement monetary policy, central banks have a number of tools at their disposal. Most of these aim at influencing interest rates and or money supply. Higher interest rates should make saving more attractive, and thereby reduce spending. Higher interest rates should also reduce borrowing as that becomes more expensive, which also should have a negative effect on the demand for goods and services. Higher interest rates will therefore slow down economic growth and inflationary pressures. Lowering interest rates should have the opposite effect. Of course the central bank has to make sure that its decisions influencing interest rates are also transmitted to the economy. Otherwise, its decisions would remain purely symbolic. Commercial banks play a key role in transmitting the monetary policy decisions of the central bank towards the “real” economy. The central bank disposes of instruments to steer the liquidity position of the commercial banks and can directly decide on which conditions commercial banks can get loans from the central bank. If the central bank wants to increase the interest rate in order to reduce inflationary pressures, it can reduce the available liquidity of commercial banks and make loans at the central bank more expensive, which will automatically direct these banks towards lowering lending volumes and/or increasing lending rates. In the opposite direction, if growth has to be stimulated because inflation is low, the central bank can reduce interest rates and increase available liquidity of commercial banks. That should push banks to give more loans at lower interest rates.

## **2. Why standard monetary policy did not function in the euro-zone since the financial crisis of 2007-2008**

After the financial crisis, leading to a recession and later on to a very slow and limited recovery, the normal tools of monetary policy to support the economy were used in the Euro zone. Liquidity was provided by the ECB, and the interest rates were lowered gradually till almost zero in 2014 (Fig 4). However, growth remained subdued and inflation came down to unacceptable levels, indicating the risk of deflation. The Eurozone seemed to be in a typical “liquidity trap” situation, where low interest rates and abundant liquidity has no effect on the economic activity (Minsky, 2008).

Several elements contributed to the ineffectiveness of the monetary policy of the ECB. First of all, the framework of the ECB monetary policy is strictly and narrowly defined in the European treaties. Article 123 of the treaty of Lisbon explicitly forbids the “monetary financing” of governments by the ECB (Treaty on the functioning of the European Union). Since the start of the crisis, the question about which instruments and mechanisms the ECB was legally allowed to use, was leading to heated discussions.

Second, the economic divergence between member states of the Eurozone was an obstacle. Not all countries in the Eurozone suffered the same effects of the crisis. The more northern countries, and especially Germany, recovered quickly from the recession following the crisis. With a growth rate of 4% in 2010, and shrinking unemployment, there were even some risks of overheating (fig 1).

Figure 1



The Southern part of the Eurozone on the other hand, with Spain as an example, struggled with lasting low growth rates, which hardly became positive in 2010, and quickly fell back into negative territory in 2011, leading to unemployment of more than 25% of the population (fig2).

Figure 2



In such circumstances, deciding on monetary policy became very difficult as some regions needed support for growth, while other regions were close to overheating. Furthermore, as there was still inflationary pressure in 2009, due to increasing prices of commodities, the ECB monetary policy

remained hesitating, and certainly less proactive than in the US, as is shown in figure 3 and 4. The ECB even increased its interest rate in 2008, while the crisis was already starting. This might explain the limited effect of monetary policy in the Eurozone. At least precious time was lost.

Figure 3

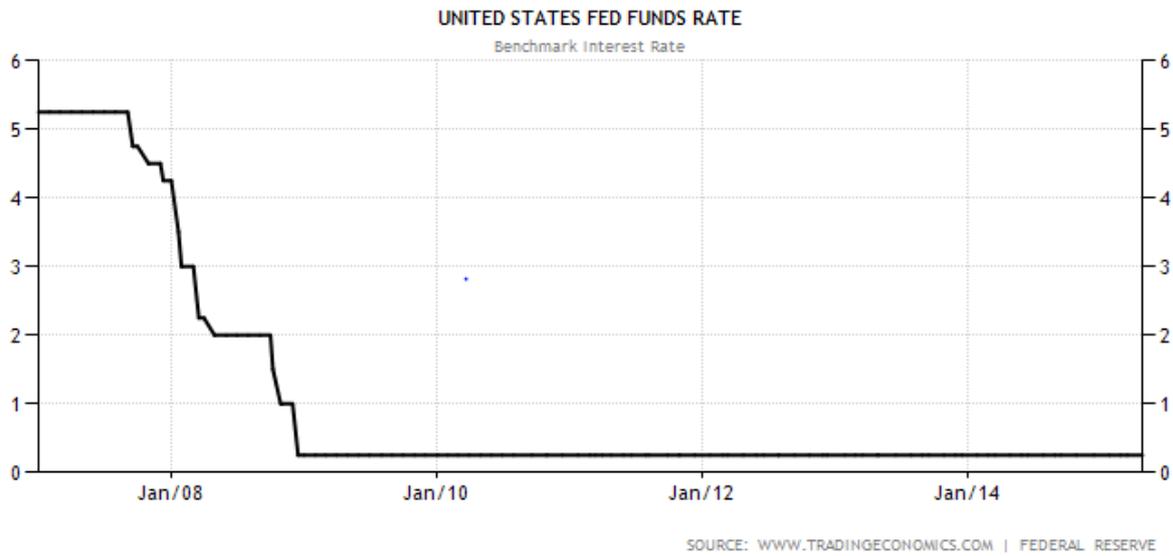
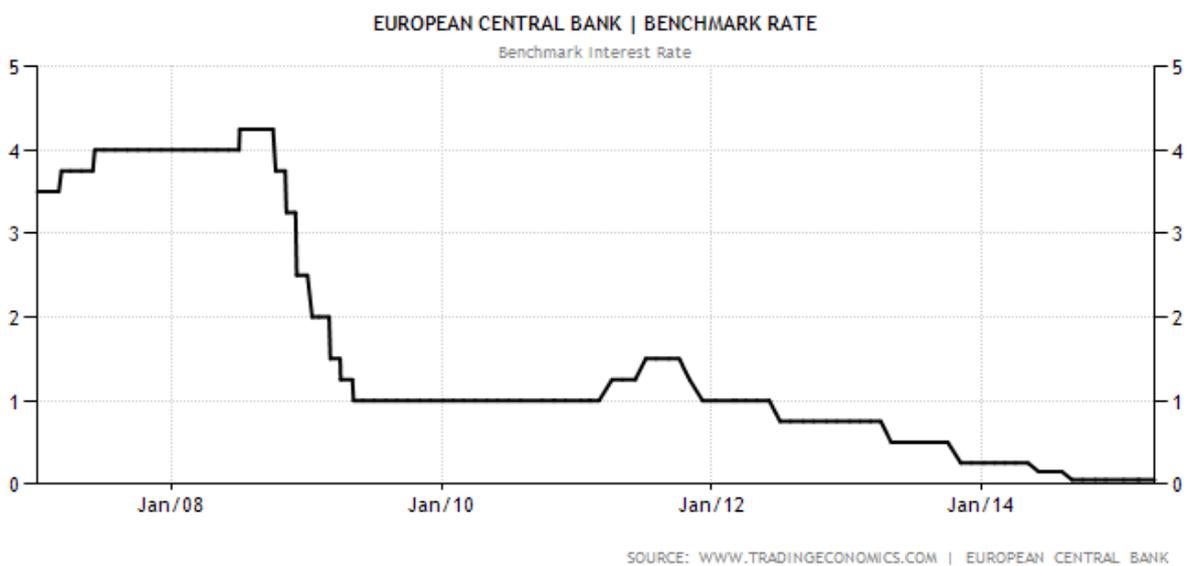
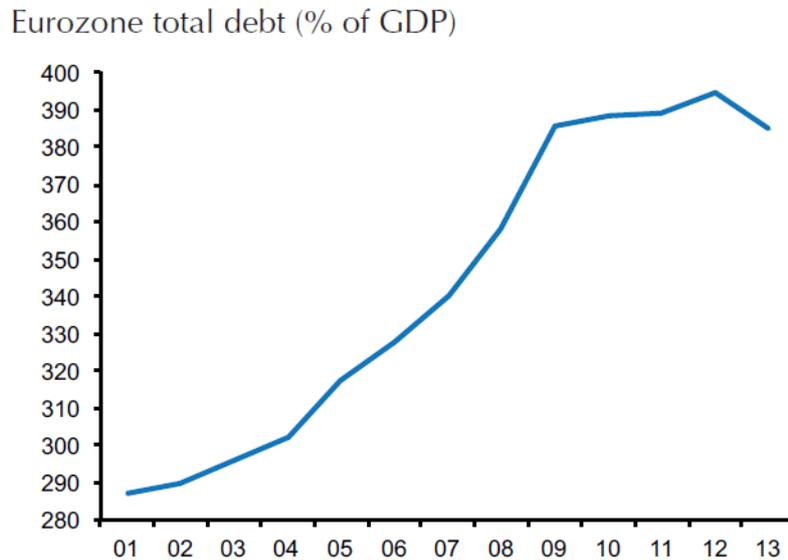


Figure 4



Third, while there are many potential direct causes for the crisis, one of the elements which was structurally weakening the European economy was the excessive debt level, combined with bubbles in housing markets in several member states (fig 5).

Figure 5



CEPR, Geneva report, September 2014: Deleveraging, what deleveraging?

As figure 5 indicates, the total debt level in the Eurozone in % of GDP increased from about 300% to 400% between 2000 and 2008 (Buttiglione et al 2014). Especially when the economy slows down and asset prices collapse, the high stock of debt can be major impediment to revive the economy, despite lower interest rates.

Fourth, the banks, major providers of debt in the Eurozone were weakened by the financial crisis. The quality and value of assets on the balance sheet deteriorated and as a consequence, the solvency position of banks became insufficient. Many banks had to be rescued by governments. A specific characteristic of the banking regulation is that any increase in lending activity has to be accompanied by a proportional increase in shareholder capital. The new regulatory framework of Basel III, officially announced in 2010, even increased dramatically the capital requirements (BIS, 2010). Banks, squeezed by lower quality assets, insufficient solvency positions and crashing stock values, were not able to provide more loans, despite lower interest rates and massive liquidity provided by the ECB. In other words, the traditional function of banks as a transmission channel of monetary policy did not function anymore, leading to a severe credit crunch in the weaker countries.

The EURO crisis which started in 2010 can be considered as a fifth reason why traditional monetary policy did not function. Increasing doubts about the economic divergence between the Eurozone member states, and worries about the sovereign risk for an increasing number of them, distorted the government bond markets and widened credit spreads (Fig 6). Even the existence of the Euro as a common currency was questioned.

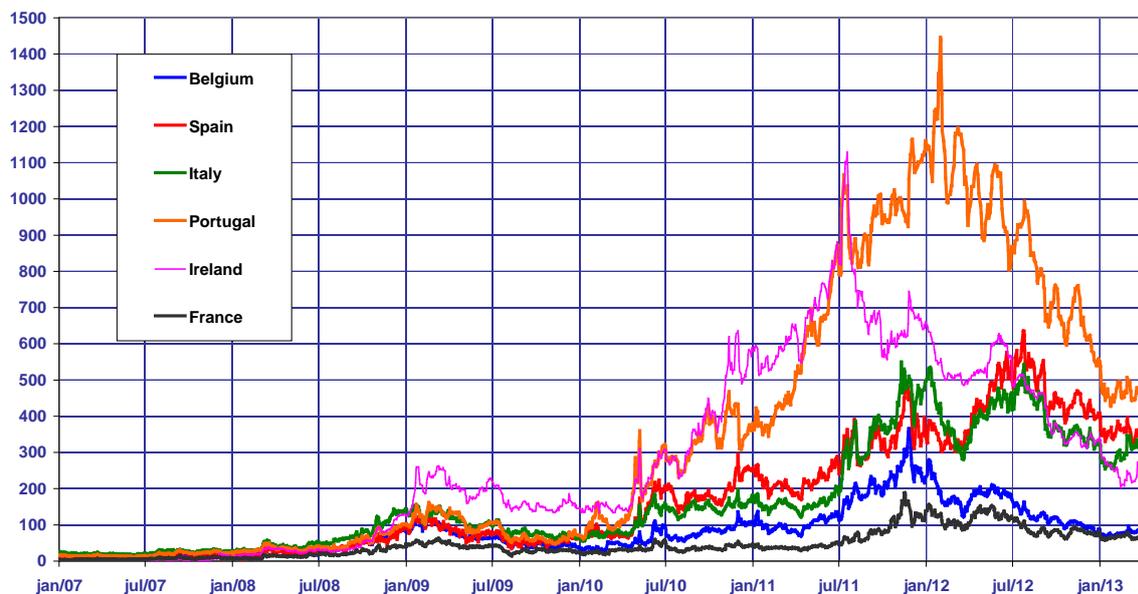
Widening credit spreads on sovereigns within the Eurozone had an immediate effect on banks of weaker member states, investing heavily in domestic government bonds, and on the lending conditions for local companies and households. Despite an almost zero-interest rate policy of the ECB, the cost of borrowing remained excessively high for borrowers of weak Eurozone member states. Only some bold announcements by Draghi, the president of the ECB in 2012 could stop the widening sovereign spreads: "Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough." (Draghi, 2012).

Another reason why monetary policy was not able to restore confidence was that many Member states had structural problems like housing bubbles, lack of competitiveness, excessive government debt, etc. Such problems cannot be resolved with monetary policy but require structural reform such as reform of labor markets, tax system, etc. which are the responsibility of the Member state.

A last element, undermining the effects of the monetary policy, was the increasing popularity of the theory of “secular stagnation”. Growing doubts, especially for the Eurozone, that insufficient demand and investments would lead to a longer period of extremely low growth, where interest rates could structurally tend to become negative undermined confidence in a future recovery (Summers, L. 2013).

Figure 6

**YIELD ON EMU GOVERNMENT BONDS 10Y**  
**Spread with German Bund 10y in bp**



### 3. Shifting the boundaries of monetary policy: unconventional measures

As the economy was not reacting positively to the traditional monetary policy, more intrusive monetary instruments were gradually used by the ECB, as well as by the central banks of other major economies. When all “normal” tools are used and not successful, the pressure to use more aggressive instruments increases. Each of these instruments broadens the scope of monetary policy, which means also that it creates possible conflicts with other policies or creates potentially unintended consequences. Some examples of such policies are discussed below.

### **3.1. Extending the maturity of loans of the central bank to the commercial banks**

In principle, central banks are only providing short term loans to the commercial banks, mostly in terms of days or weeks. The purpose is to manage available liquidity and therefore, it is essential for the central bank to add or remove liquidity quickly. If the central bank gives more long term loans to banks, the central bank reduces its flexibility. However the purpose of adding liquidity is also to facilitate the lending by banks. In uncertain circumstances, commercial banks can be reluctant to provide loans with central banks money because they are not sure if the liquidity will still be available in the future. To remove that hesitation, the ECB has extended the maturity of the loans it provided to banks, to 3 years in the LTRO and the TLTRO program, hoping that banks would start lending longer maturities, which are more useful to support the economy (ECB, 2014).

### **3.2. Broadening the range of acceptable collateral**

In principle the central banks are only providing liquidity in exchange of "good collateral", often using repo contracts. On this collateral will be applied a "haircut", which means that the loan will only be part of the value of the asset. Purpose if this rule is to protect the central bank against credit risk. However in times of crisis, the availability of good quality collateral could be low, especially in the weaker countries where even government bonds are trading at a deep discount. As the banks which really need the central bank liquidity are the banks of weaker countries, who traditionally have plenty of "bad assets", these banks would be cut of the central banks liquidity provision. That would create a situation that the weak countries would even become weaker by lack of liquidity. At several occasions, the ECB relaxed its quality requirements on collateral in order to be able to finance the commercial banks. For example, even when Greece was downgraded to a "high risk" rating, the ECB continued to accept Greek government bonds as collateral against liquidity provided to Greek banks, in order to allow these to continue to operate. Indeed, one could wonder in how far the ECB, as an "independent" central bank is not getting into the trap of indirectly financing governments in financial needs, which is a strictly forbidden activity according to the normal monetary policy practice.

### **3.3. Increasing the amount of loans by the central bank.**

A basic rule in monetary policy is that the central bank manages the amount of loans it gives to banks in order to avoid excessive liquidity which could lead to inflation. However during the crisis, at several occasions, when there is no danger of inflation at all, the ECB has committed in advance to a full allotment of all liquidity demand from commercial banks. As Figure 7 illustrates, this had as a consequence an increase of the ECB balance sheet from 1200 bn € in 2007 to 3000 bn € in 2012. Since then, banks have reduced their borrowing demand significantly, which is one of the reasons why the ECB shifted towards quantitative easing in 2015.

Figure 7



### 3.4. Direct intervention in specific financial asset markets

In principle, when intervening in financial markets, the central bank aims at influencing the liquidity supply, but not the pricing on the markets, nor the financing of the issuers. When the central bank wants to increase liquidity supply, it buys securities in the market; when it wants to reduce the available liquidity, it sells securities. However, during the crisis, the ECB launched several buying programs, directly focusing on specific markets, which, according to the ECB, were not functioning properly. The covered bond purchasing program, the securities market program and the Outright Monetary transactions program, opening the possibility that the ECB would intervene directly to support the government bonds of weaker member states, all had as a goal to stabilize specific markets at a specific price level. A complete overview of the ECB programs can be found at the ECB-site, chapter monetary policy, instruments (ECB, 2015).

### 3.5. Forward guidance.

A central bank will in principle always keep flexibility for its policy of the future and will avoid long term commitments in terms of interest rates or liquidity, or in terms of achieving certain specific goals in terms of growth of the economy or inflation. When, according to the opinion of the central bank, uncertainty in the economy is a major burden for recovery, it can present a longer term view about how it will act until a specific result is reached. The ECB used this instrument since July 2013 in its communication: ““expects the key ECB interest rates to remain at present or lower levels for an extended period of time” (ECB, 2014).

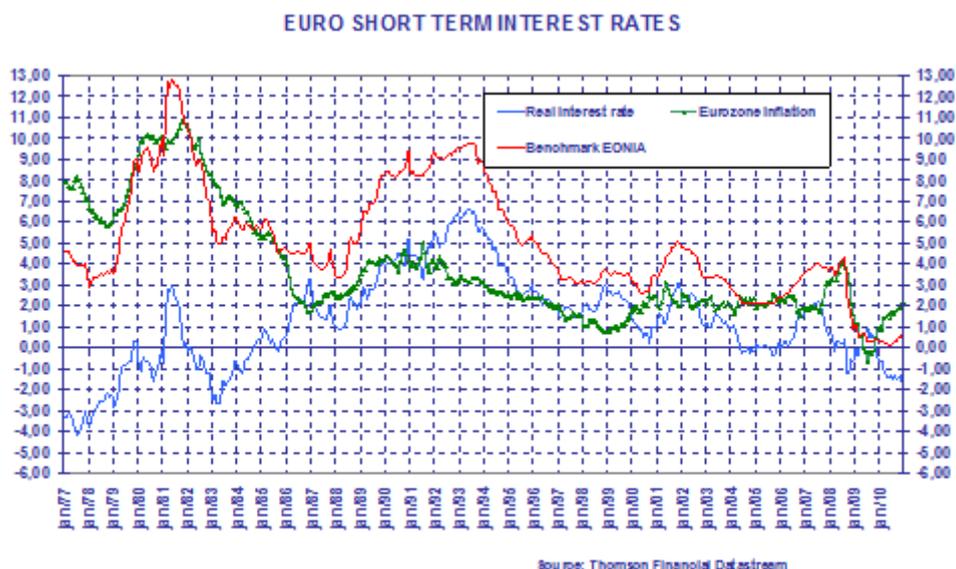
## 4. The extreme tools of monetary policy: negative interest rates and quantitative easing.

### 4.1. Negative interest rates

The central bank has the possibility to set the short term interest rate at any level, including at a negative level. However central banks are very reluctant to bring interest rates to negative territory, because that changes fundamentally the normal incentives on which a financial system is built. The basic rule in finance is that the person who saves money, and is willing to make this money temporarily available to another economic agent by agreeing on lending, will get a positive reward because he runs a credit risk and he allows the borrower to use the money for profitable activities. When interest rates get negative, the saver gets penalized. On the other hand, when interest rates are negative, the borrower gets a “subsidy” to spend, even in non-profitable projects, which is hardly a justifiable reason in terms of economic development.

When inflation is higher than the nominal interest rate, the borrower also gets a subsidy as he has to pay back less than what he borrowed in terms of purchasing power. Such situations have existed before, for example from 1977 till 1980, from 1982 till 1985, and since 2010, as demonstrated in Figure 7. In economic terms, there is no fundamental difference between a situation when interest rates are lower than inflation and a situation where interest rates are negative. Only the magnitude of the “negative” can differ. But as can again be seen in fig 7, in 1978, nominal interest rates were 3% while inflation was 7%, leading to a “real” interest rate of -4%.

Figure 7

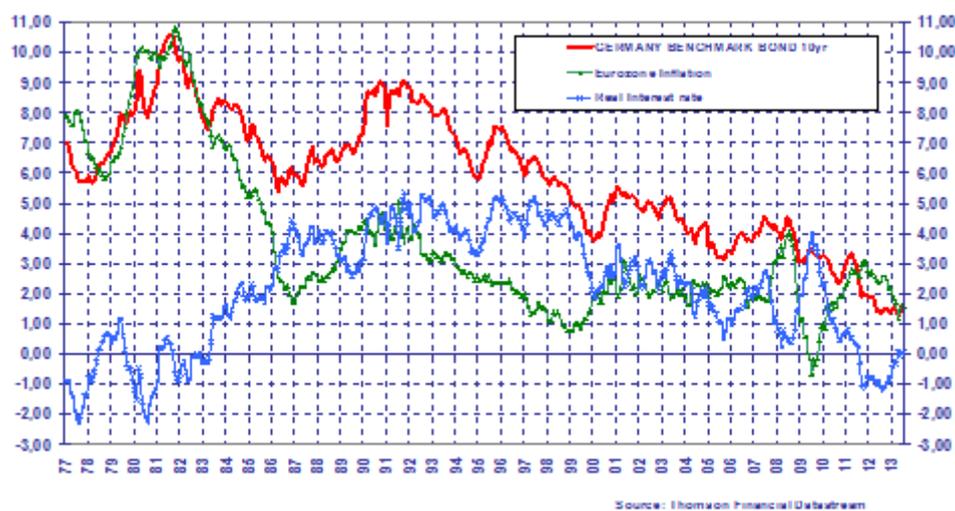


While situations where inflation is higher than nominal interest rates are pointing to difficult economic circumstances, the financial system can remain fairly stable for several reasons. First of all, the investor cannot escape from the negative real interest if he/she wants to keep short term investment instruments: all, including banknotes see their purchasing power diminish over time, and banknotes suffer even more as they do not get the nominal interest rate. Some investors will stick to short term instruments because they expect the situation to change in the future, for

example because they expect nominal interest rates to go up. Other investors will look for alternatives such as stocks or long term bonds because their expected return is higher. As Figure 8 demonstrates, over the last 40 years, there have been periods when inflation was higher than the interest rates of long term bonds, but investors can still rationally opt to invest in these bonds when they expect inflation to come down, which will reduce long term rates in the future.

Figure 8

EURO LONG TERM INTEREST RATES AND INFLATION



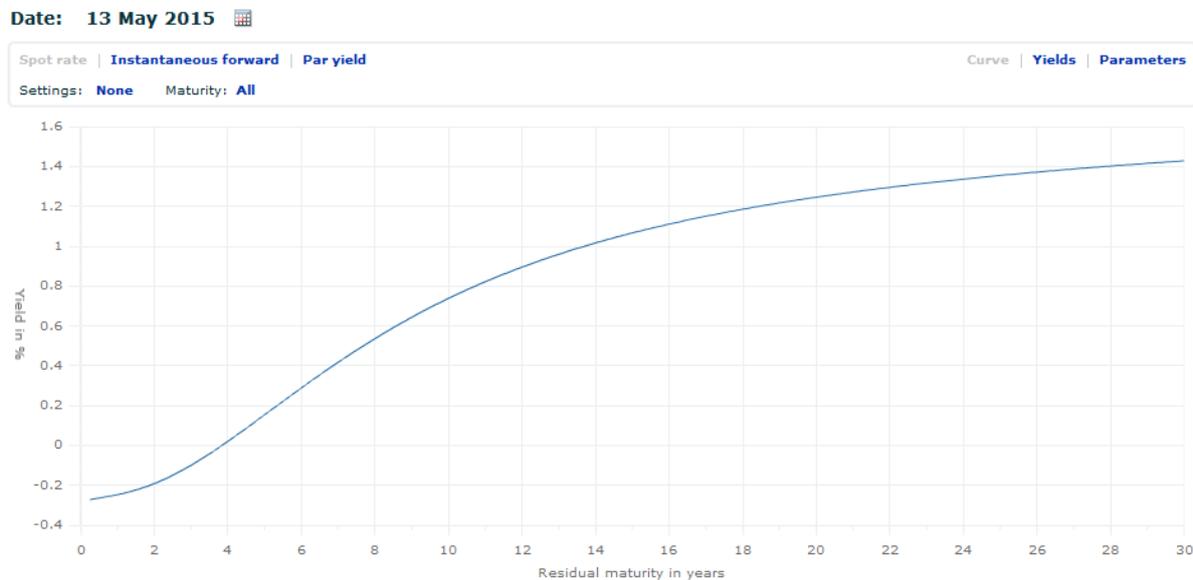
However, when nominal interest rates are negative, the practical situation gets totally different. Banknotes escape from negative interest rates, which can lead to hoarding behavior and chaos in the financial sector. A legal framework to prevent hoarding becomes necessary. Furthermore, when rates are already negative, it is unlikely that investors will buy bonds unless they expect rates will become increasingly negative. The underlying economic scenario justifying such expectation has to be extremely pessimistic and can undermine any potential recovery if it becomes “anchored” in market sentiment. Nevertheless, institutional investors such as pension funds and insurances companies, can still choose to invest in longer term or riskier assets, because “there is no alternative”: by sticking to the so-called risk free investments, they are sure to fail as the return on assets will be below the return promised on liabilities. Investment policies of institutional investors start to be characterized by a behavior of “gambling for resurrection”. Negative interest rates are a form of “financial repression”.

That is why central banks are very prudent and rather reluctant to decide on negative interest rates.

This being said, the ECB pays already a negative interest rate on deposits it receives from commercial banks and an increasing part of government debt of Eurozone countries has a negative yield, as bonds are quoted significantly above nominal value. In May 2015, according to the ECB, the Euro yield curve was negative until a maturity of 4 years (fig9).

Figure 9

ECB EURO YIELD CURVE



## 4.2. Quantitative easing

Quantitative easing is the ultimate tool for central banks, which is only used when all other tools, including extremely low or even negative interest rates, are not producing the hoped for effect. That can be the case when the transmission mechanisms for monetary policy are not functioning (see §2) or in case of a liquidity trap, when the general expectations are so pessimistic that low interest rates and ample liquidity cannot convince borrowers to take loans.

Quantitative easing consists of the central bank buying itself massively securities in a planned and openly communicated way. These securities, essentially government bonds and occasionally also private sector debt can be bought on the secondary and/or primary markets. Buying the bonds on the primary market, which means directly from the issuer, is called “monetary financing”. In that case, governments can finance their deficits without attracting investors as the central bank is just “printing” the money and buys the bonds. If these bonds are bought on the secondary market, governments have first to find investors in the primary markets, after which the central bank buys the issued bonds on the secondary markets. Also in that case, the financing of deficits is facilitated because the continuous buying of bonds by the central bank will drive the long term interest rate increasingly lower. Because of the strict legal framework in the EU, the ECB can only buy bonds on the secondary market (Treaty on the functioning of the European union, 2007, art 123). Quantitative easing can be one of the factors leading or increasing the pressure towards low or even negative interest rates (see §4.1).

Quantitative easing is considered to be a dangerous instrument for several reasons. It increases the supply of money in an artificial way, which could ultimately lead to inflation; it facilitates life for (public) borrowers, which could lead to more bad debt and insolvencies in the future; it distorts markets as it brings the interest rates to dangerously low levels; and the exit of quantitative easing is a very delicate operation, often leading to financial panic, as historical evidence demonstrates (Claeys, Darvas, 2015). The impact of QE is further analyzed in §5.

Many central banks started a QE program since the start of the crisis in 2008. The US central bank started its QE program already in November 2008, ended its buying program in October 2014 and is now discussing the exit strategy. The ECB only started its QE program in March 2015, called the Public Sector Purchasing Program (PSPP), which consists of the commitment of the Eurozone central banks to buy every month 60 billion € public bonds, until September 2016.

## 5. Effects of Quantitative easing

Quantitative easing is a powerful instrument, with lots of direct and indirect effects, some of them intended (or positive), some of them unintended (or negative effects). Some of these effects materialize in the short term, others more in the medium to long term. Figure 10 gives an overview of these effects.

There is a direct impact on short and long term interest rates, depending on the assets that the central bank buys. When interest rates are already very low, this impact can be negligible, but nevertheless real.

More money in circulation and the fact that there is more demand for specific securities facilitates directly borrowing for those issuers, even if the central bank is buying bonds on the secondary markets.

The announcement of QE can have an immediate downward effect on the exchange rate of the currency, as the outlook for investors deteriorates. Lower exchange rates improve external competitiveness and exports. Clearly, the announcement of QE for the euro supported the depreciation of almost 20% of the Euro/dollar rate.

Figure 10

### EFFECTS OF QUANTITATIVE EASING

	SHORT TERM	MEDIUM TO LONG TERM
+	LOWER INTEREST RATES EASY LOANS LOWER EXCHANGE RATE LOWER FINANCIAL RISKS LOWER RISK PREMIUMS SUPPORTS MARKETS INCREASES MONEY SUPPLY	
-	DISTORTS MARKETS GROWING BUBBLES	IMPACT ON INSTITUTIONAL INVESTORS INCREASES (BAD) DEBT BUBBLES CAN BURST CURRENCY WARS EXIT

As QE creates plenty of new liquidity, the immediate risks for market crashes is reduced.

Risk premiums in general come down, as low interest rates push investors to take more risky assets in order to get an acceptable level of return.

The increased money supply, together with the financial repression of sometimes negative interest rates, and the outlook for increasing inflation later on, can stimulate immediate demand in the real economy.

There are also short term negative effects such as the fact that QE distorts the normal functioning of markets, depending on the amounts and the specific markets where securities are bought by the central bank.

Furthermore, artificially lower risk premiums can also be an indicator for growing bubbles.

In the medium to long run, there are no specific positive effects of QE, unless it has an impact on the recovery of the economy and leads to sustainable long term higher growth. Central banks, and especially the ECB is however warning against this hope: QE can give a short term positive shock to the economy, but has to be accompanied by "structural reform" in order to have a sustainable effect.

The potential negative effects of QE in the medium to long term however are very clear.

Institutional investors such as life insurance companies and pension funds run the risk of insolvency, as the return on assets can get below the contractual return on long term liabilities.

QE continued over a longer period of time makes life for borrowers (too) easy. Especially governments can take the advantages without continuing the necessary and difficult structural reform of the economy to improve structural competitiveness. In that case, QE is only increasing the problem of excessive debt and bad loans.

If QE leads to bubbles in some asset real or financial markets, the risk of crashes increases with time.

Lower exchange rates support international competitiveness and export, but will also lead to reactions of other currency zones if they consider the lower exchange rate as an unfair instrument of competition. Currency wars can be a consequence.

Finally, the decision to end the QE, somewhere in the future, and defining the path to normalize the situation is a politically very sensitive process. There will always be analysts in favor of exit as soon as the first signs of recovery appear, in order to avoid inflation to increase too much. Others will be more in favor of waiting because an early exit could jeopardize the recovery.

From this overview can be concluded that QE delivers a broad range of short term advantages to promote economic recovery. However, the longer the QE takes, the more important will be the medium/long term effects which are essentially negative. In other words, QE seems to be a shock therapy to the economy which should not take too long. It is certainly not a fundamental solution for structural problems underneath the deteriorated economic situation.

## 6. Scenario's for the future

Many scenarios can be imagined about how the Eurozone will get out of the QE phase. Essentially two are discussed below: one in which QE together with the other interventions are successful, and one in which the cocktail of policies, including QE, is failing.

### 6.1. Scenario of successful QE

The most optimal outcome of QE for Europe is that the actual signs of recovery of the economy become gradually stronger, until growth gets higher than 1,5% (the actual forecast of the commission for 2016). EU initiatives like the Juncker plan, help this recovery based on sustainable long term finance. The weaker Member states continue successfully their structural reform and confirm the actual improvement with gradually reducing government debt and a positive current account. Meanwhile, the EU legal and governance framework is further strengthened, with more discipline and coordination of economic policies of Member states and more EU money available to intervene in case of unexpected problems. Interest rates can be kept low for an extended period, as inflationary pressures remains subdued. The debt levels are stabilized, which means that they come down as a percentage of GDP. The financial system is further reformed, with a smaller banking system and more financial market activity. Fears that QE will lead to excessive inflation and bubbles do not materialize: after all, the supplementary volume of debt from QE is foreseen to be 1600 bn €, less than 5% of the existing debt levels. As the economy gets stronger, the ECB gradually starts an exit from QE. That can be done in an "automatic" way by not renewing ECB investments in government bonds when they come at maturity, or even more aggressively by selling government bonds in order to reduce available liquidity.

This almost sounds like a fairy tale, and indeed, it requires a lot of conditions to be fulfilled, but it is not impossible, even if parts of the puzzle are only partially realized.

### 6.2. What if QE is not successful?

It can of course not be excluded that the economic outlook for the Eurozone is not improving, despite QE, but that the EU and the Eurozone is just muddling through or is even confronted with new shocks and problems such as recession, political disputes and/or a renewed financial crisis. If QE, being the ultimate tool for monetary policy of central banks, is not able to produce the hoped for results, other instruments of economic policy can still be implemented, going from capital controls, wealth taxes, some member states leaving the Eurozone, nationalization of parts of the financial system (such as banks), to even additional failing member states requiring help from the IMF.

As all possible policies under this scenario are far more intrusive and disruptive than QE, we can only hope that they will not be needed.

## 7. Conclusion

Since the crisis of 2008, the EU and more specifically the Eurozone is in a bad shape. As the home region for an extremely large banking sector, the effects of the banking crisis were far more severe than in other parts of the world and were even threatening a number of Member states. As there was no political framework available to stabilize these weaker member states, the banking crisis became a sovereign crisis in 2011, threatening the single currency. A policy framework to manage this crisis was gradually developed, consisting of more discipline among member states, a

(partial) banking union and mechanisms to resolve problems with European funds. But in the meantime, the economy did not recover, the levels of debt increased and the monetary policy instruments used were gradually extended.

The ECB is now implementing its ultimate tool, quantitative easing, which also the US and many other countries have used since 2009. QE remains controversial because it is not part of the conventional toolbox of central banks and history shows that “printing” money to finance the short term problems often leads to more serious problems in the long run. However, there is no valid alternative, and the experience of the US is rather encouraging.

QE alone will not bring a fundamental solution, but if it is combined with the necessary structural reforms at Member state and Eurozone levels, as planned, it can provide the necessary oxygen for a certain period of time to facilitate the reforms.

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