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Barro-Gordon 30 years after

Robert Ophèle Deputy Governor Banque de France

Ladies and Gentlemen, dear colleagues,[1]

"A Positive Theory of Monetary Policy in a Natural-Rate Model"

It is a great pleasure for me to discuss the legacy of this celebrated work Professors Barro and Gordon published 30 years ago in the *Journal of Political Economy*.[2] It is with no doubt one of the most influential academic articles of the early 80s and it decisively changed the way academics think about monetary policy. As someone involved in central banking for over 25 years, I would like to share my views, and I will do that very modestly in front of such a prestigious academic audience, on how it influenced and still shapes the practical conduct of monetary policy.

As we all know, building on Kydland and Prescott (1977)[3] time inconsistency problem, Barro and Gordon emphasized that, while society as a whole would benefit from central banks committed to price stability, this commitment is not credible whenever they are simultaneously asked by other actors, and in particular, elected governments, to push output growth beyond its potential level. Central banks have then an incentive to deviate from the price stability target they announced, once expectations are anchored to it. Agents anticipate that their commitment is not credible and therefore trigger increases in their prices and wages to protect their purchasing power. We end up in a high inflation equilibrium.

[1] I wish to thank P. Andrade and B. Mojon for their contributions to this speech. I remain solely responsible for the opinions contained herein.

[2] Barro, R. J. and D. B. Gordon (1983) "A Positive Theory of Monetary Policy in a Natural-Rate Model" *Journal of Political Economy*, 91: 817-839.

[3] Kydland, F. E. and E. C. Prescott (1977) "Rules Rather Than Discretion: The Inconsistency of Optimal Plans", *Journal of Political Economy*, 85: 473-491.

This article spurred a vast literature aiming at designing credible central bankers' pre-commitment to price stability – in particular through their legal status and independence from the fiscal authority – and through the commitment to explicit policy targets or rules. The wide ranging influence of Barro and Gordon's analysis is reflected in the institutional evolution that the most influential central banks experienced over the last three decades. The Eurosystem's legal status is one of those examples.

In the remainder of this speech, I would like to put this influence into historical perspective. I will first argue that central banks' efforts and accomplishments in establishing their credibility somehow preceded such changes in the design of monetary institutions. In a way, Barro and Gordon's paper formalized the deep change in both academics' and policy makers' views on what a sound monetary policy practice should be and that had already occurred following the Great Inflation episode of the 70s. I will then underline two lessons for central banks' credibility that I think we have learned from the Great Recession. First, the credibility of monetary authorities passed the crash test of the crisis, and it is important to realize that the solid anchoring of inflation expectations has been an essential asset to prevent the dire consequences of a deflation spiral. Second, the credibility of monetary authorities interacts with the pursuit of credible fiscal and micro/macro prudential policies. In my opinion, while both academics and policy makers are showing an increasing awareness to these interactions, further efforts are still needed before reaching a complete understanding of the issues at stake.

[I/ Building central banks' credibility]

Let me first address the way modern central banks built-up the credibility of their commitment to price stability. In my view, they first managed to establish a *de facto* credibility which was then entrenched by *de jure* credibility.

[I-A/ De facto credibility came first…]

In the wake of Barro-Gordon paper, it has been often argued that independence and explicit rules were key conditions to a credible commitment to price stability. However, legal independence and explicit inflation targeting rules are not sufficient conditions to ensure credibility.

In a very telling study published in 2000, Alan Blinder[4] reported survey evidence according to which the majority of central bankers and academics considered a central bank's inflation record as the most important measure of its credibility. Central banks have effectively invested in this type of credibility through a track record of low inflation rates since the first half of the 80s while most central banks' status evolved only a decade later.

Let me briefly recall the historical record of inflation performance in the major western economies over the last fifty years.

Figure 1[5] shows the dynamics of the consumer price index (CPI) inflation rate in the US and the UK going back to the early 60s. The vertical lines correspond respectively to the appointment of Margaret Thatcher as UK's Prime Minister, the beginning of Fed chairman Volcker's tenure and to the date of publication of Barro and Gordon's article. During the 1970s inflation became a regular feature of economic developments, with yearly increases in the CPI regularly exceeding 10%. As is well known, in the US, under the tenure of chairman Volcker, the Fed managed to implement a sharp disinflation process in 1980-1982. The same abrupt transition was achieved by the Margaret Thatcher. The graphic makes clear that by the time Barro and Gordon published their paper, the transition to a new and lower inflation rate had already been achieved in both countries.

[4] Blinder, A. (2000), "Central Banks' Credibility: Why Do We Care? How Do We Build It?" *American Economic Review*, 90(5): 1421-1431.

[5] See the Appendix.

As **Figure 2**[6] illustrates, a parallel evolution has taken place over the same period in Germany, France and Italy. This is indeed the time when, in the context of European integration, member states, which at that time were only 8, chose to anchor their monetary policy together through exchange rate agreements. A decisive step was the launch of the European Monetary System in March 1979, indicated by the first vertical line on figure 2. This reflected both a strong political will towards further European integration and a deeply rooted trust in the Bundesbank policy, which inflation performance had been significantly better than other industrialized countries over the 70s, as this figure also illustrates. The change was relatively slower in Western Continental European countries other than Germany notably because of more prevalent wage indexation.

In retrospect the process has not been limited to Western Central Banks but way more global. There has been an astonishing degree of co-movement in the inflation rate of all OECD countries. Ciccarelli and Mojon (2010)[7] found evidence that 70% of the variations in inflation rates of OECD countries can be explained by a common global component. In most countries, we observe an increase of inflation in the late 60's and the 70's, a sharp decline in the first half of the 80's, another in the early 90's and very limited fluctuations around 2% over the last two decades.

Among the usual suspects of such a strikingly common pattern is monetary policy doctrine of central banks. Although there is a debate in academic circles, some scholars claiming that the transition should mainly be attributed to sheer luck and later to the deflationary pressure of the globalization process, the dominant view is that it resulted from a shift in policy regime. This has been documented for instance in the influential work by Clarida, Gali and Gertler[8] that was published in the late 90s in which they showed that implicit monetary policy rules that the central banks of

[6] See the Appendix.

[7] Ciccarelli, M. and B. Mojon (2010), "Global Inflation", *Review of Economics and Statistics*, 92: 524-535.

[8] Clarida, R., J. Gali and M. Gertler (1998), "Monetary Policy Rules in Practice: Some International Evidence" *European Economic Review*, 42: 1033-1067.
Clarida, R., J. Gali and M. Gertler (2000), "Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory" *Quarterly Journal of Economics*, 115(1): 147-180.

industrialized countries[9] were implicitly following turned out too accommodative and destabilizing in the 70s and have changed to become stabilizing over the first half of the 80s. Noticeably, these results also imply that central banks were already and implicitly following some type targeting rules that aimed at stabilizing inflation at low levels before being independent.

This change in inflation regime has been costly. The so-called "Volcker contraction" involved a sharp increase in interest rates that reduced demand and put downward pressures on prices and wages. As Fève, Matheron and Sahuc (2010)[10] emphasized, one of the main costs of disinflation is the slow adjustment of inflation expectations and its effects on real ex post interest rates. When one starts from a high inflation regime, it takes time to convince economic agents that inflation will be moderate in the future. The longer the adjustment of inflation expectations, the more costly the disinflation process as the real interest rate stays above its long-term level for a longer period of time and drags down both consumption and investment. It turns out that inflation expectations adjusted to a new lower level over the 80s, but that this adjustment took time indeed. For instance, in the US, 1-year inflation forecasts observed in the survey of professional forecasters were still equal to 9.5% in 1982 while inflation realizations were at that time already lower than 5%. The same 1-year inflation forecast had dropped to 2.5% in 1986, a level in line with the inflation rate of about 2% observed at that time. Incidentally, this evolution of inflation expectations is another illustration of the *de-facto* built-up of credibility central banks achieved during the 80s.

Because of the costs it implied, the disinflation process could not have been achieved without the firm commitment of public authorities to fight inflation. As a matter of facts, in the early 80s, the Great Inflation of the 70s and its associated costs and turmoil was vivid in everybody's minds. Barro and Gordon's paper is thus also representative of an intellectual evolution. For both academics and policy circles, it

[9] Namely the US, Japan, Germany, the UK, France, and Italy.

[10] Fève, P., J. Matheron, and J. G. Sahuc (2010), "Disinflation Shocks in the Eurozone: A DSGE Perspective", *Journal of Credit Money and Banking*, 42: 289-323.

took the Great Inflation of the 70s, to learn that it was not possible to fight against permanent productivity shocks of the type experienced in the 70s with monetary policy. The latter cannot alleviate economic slowdowns through transitory small increases in inflation, i.e. by exploiting the short-term Phillips' curve. As the work of Cogley and Sargent[11] shows, the US inflation performances of the 70s and 80s can be rationalized by such a learning process of public authorities. It took time, and a number of high inflation realizations, for the authorities to revise their prior analytical framework and admit that the Phillips' curve is actually vertical.

[I-B/ …and announced de jure credibility]

To me this success in achieving low inflation records in the 80s heralded what we can call a process of *de jure* credibility which went on during the 90s. This change in legal status resulted from two ingredients. First, legal independence of the Bundesbank and its capacity to resist inflation in the 70s demonstrated that inflation could be controlled by a resolute central bank. Second, academic and policy circles, gradually understood why, and here in my view is the main contribution of Barro and Gordon, the focus on price stability of independent central banks would deliver low inflation.

To start with, modifications in legal status of several central banks further asserted this change in the inflation regime by making it both more explicit and irreversible. For instance, Banque de France became independent in January 1994, hence 11 years after Barro-Gordon's celebrated paper was published. It was a prerequisite to join the stage 3 of the European monetary union. *De jure* independence was further entrenched into the status of the ECB and of the Eurosystem.

Moreover, an explicit and quantified definition was then given to price stability. Our operational objective of price stability is that year on year inflation of consumer prices would be close but below 2% over the medium run. This operational definition has shaped medium-run inflation expectations of private agents. These have expectations consistently in line with our definition of price stability since the Eurosystem became

[11] Cogley T., and T. Sargent (2001), "Evolving Post-WWII US Inflation Dynamics", *NBER Macroeconomics Annuals*, 2001.

responsible for conducting monetary policy in the euro area, in 1999. I would like to stress that, similarly to the inflation performance of the Bundesbank in the 70's, this form of numerical objective, at 2%, has also been perceived as the best practice by a number of central banks, including inflation targeters in the OECD and emerging markets. The US Federal Reserve Bank, who most observers thought it had an implicit target of core PCE inflation at 2% since the early 90's, adopted this 2% inflation objective explicitly in January 2012 and the Bank of Japan did as well in March 2013.

This further commitment to price stability over the 90s shows up in a decrease of various measures of inflation risk associated with expected future inflation. For instance Andrade, Ghysels and Idier (2012)[12] show that the uncertainty professional forecasters associate to their own forecast of future US inflation significantly dropped in the early 90s. Another study by Wright (2012)[13] enlightens that the term premium in bond markets declined substantially for a set of advanced economies[14] over the 90s, an evolution that he relates to a fall in inflation uncertainty and which contributed to a persistent reduction in the slope of the yield curve in these countries.

In retrospect, economic agents have not been deceived. Since the euro has been launched, despite the recent financial market crisis and the several peaks in energy prices, the average headline and core year-on-year inflation rates amounted on average to 2.1% and 1.6% respectively.

However, it is fair to say that we should not be too complacent about having delivered price stability over the past two decades. Indeed, the recent crisis also revealed that the very same monetary policies which managed to achieve a long-lasting record of price stability were not sufficient to ensure financial stability. We could have born in mind that the period of the Gold standard, in particular, had been one of stable prices and recurrent financial crises. The truth is that we had a harsh recall of fading memory that

[12] Andrade, P., E. Ghysels and J. Idier (2012), "Tails of Inflation Forecasts and Tales of Monetary Policy", WP Banque de France n. 407.

[13] Wright, J. (2011), "Term Premia and Inflation Uncertainty: Empirical Evidence from an International Panel Dataset", *American Economic Review*, 101: 1514-1534.

[14] The sample of countries is the US, the UK, Canada, Japan, Germany, Norway, Sweden, Switzerland, Australia and New-Zealand. The sample period is 1990 to 2009.

price stability, while necessary, was not a shield against financial instability. And the latter frequently put macroeconomic stability at risk. One could even raise the question of whether central banks were not blinded by their success in achieving price stability, somehow understated the concerns regarding financial stability and, to some extent, fueled the financial crisis by encouraging the building-up of imbalances through too accommodative monetary policy in a context of consumer price stability.

The macroeconomic instability triggered by a major financial crisis was not taken into account into Barro and Gordon's analysis of monetary policy. In my view, the Great Recession the World went through in 2009 points to two new elements that should be added to their framework. First, even in times of an acute crisis, it is possible for central banks to preserve what Barro and Gordon underline as their main asset: the credibility in delivering price stability. Second, I also think this crisis episode enlightened that monetary policy is not omnipotent and that some changes in the design of modern policy institutions, in particular the ones handling fiscal and financial stability policies, are needed in order to ensure the well-being of our fellow citizens. I will now discuss the lessons we should draw from the crisis.

[II/ The resilience of CB's credibility during the Great Recession]

Let me start with the resilience of central banks' credibility.

[II-A/ Testing CB's credibility]

The stock of credibility that central banks have accumulated over the past 30 years has proved to be one of the major assets public authorities could rely on when striving to mitigate the dramatic consequences of the Great Recession.

The credibility of monetary policy did pass the test of the worst recession combined with the worst financial crisis in 3 generations. Inflation expectations have remained remarkably anchored in spite of the dramatic sequence of events we went through.

This can be seen on various measures of inflation expectations extracted either from markets or from surveys. For instance, in the euro area, the medium term 5-year inflation forecasts, as taken from in the survey of professional forecasters, equaled 1.96% on average over the 2007-2012 period. This is clearly a level that is consistent with our definition of price stability close to but below 2%.

Further analysis reveals that the uncertainty associated to future inflation has increased significantly both in the US and in the euro area. For instance, on average, euro-area forecasters consider that the variance of their forecasts, has roughly doubled since the beginning of the crisis, as **Figure 3** illustrates. A comparable increase in inflation uncertainty is also observed when one looks at US inflation forecasts. However, taking a longer term perspective, the risks associated to future inflation that one can derive from this measure are in no way comparable with the ones that have been reached amid the Great Inflation of the 70s. And in spite of increased uncertainty, the mean inflation forecast remains near 2%. This trust in the value of the currency is remarkable first in view of the massive deleveraging forces we are going through, and, second, in view of the escalation of the monetary base decided by central banks since 2007 in order to counter the collapse of inside money on financial markets.

All in all the diagnostic is that central banks succeed in keeping inflation on tracks during the Great Recession. Our credibility in delivering price stability has thus passed a kind of crash test made of a sequence of major recessionary shocks: the subprime market crisis and the money market freeze of 2007, the failure of Lehman of 2008, the global free fall of international trade of 2009, and the sovereign debt crisis in the euro area of 2011. This credibility asset has been key in avoiding the risk of a deflation and hence of a further deepening of the recession.

In the following, I will first argue that central banks passed this major test by showing their ability to manage an extended range of expectations. Such coordination was warranted to preserve their credibility. I will then elaborate on some longer-term challenges to price stability revealed by this unprecedented crisis.

[II-B/ Extending central banks' credibility]

Barro and Gordon emphasized the role of central banks' credibility in shaping inflation expectations in order to achieve price stability. However, the crisis revealed that such price stability could be at risk when the uncertainty associated to variables other than inflation start to drift away from their normal-time levels. Absent any central bank interventions, these drifts in uncertainty could have dramatically impaired the transmission channels of monetary policy.

The first uncertainty central bankers had to cope with was the one associated with the access of commercial banks to liquidity. It sharply increased money market interest rates to levels incompatible with the accommodative monetary policy stance the crisis called for. In the euro-area, the fixed-rate-full-allotment monetary operations with extended maturities, were specifically designed to cope with this risk. This type of interventions culminated in the exceptional 3-year Long Term Refinancing Operations (LTRO) the Eurosystem conducted in late 2011 and early 2012, to secure commercial banks' access to liquidity; These operation did precisely that, yet at much longer horizons than had ever been considered and implemented.

A second uncertainty was specific to the euro area and associated with the risk of multiple equilibria on several commercial banks' and sovereign debt markets, first in Greece, Portugal and Ireland in 2010 and then in Italy and Spain since July 2011. The first 3 countries effectively lost access to market financing. Italy and Spain could have come close to such an extreme outcome without the response of several policy actors, including the Eurosystem. This risk that Italy and Spain loose market access could have led to an ever greater fragmentation of the financial conditions in the monetary union and eventually to its break-up. This tail event would have obviously put price stability and in essence the *value of the euro* at risk in all the countries of the union. Moreover, the mere possibility that such a tail risk materialized was also very detrimental to the economic activity and thus put strong downward pressures on prices in the euro zone as a whole. The Outright Monetary Transaction (OMT) announced by

the Governing Council in September 2012 was designed to convince investors and citizens of the euro area that the central bank would, in the context of its mandate, eliminate this tail risk. It has been deem credible by the markets since sovereign spreads went back to more normal levels since then. More precisely with respect to Germany, the 10-year sovereign debt spreads in periphery countries have declined since September 2012 by respectively roughly 100bps in Italy, 150bps in Spain, 350bps in Portugal and 450bps in Ireland.

However, both the LTROs and the OMTs interventions come with risks. First, the unlimited provision of central banks liquidity through the LTROs applied to all banks, irrespective of their pre-crisis investment choices. This may delay the adjustments needed in the banking sector. In fact, we have seen restructuring of some of the weakest banking systems. For instance, adding up the provisioning and the recapitalization of the Spanish banking system amount to about 20% of GDP. This is very significant on the scale of the largest episodes of banking crises of the post-WW2 era. But the crisis in Cyprus revealed that some banking systems of the euro area had taken advantage of the Eurosystem liquidity provision to "gamble for resurrection" through very risky investments.

Second, the relaxation of strains on sovereign markets induced by the OMTs announcement may reduce the incentive for governments to reach balanced fiscal budgets. While these Eurosystem interventions were necessary to buy time and avoid disorderly adjustments, it was key to use this time wisely to conduct structural adjustments. However, there is always the risk that some party do their homework while others free-ride. For the central bank, the worst outcome would be that other policy makers loose the sense of urgency if not of necessity of structural adjustments because liquidity provision keeps market discipline off. And this time inconsistency of providing cheap liquidity also plays for banks or their supervisors, who could be tempted to delay necessary but painful cleansing of balance sheets.

The risks associated to the reaction of the Eurosystem to preserve price stability also demonstrate that monetary policy is not omnipotent. More generally as I will now detail, and this will be my last point, the current crisis made clear that central banks' credible commitment to price stability, which is a key lesson from the analysis of Barro and Gordon, also requires improving the credibility of both fiscal and micro/macro prudential authorities.

[III- Challenges ahead: other types of credibility interacting with monetary policy]

[III-A/ Fiscal authorities]

Let me start by emphasizing the need of reinforcing the credibility of fiscal authorities to put public finances on a sustainable path.

First, I would like to stress that, against the backdrop of conventional monetary policies that are limited by the ZLB, the fiscal expansions implemented in 2007-2009 contributed to sustaining demand and avoiding deflationary risk from materializing. Fiscal authorities' response to the crisis should thus be considered as part of a sound policy mix rather than the beginning of a regime of fiscal dominance. In addition, and as Correia, Fahri, Nicolini and Teles (2013)[15] have emphasized, one could even think of unconventional fiscal interventions, like a pre-announced sequence a VAT hikes, which would increase expected inflation and thus help by-passing the ZLB floor on the real interest rate.

Yet, and this is particularly the case in the euro-area, these fiscal expansions revealed that some countries had stretched their budget constraint up to what investors perceived as unsustainable levels. The concern that some of these national governments could press the Eurosystem to act towards easing such constraints gained weight, as the crisis continued to unfold.

[15] Correia I., E. Farhi, J.P. Nicolini, and P. Teles (2013) "Unconventional Fiscal Policy at the Zero Bound", *American Economic Review*, 103: 1172-1211.

We designed the Outright Monetary Transactions (OMT) scheme with a strict conditionality precisely in order to limit this risk. A member state could benefit from OMT interventions on its short maturity debt only if it commits to a fiscal path that restores long-run fiscal sustainability and that this path has been approved at the level of euro area governments.

However, the OMT is an instrument which by nature will only be used in times of acute crisis. Another mechanism is thus needed in order to build the credibility of fiscal authorities before reaching the onset of a major sovereign crisis and to discipline fiscal policy on a regular basis. This is what the new growth and stability pact aims for. The latter clarifies the fiscal rules that member countries have to comply to. It also devotes more resources to the *ex-ante* evaluation and the scrutiny of fiscal policy by the European Commission in the context of the European semester. Lastly, it strongly improves the credibility of its enforcement mechanisms through the reverse proportionality rule. It will in particular prevent the breach of *ex-ante* fiscal rules entrenched in a Treaty to occur because large countries do not comply with them *ex-post*.

Equipped with this new gears, euro area countries should more easily commit to fiscal balance. As I already discussed, these mechanisms have been deemed credible enough by the markets. Long-term interest rates on sovereign debt declined substantially. And this gives time for national governments to overhaul their public finances. However, all governments in the euro area should remain wary that these mechanisms will be tested if they decided to circumvent fiscal discipline.

[III-B/ Prudential authorities]

Let me now turn to the need of shoring up the credibility of prudential authorities.

First it should be recognized that the problem policymakers have to cope with is complex. As Farhi and Tirole (2012)[16] underlined, even time consistent monetary policy or prudential authorities can lead to excessive leverage. Authorities have indeed to cope with a collective moral hazard problem. When it is difficult to monitor the risk taken by financial institutions and hence the support to distressed institutions is eventually imperfectly targeted, individual banks have all an incentive to take excessive risk. In the sub-prime crisis, it took the form of higher leverage and extending maturity mismatch. The collective herding behavior toward further risk that became popular under the Chuck Prince CEO of Citi bank quote:

"when there is music, you have to dance"

illustrates one of the most difficult aspects of financial crisis preventions. If your competitors pile up more profits through more risks, you may lose all your clients if you don't take more risks and offer higher returns as well. At least until the risks materialize. When the crisis, triggered for instance by maturity mismatch, unfolds, authorities cannot confront a general collapse of the financial system and are therefore very likely to bail out every banks. As in the classical time-inconsistency problem of Kydland and Prescott, policy reaction shapes the expectations and hence the current decisions of private agents and eventually renders the policy suboptimal.

The problem is that excessive risk taking at the society level is not internalized by private agents' individual decisions. This externality in risk taking calls for a corrective taxation system and this is what macro-prudential regulations are for. However, designing credible macro-prudential policies is a demanding task. Like monetary policy authorities did, prudential bodies will have to define more clearly (i) their target(s), ii) the rules implemented to meet those target(s), and iii) the credibility associated to such prudential rules. A specific difficulty here is to get a consensual measure for financial stability as the year-on-year inflation of consumer prices has become for price stability. Jeremy Stein (2012), now a member of the Board of Governors of the Federal Reserve System,[17] proposes an alternative whereby a tax on

[16] Farhi, E. and J. Tirole (2012), "Collective Moral Hazard, Maturity Mismatch, and Systemic Bailouts", *American Economic Review*, 102: 60-93.

[17] Stein, J. (2012), "Monetary Policy as Financial-Stability Regulation", *Quarterly Journal of Economics*, 127:57-95.

the liquidity provided to the banking system through standard monetary operations can also be used to avoid excessive maturity mismatch. Interestingly, the current fixed-rate-full-allotment operations of the Eurosystem and the difference between our MRO and the DF rates can be interpreted as a way to implement such a taxation of liquidity.

That being said, and no matter the hurdles that remain ahead, we should also recognize that we have made progress at an unprecedented pace on the front of prudential regulation. This is especially so in the euro area. EMU is now firmly embarked on the road to a banking union: a Single Supervisory Mechanism and a supranational resolution mechanism have been programmed at the European Summit of this week. Such a banking union will be a clear progress and European governments are making it happen.

In order to illustrate the need for such a banking union, let us have a look at the fragmentation of the financial conditions that now prevails in the euro area. **Figure 4**, which shows the fraction of loan applications that are finally granted to SMEs for different EA countries, and **Figure 5**, which shows the evolution of interest rates on new loans to SMEs, both illustrate that such a fragmentation of financial conditions which still prevails in the EA prevents an efficient transmission of our single monetary policy is clearly not sustainable in a monetary union.

However, one should also acknowledge that the road to an effective banking union can be long. Hence, along the transition, other avenues should be explored in order to reduce this fragmentation an active collateral policy, more focused on credit to nonfinancial corporations, is clearly one of them.

[Conclusion]

Let me conclude by some comments on the pitfalls I foresee along the transition to more credible fiscal and supervisory policies.

First, I think we should acknowledge that the road to more credible fiscal and supervisory policy might be rocky in the short term. Recall indeed that central banks' credibility came at the cost of recession in the early 80s. There is, however, a key

difference between the current situation and the early 80s. At the time, advanced economies had some levees, both in terms of fiscal policy and in terms of financial deregulation and innovation, to mitigate the recessionary consequences of the strong monetary contraction that was needed to bring inflation down.

By contrast, nowadays, with monetary policy at the ZLB, the room for monetary policy to turn more accommodative is limited. This is unfortunate precisely when fiscal consolidation and a more restrictive provision of credit both put downward pressures on aggregate demand. A too strong recession would probably jeopardize the achievements of the two goals of fiscal sustainability and of financial stability. Therefore, the lack of instrument one can activate to mitigate these recessionary effects may shake the current commitment of governments and our fellow citizen to pursue fiscal consolidation.

Second, and taking a longer term perspective, I view another potential challenge for financial supervision. It is bound to imply redistribution issues and therefore overlap with the mandate of fiscal authorities. Therefore, associating the new euro area supervision body to the ECB might thus blur the perception that monetary policy is independent from fiscal policy.

Moreover, this new financial stability authority will have complex and difficult decisions to make, bailing-in some institutions and bailing-out others. These decisions will rely on criteria that are more controversial than the Consumption Price Index is for gauging price stability. So, in addition with the redistribution issues just mentioned, the supervisory mandate might eventually increase public's criticisms and defiance to central banks.

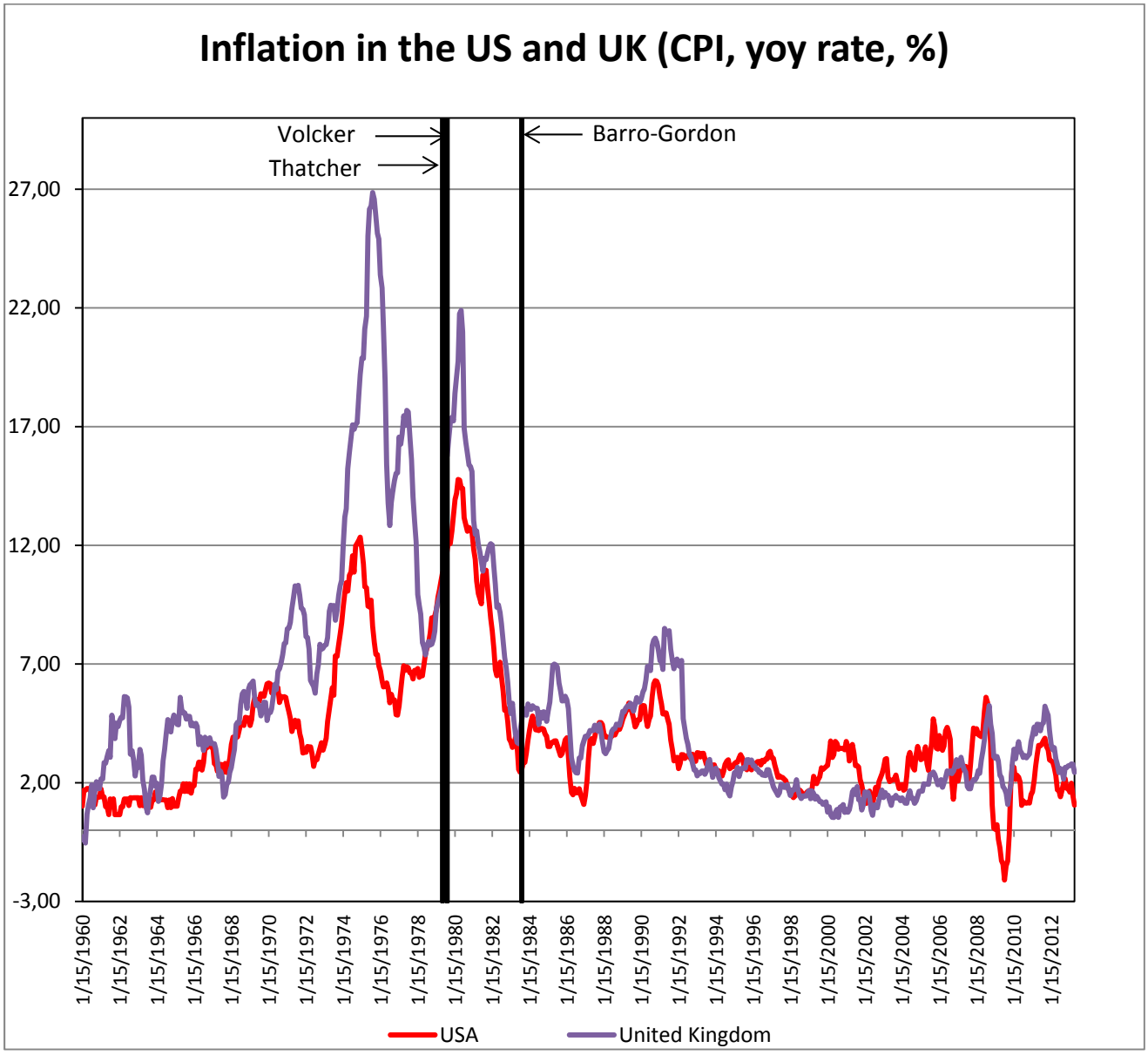
The difficulties are all the more challenging that we don't have yet clear theoretical analyses of the type of Barro and Gordon's to help shape the design of the required policies. I think it is fair to say that Barro-Gordon, as well as Kydland-Prescott, shared a greater ambition than just spelling out how stabilization policies should be efficiently

conducted. In my opinion, their aim was to improve the design of institutions shaping the interactions of individuals in our modern democracies. In light of this ambition there is no choice but to go ahead and imagine new mechanisms that will contribute to the social-contract through improved interactions between the different actors of our societies.

Thank you all very much for your attention.

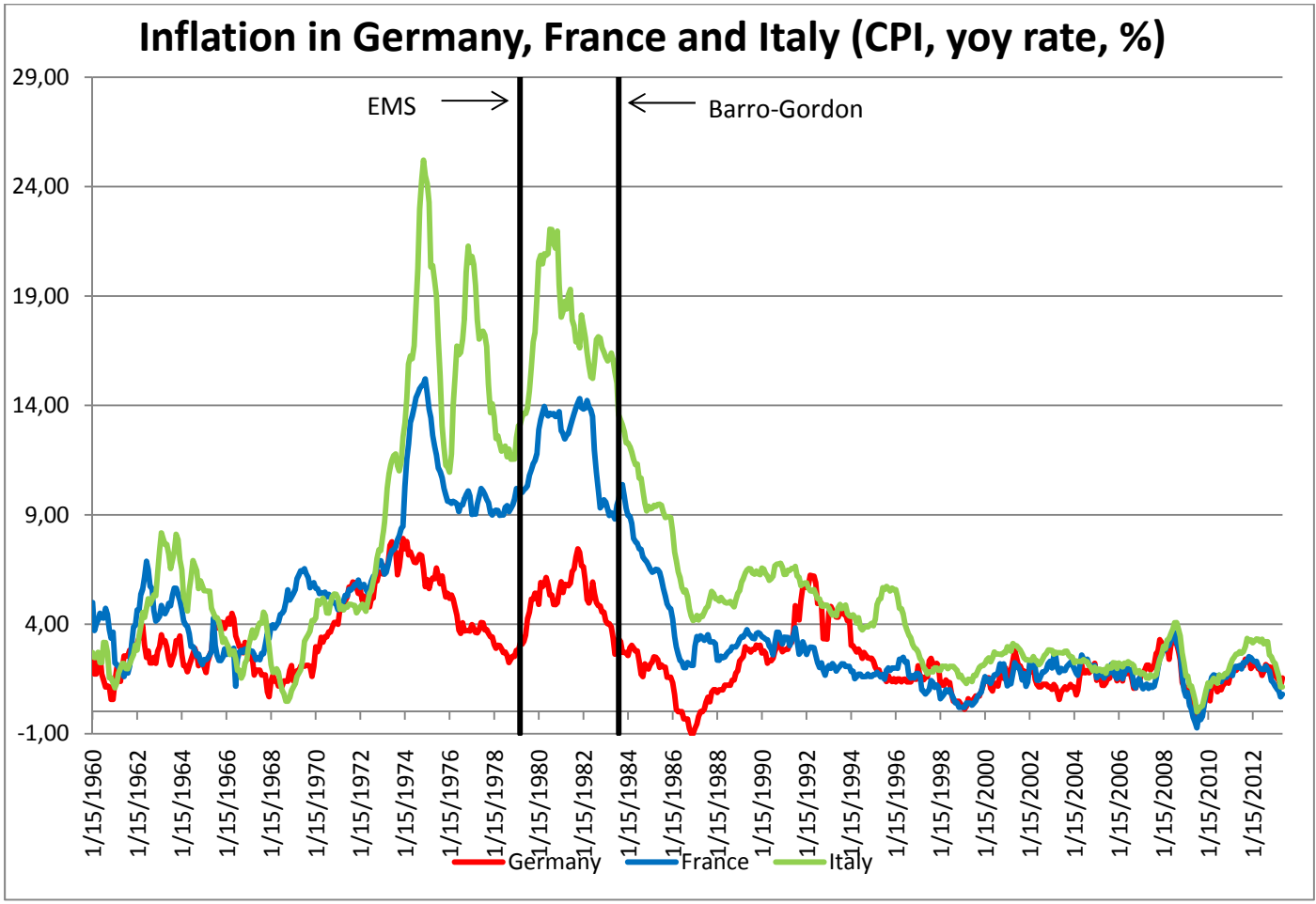
APPENDIX

Figure 1: US and UK inflation rates



Source: OECD

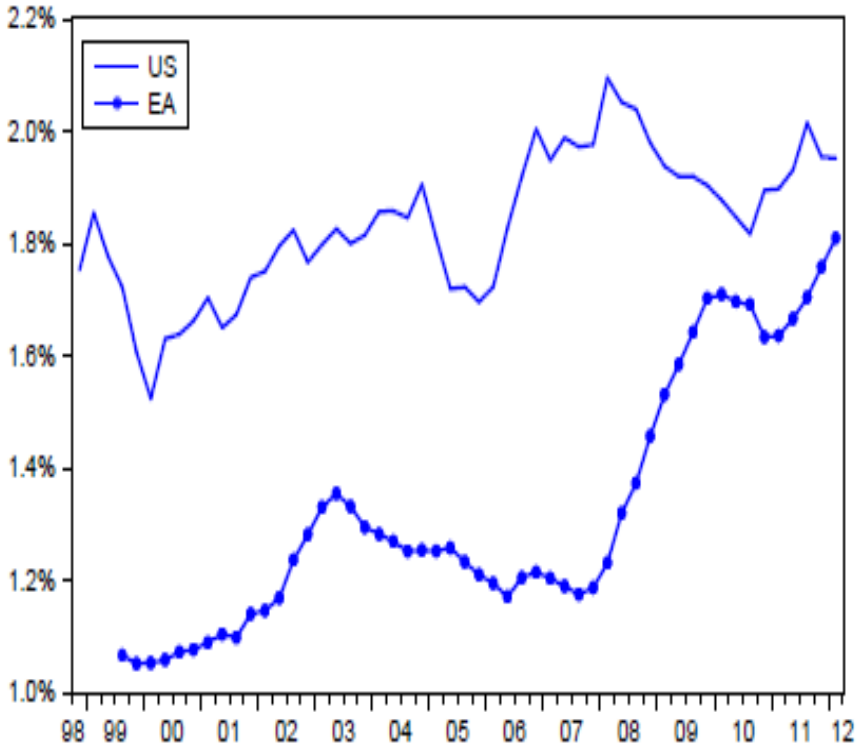
Figure 2: Inflation rates in Continental Western Europe



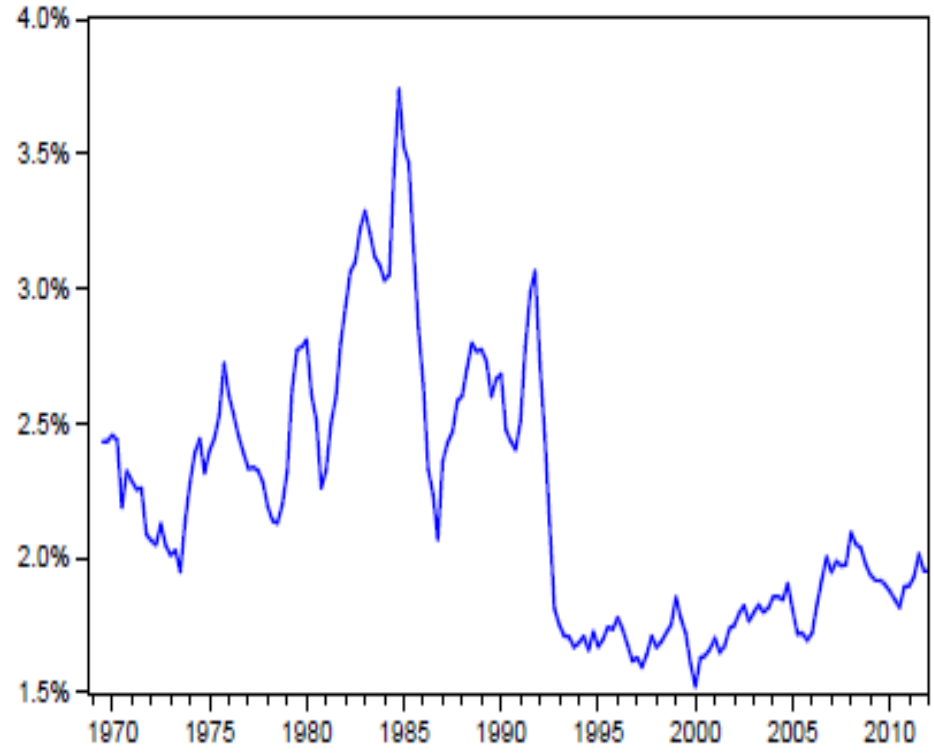
Source: OECD

Figure 3: Inflation uncertainty in the EA and in the US

EA and US, 1999-2012

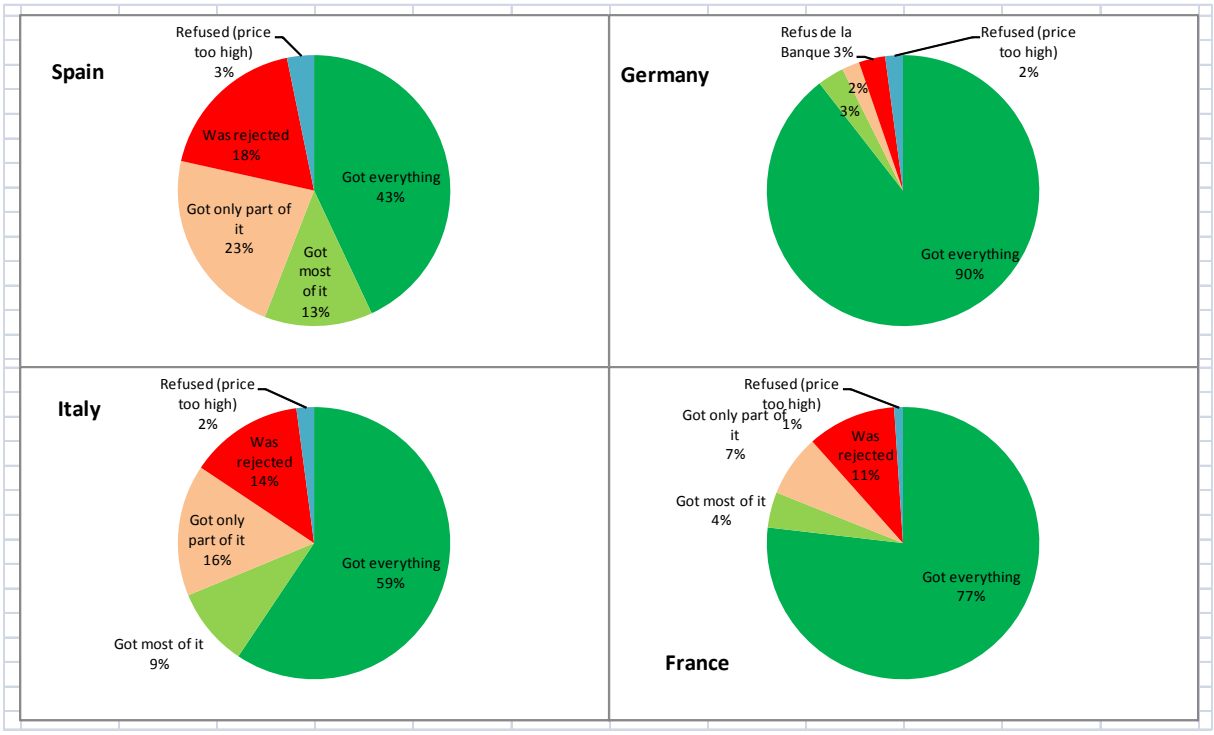


US, 1969-2012



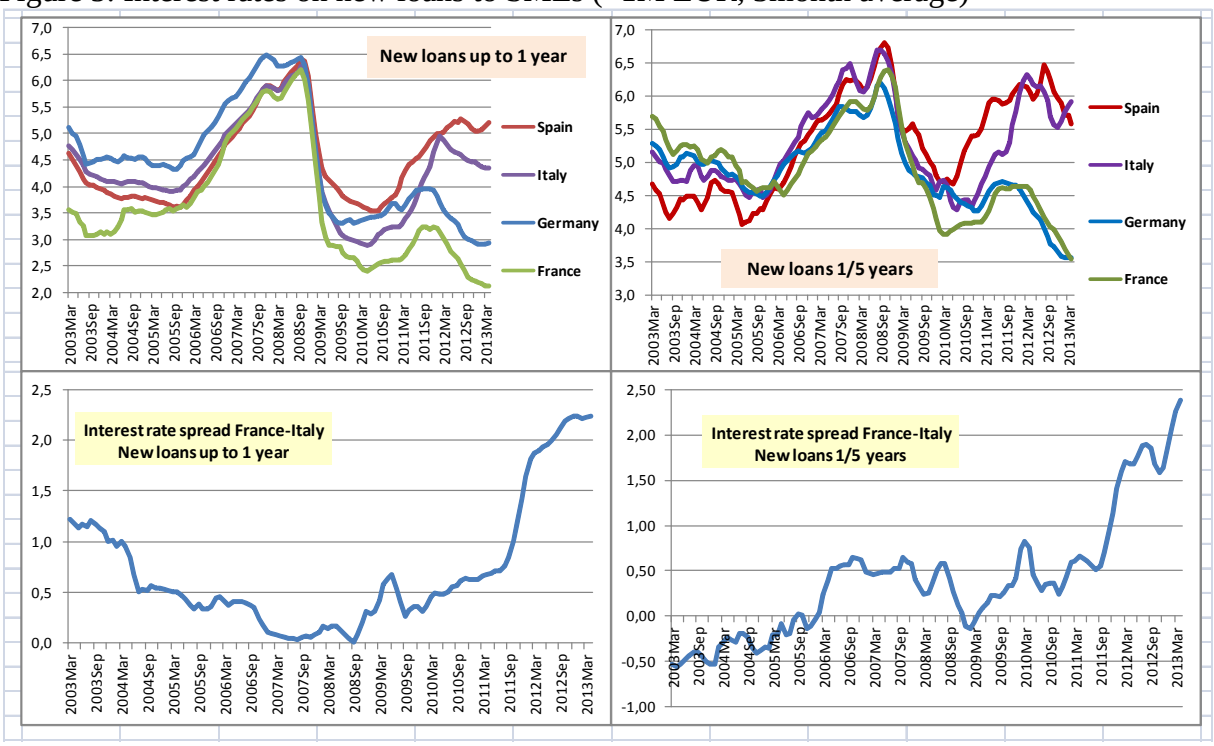
Source: Andrade, Ghysels, Idier (2012)

Figure 4: Banks' decisions on loan applications by SMEs



Source: Eurosystem SAFE (oct. 2012 / mar. 2013)

Figure 5: Interest rates on new loans to SMEs (<1M EUR, 3month average)



Source: Eurosystem