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CORE-PERIPHERY DIVERGENCE AND SECULAR STAGNATION IN THE EUROZONE

Macroeconomic Evidence and Policy Proposals Beyond Unconventional Monetary Policy

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Abstract

This paper provides empirical evidence about the widening divergence between the economic performances of core eurozone countries and peripheral economies. We note that, while core economies operate close to full employment, there are evident signs of secular stagnation, i.e. widespread long-term unemployment and reduced growth potential, in the periphery. In such a context, we stress that the unconventional monetary policy implemented by the European Central Bank since 2015 has proved largely ineffective to stimulate investment demand and economic recovery in the periphery. More than this, it may even deepen the existing gap between core and peripheral countries. We suggest that a reform of EU industrial policy, which puts emphasis on the productive development of underdeveloped regions in the euro area, stands out as the best strategy against the eurozone core-periphery divide and for improving the functioning and effectiveness of EU macro policies.

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EXECUTIVE SUMMARY

- In this paper we assess whether secular stagnation is still a worry for the economies of the Eurozone and whether the unconventional monetary policy carried out by the ECB has contributed to containing the risk of secular stagnation.
- **Secular stagnation corresponds to the slowdown in the dynamics of the potential GDP as well as to the incapacity of economic systems of ensuring full employment** due to structural weaknesses and deficiency of aggregate demand.
- The empirical evidence presented in this paper suggests that a widening gap is opening between the core and the periphery of the eurozone. While core economies are close to full employment and their potential growth has not been affected by the last financial crisis, secular stagnation is a concrete concern in the periphery. **Since 2007, peripheral eurozone countries have experienced a permanent reduction in their growth potential.** Ten years after the last financial crisis, their economies still register unemployment rates higher than pre-crisis levels and, in most cases, at unberable two digit levels.
- **ECB's intervention is largely unsuitable and unavailable to tackle the deepening eurozone core-periphery dichotomy.** This is due to the intrinsic "one-size-fits-all" nature of the common monetary policy. Paradoxically, ECB's QE could rather aggravate these divergences, in the event that new liquidity injected in peripheral economies is not deployed for the productive development of peripheral countries, but rather flows into and inflates core economies.
- In light of these facts, we emphasise that the European institutions can induce a prompt recovery of the eurozone periphery only by **adopting a much more favourable approach to expansionary fiscal policy targeting, in particular, the finance of technological innovation and new industrial developments.**
- The EU can successfully tackle the eurozone core-periphery divide through the implementation of a **region-oriented industrial policy**, whose primary aim should be to support the productive and technological development in underdeveloped peripheral regions.
- The reform of EU industrial policy, and its designation as central strategy for the achievement of Europe-wide structural convergence, should come together with the reform of the European Investment Bank. The reform of the EIB should aim at creating a full-fledged public development bank, which directly provides (anti-cyclical) finance to new innovative and technologically advanced entrepreneurial initiatives in relatively underdeveloped eurozone regions.

1. INTRODUCTION

Since 2014, most eurozone countries witnessed a resurgence economic growth after a painful double-dip recession. Despite this positive fact, in the periphery of the eurozone economic recovery appears too timid to absorb widespread unemployment, and to bring it down to pre-crisis levels from the current unberable two-digit figures. It is based on this evidence that Paul De Grauwe claims that “nowhere in the developed world is the ‘secular stagnation’ hypothesis more visible than in the Eurozone” (De Grauwe, 2015).

The concept of secular stagnation has been used in the economics literature at least for 80 years. The US economist Alvin Hansen first introduced the term in his speech to the American Economic Association in 1938 in order to analyse the causes of apparently dismal US growth prospects and persistently high unemployment in the aftermath of the 1937 economic downturn (Hansen, 1939). Through the 1950s and 1960s, this term was associated with the permanent slowdown of economic growth and capital accumulation that some economists, mainly from Keynesian and Marxist traditions, foresaw for mature capitalist economies due to their natural tendency towards increasing oligopolistic concentration and decreasing profit rates (Steindl, 1952; Sweezy, 1982). Whilst largely forgotten since the 1970s until the first decade of the new millennium, secular stagnation recently came back to the forefront of economic and political debate since Larry Summers (2014) rediscovered it to explain the dismal recovery in the US economy from the doldrums of the last financial crisis and the consequent recession.

Since then, an even more vivid debate has unfolded about whether the troublesome eurozone is suffering secular stagnation (Jimeno et al., 2013). The debate has many fronts: some believe secular stagnation is a self-inflicted pathology caused by stagnation policies, namely tough austerity policy (Hein, 2016), others argue that the unconventional monetary policy measures implemented by the European Central Bank (ECB) since the beginning of 2015 stimulated recovery in the eurozone and potentially avoiding the threat of secular stagnation (Gambetti and Musso, 2017). In this policy paper, we aim to contribute to this debate. We will do so by first looking at the symptoms of secular stagnation in the eurozone. We will pay attention to **two fundamental macroeconomic indicators as possible measures of secular stagnation**: (1) the dynamics of the unemployment rate; (2) the evolution of potential GDP and its gap with respect to actual GDP. Second, through the analysis of these macroeconomic indicators, we will try to **assess the effectiveness of the quantitative easing (QE) policy of the ECB in counteracting a potential process of secular stagnation in the eurozone**. Finally, based on the analysis in these sections, we will develop some policy proposals meant to bring the eurozone back to a much more sustained development path out of a decade of dismal economic performance.

Our analysis suggests that there is a considerable degree of heterogeneity among the eurozone member states, between some core economies and peripheral countries in particular. **Whilst the core of the eurozone does not seem to show forewarning signs of secular stagnation, most peripheral countries have not fully recovered from the last financial and economic crisis**. Persistently high rates of unemployment, and a significant and long-lasting slowdown in the trend growth of potential GDP are afflicting the state of the economy in some peripheral eurozone countries. By the same token, this evidence also suggests that the ECB QE, although strategic to ensuring the survival of the eurozone alongside the launch of the Outright Monetary Transaction (OMT) programme, has been rather ineffective to boost a quick economic recovery in peripheral countries. Indeed, in the presence of widening gaps between different regions of the European

Monetary Union (EMU), the one-size-fits-all nature of monetary policy makes it largely unsuitable to tackle the deepening dichotomy between the core and the periphery in the eurozone alone, especially without proper coordination with other policy instruments. Accordingly, we emphasise that the European institutions could induce a prompt recovery of the eurozone periphery only by adopting a much more favourable approach to expansionary fiscal policy targeting, in particular the finance of technological innovation and new industrial developments in the peripheral eurozone economies.

2. SIGNS OF SECULAR STAGNATION IN THE EUROZONE

There is not a unique and well-established definition of secular stagnation or a consensus about its causes. Alvin Hansen (1939) defined the “essence of secular stagnation [as] sick recoveries which die in their infancy and depressions which feed on themselves and leave a hard and seemingly immovable core of unemployment” (Hansen, 1939, p.4). In Hansen’s view, as recently rediscovered and re-elaborated by Summers (2014), **secular stagnation corresponds to the incapacity of the economic system to ensure full employment due the system’s structural weaknesses and the ensuing deficiency of aggregate demand.** The slowdown of population growth, the worldwide saving glut due to rising income and wealth inequality, and the exhaustion of technological opportunities are responsible for a persistent lack of investment demand preventing the achievement of full employment.

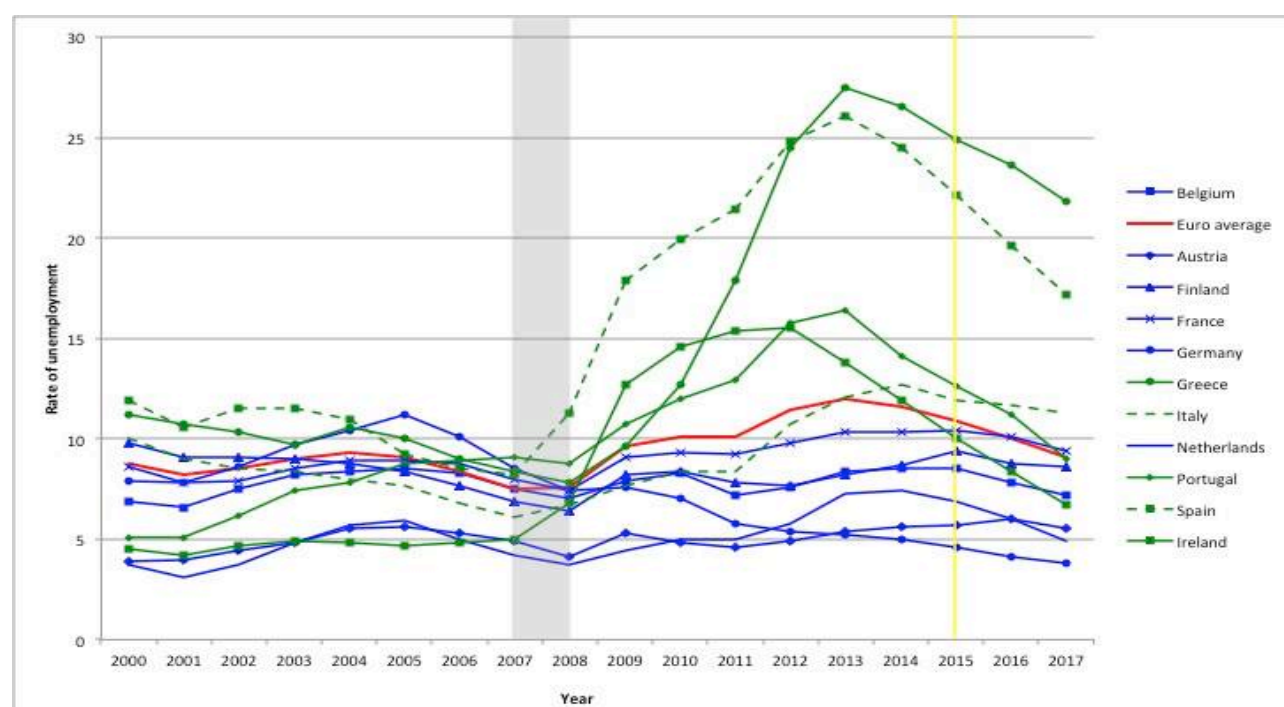
In contrast to Hansen, Gordon (2015) describes secular stagnation as a supply-side phenomenon associated with the slowdown in the growth rate of labour productivity. This slowdown is caused by declining technological innovation. According to Gordon’s perspective then, **signs of secular stagnation may be detected through downturns in potential GDP** (i.e. the highest level of gross domestic product achievable when the economy works at full employment and inflation is constant). This differs crucially from Hansen’s definition, as it views secular stagnation as a phenomenon that can occur irrespective of whether there is (or isn’t) widespread unemployment. At a more theoretical level, this is a similar understanding of secular stagnation adopted by the Marxist perspective during the 1950s and the 1960s, which identified stagnation as the slowdown in capital accumulation that arose due to the intrinsic contradictions of capitalist economies.

Given these varying interpretations of the concept of secular stagnation, it is quite hard to detect the existence of secular stagnation in the eurozone by looking solely at a unique economic indicator. For this reason, we focus our attention on the analysis of two different macroeconomic variables. We first look at the evolution of the rate of unemployment in selected eurozone member states in order to check for the persistence of very high unemployment levels ten years after the outbreak of the 2007-2008 financial crisis. It is quite simple to see how this analysis is consistent with the definition of secular stagnation originally provided by Alvin Hansen. We then look at the evolution of potential GDP in selected eurozone countries. In particular, we look at the occurrence of any negative structural change in the dynamics of potential GDP (i.e. a slowdown in its trend growth rate) as caused by the financial and sovereign debt crises, as well as the presence of an upward turn after the implementation of QE by the ECB. In our view, this latter analysis is in line with the supply-side interpretation of secular stagnation proposed by Gordon, even though more research should be devoted to the demand-side factors that may cause structural change in the evolution of potential GDP.

2.1 Unemployment in the eurozone

Figure 1 below shows the evolution of the rate of unemployment in eleven eurozone countries from 2000 to 2017. In Figure 1, we distinguish between core economies (blue lines), i.e. Austria, Belgium, Finland, France, Germany and the Netherlands, large peripheral economies (dashed green lines), i.e. Italy and Spain, and small peripheral countries (continuous green lines), i.e. Greece, Ireland, and Portugal. The time span of our analysis allows us to observe possible changes in the dynamics of the unemployment rate before and after the eruption of the 2007-2008 financial crisis. Also, it allows us to have a prime facie impression of the effects ECB QE may have had on the real economy since 2015.

Figure 1 - Rate of unemployment in selected eurozone countries, 2000 - 2017.



Source: Eurostat.

Notes: Years associated to the outbreak of the 2007-2008 financial crisis in grey colour. The yellow line associated to 2015 identifies the first year of implementation of ECB's QE.

Figure 1 shows that the 2007-2008 financial crisis clearly entailed strong negative effects on unemployment in the eurozone as a whole. The unemployment rates have increased in all the eurozone countries under observation in the immediate aftermath of the 2007-2008 financial crisis. Nonetheless, a considerable difference stands out between the performance of eurozone core economies and peripheral ones. In core economies, the unemployment rate has remained at a single digit level. It is now decreasing and below (in some cases even far below) the euro-18 average (red line in Figure 1). Among the set of core eurozone countries, France is the only exception with an unemployment rate slightly above the euro-18 average.

In the periphery of the eurozone, the unemployment rate soared, its value going into double-digits, after the 2007-2008 financial shock. With the exception of Ireland and Portugal, the rate of unemployment in Greece and Spain is still far higher than the euro-18 average, while in Italy the rate is still much higher than pre-crisis levels. In the end, Figure 1 seems to suggest that initially timid but recently improving growth records characterizing most eurozone countries since 2014 have not contributed to absorb mass unemployment and to reduce it to socially acceptable levels. This is particularly true in the periphery of the eurozone. In Greece, Spain and Italy, recent economic recovery definitively qualifies as “jobless growth”. In the case of Spain, even though real GDP has grown higher than its pre-crisis level in 2017, the unemployment rate still remains nine percentage points higher than the corresponding figure in 2007. This is worryingly consistent with Hansen’s definition of secular stagnation: a significant block of hard-nosed unemployment, which may last for long and which recent economic growth does not seem to be capable to undermine.

2.2 Potential GDP and the output gap

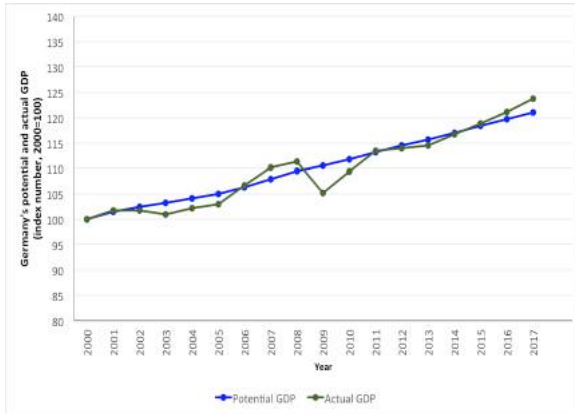
Following Gordon (2015), secular stagnation could be better understood as a permanent reduction in the growth potential of an economic system. Regardless of the supply-side (Gordon, 2015) or demand-side nature (Dutt and Ros, 2007) of the phenomenon causing such a reduction, secular stagnation could be detected by analysing the evolution of potential GDP. Figure 2 shows the dynamics of potential GDP for the six core eurozone countries outlined before. The dynamics of potential GDP and actual GDP are both portrayed using indices, with 2000 as the base year. Figure 3 shows the evolution of the same variables for selected peripheral eurozone countries from 2000 to 2017. Figure 4, finally, shows the evolution of the output gap (the difference between actual GDP and potential GDP as a share of potential GDP) in each country.

Figure 2 clearly shows the contraction in economic activity that followed the outbreak of the 2007-2008 crisis, as well as the slight recession (see, for instance, panels 2.c and 2.f related to Netherlands and Finland, respectively) or economic stagnation that affected core eurozone economies between 2011 and 2013 at the peak of the eurozone sovereign debt crisis. Since 2014, economic growth reinvigorated, the dynamics of actual GDP (yellow lines in Figure 2) being more pronounced than that of potential GDP. As one can easily verify, since 2014, trends in actual GDP (yellow lines) are steeper than potential GDP (blue lines) in all the panes composing Figure 2.

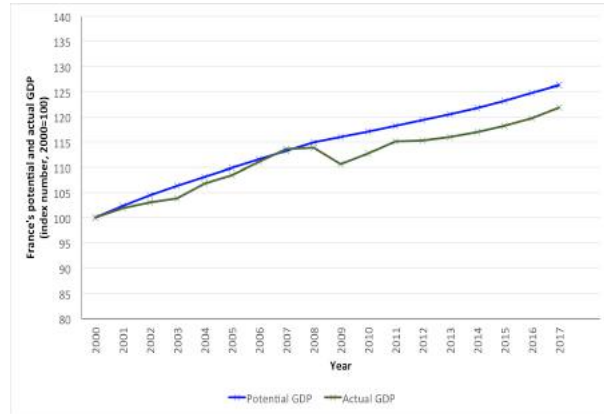
Even more important for the sake of our discussion, **Figure 2 reveals that the 2007-2008 financial crisis and the sovereign debt crisis did not produce any permanent negative change in the dynamics of potential GDP in core economies.** With the only exception of Finland (and to a lesser extent France), the slope of lines tracking the dynamics of potential GDP in Figure 2 is largely unaffected by the crisis. In the jargon of economic analysis, **there is no apparent sign of structural change in the evolution of potential GDP in most core eurozone economies in the aftermath of the 2007-2008 financial crisis.**

Figure 2 - Potential and actual GDP (index number, 2000=100) in six core eurozone countries.

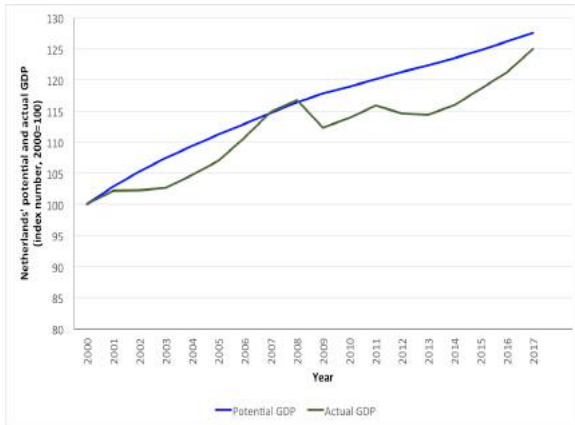
Panel 2.a - Germany



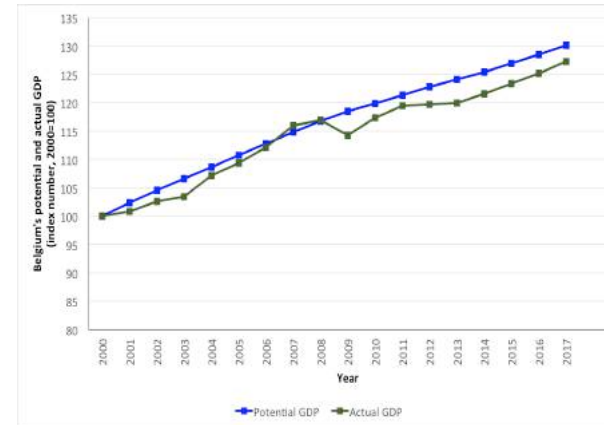
Panel 2.b – France



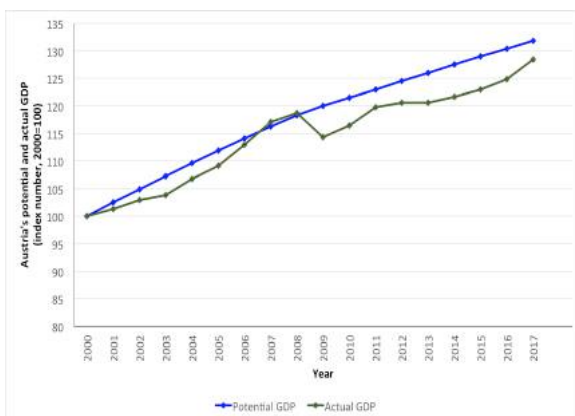
Panel 2.c – Netherlands



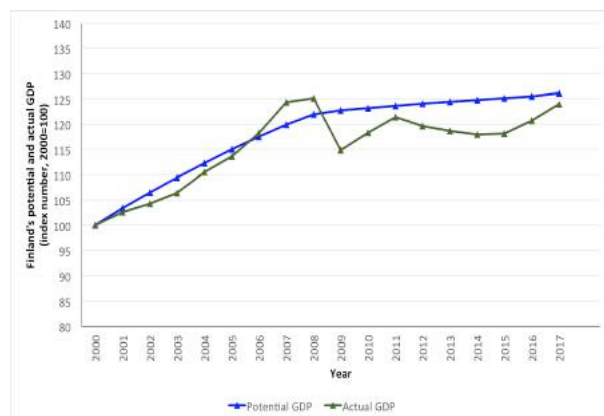
Panel 2.d – Belgium



Panel 2.e – Austria



Panel 2.f – Finland



Source: author's computation on the basis of data from IMF world economic outlook (2017).

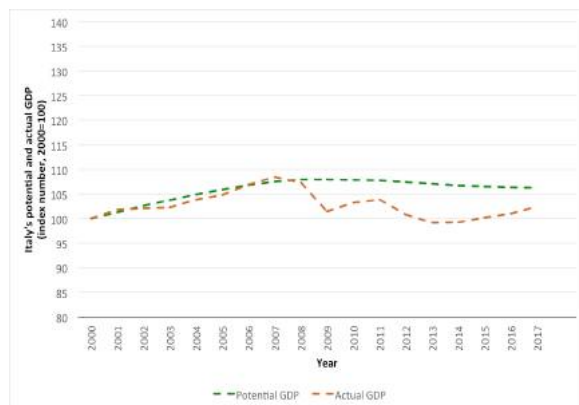
Figure 3 portrays a rather different picture for the periphery of the eurozone. On top of the sharper and prolonged downturn in the evolution of actual GDP (in comparison to core economies), the dynamics of potential GDP has become considerably flatter in the aftermath of the 2007-2008 financial crisis with respect to its pre-crisis trend in all peripheral eurozone countries apart from Ireland (see green lines in Figure 3). The dynamics of labour productivity underlying the evolution of potential GDP was stagnating in Italy and Portugal even before the 2007-2008 financial shock. Nevertheless, post-crisis dynamics have turned out to be even more dismal - potential GDP being almost flat, if not slightly decreasing in the case of Italy. Greece experienced a dramatic reduction in potential GDP, on top of the collapse in actual economic activity. Abrupt contractions in potential output like those observed in Greece are more commonly associated with physical and human damage during wars rather than “normal” economic performance in peacetime. The cases of Spain and Ireland seem to be less dramatic. Nevertheless, the slowdown in the trend of potential output in Spain is astonishingly clear after 2007. In Ireland, by the end of 2013¹, concern is more about a relatively weak performance in actual economic activity with respect to its potential rather than a permanent slowdown in potential GDP. Despite these differences among peripheral eurozone countries, Figure 3 clearly reveals that **the outbreak of the 2007-2008 financial crisis produced a severe structural change in the growth potential of all peripheral eurozone countries considered in this analysis.**

On the one hand, this fact suggests that the periphery of the eurozone seems to present evident signs of secular stagnation even if we use the theoretical perspective put forward by Gordon (2015). On the other hand, it also shows that **secular stagnation may not only be caused by long-run trends in technological developments and innovation opportunities, but also by short-run shocks.** Financial shocks, in particular, may give rise to “balance sheet recessions” (Koo, 2013), i.e. a protracted period of time in which the private business sector deleverages, financial institutions restrict access to credit and non-financial firms downscale investment projects. The consequent reduction in aggregate investment, which likely remains low and insensitive to whatever expansionary monetary policy may be implemented, in turn causes a state of deficient aggregate demand with tough implications for technological innovation, productivity dynamics, and growth potential (Dutt and Ros, 2007). First, when aggregate demand stagnates, a sizeable part of the labour force may remain unemployed for a long time and labour skills lost, with an ensuing negative effect on labour productivity. Second, technological spill-overs that usually arise in a climate of buoyant investment tend to disappear in a period of depressed entrepreneurial initiatives. Third, growth potential depends on the sectorial composition of the economy, and it likely benefits from an expansion of high-tech innovation-intensive sectors. These sectors, however, are those that mostly need external finance and fast-growing demand in order to make their innovation activities profitable. Temporary contractions in aggregate demand and credit availability may thus cause permanent reductions in the growth potential of an economy by leading to a restructuring of domestic productive structures away from high-tech innovation-based sectors. For all these reasons, **it is of paramount importance that governments could take active counter-cyclical fiscal stances in order to avoid temporary drops in aggregate demand, which might however cause a permanent slowdown in the long-run growth trajectory of the economy.**

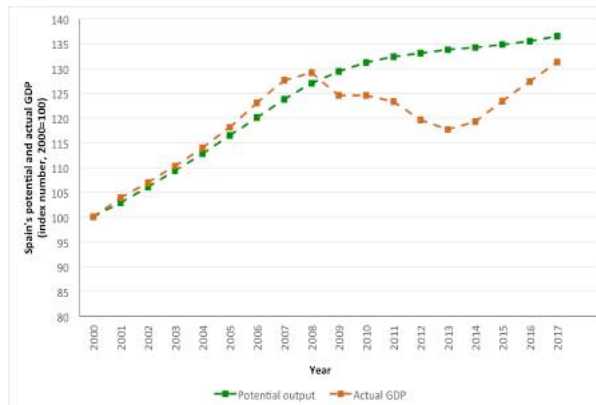
¹ In the case of Ireland, we limited our analysis to data from 2000 to 2013 given a statistical change in the computation of major macroeconomic variables introducing a relevant discontinuity in the Irish time series since 2014.

Figure 3 - Potential and actual GDP (index number, 2000=100) in five peripheral eurozone countries.

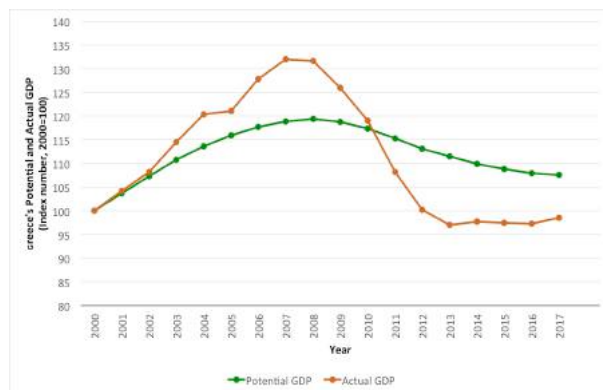
Panel 3.a – Italy



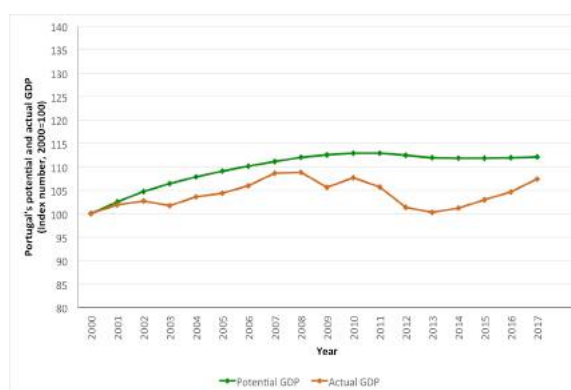
Panel 3.b – Spain



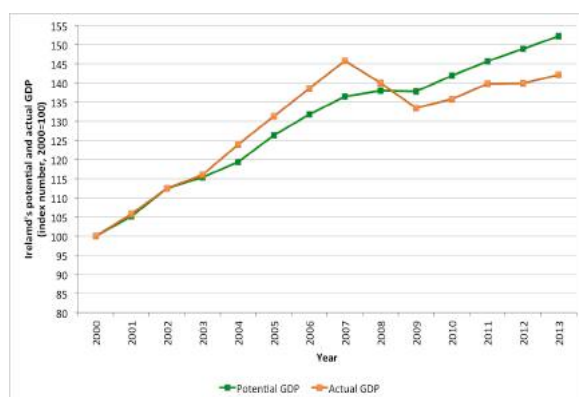
Panel 3.c – Greece



Panel 3.d - Portugal



Panel 3.e - Ireland

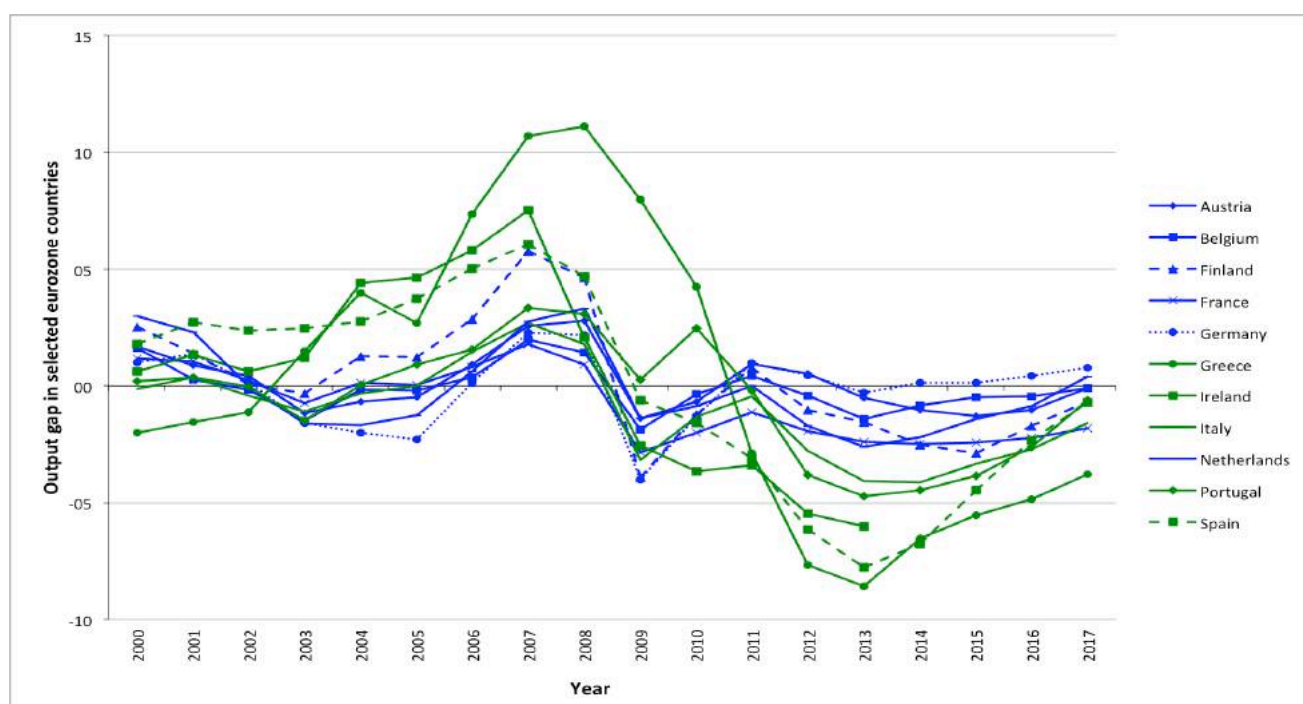


Source: author's computation on the basis of data from IMF world economic outlook (2017).

Figure 4 below complements the economic picture of post-crisis eurozone by depicting the evolution of the output gap in eleven eurozone countries from 2000 to 2017. The output gap is the difference between actual GDP and potential GDP (as a share of potential GDP). Once again, a remarkable divergence stands out between the core and the periphery of the eurozone. By the end of 2017, all core economies, with the only exception of France, show output gaps close to zero or

even positive. Germany and the Netherlands are operating above their potential, this fact being a sign of possible increases in inflation rates². On the contrary, output gaps are negative in all the peripheral eurozone countries considered in this study. Of course, by looking at Figure 4 one might argue that the output gaps in some peripheral countries are too small to be too concerned about them (in the case of Italy, Portugal and Spain, for instance). However this interpretation of Figure 4 is misleading and must be taken with some caveats. Indeed, relatively small output gaps in some peripheral countries are due to the significant slowdown, if not reduction, in the dynamics of potential GDP (as shown by Figure 3) rather than to buoyant economic activity. **The fact that in most peripheral eurozone countries the output gap is still negative despite of a significant reduction in the long-run growth potential makes the economic scenario characterising some peripheral eurozone countries even gloomier.**

Figure 4 - Output gap in selected eurozone countries, 2000-2017.



Source: IMF world economic outlook (2017)

² According to Eurostat data, inflation rates in Austria and Belgium are above 2 percent (i.e. the ECB inflation target) 2017, while it is equal to 1,7 percent in Germany - 1,3 percentage points more than its 2016 level.

3. SECULAR STAGNATION AND ECB'S UNCONVENTIONAL MONETARY POLICY

The European Union and eurozone Member States struggled to find a proper response to the 2007-2008 financial shock and sovereign debt crisis. On the one hand, the implementation of an active fiscal policy at the national level was severely restricted by fiscal rules and austerity measures imposed by European institutions. On the other hand, fiscal austerity at the national level was not compensated by any action at the European level, since a European federal budget pursuing anti-cyclical goals does not yet exist. On top of this, there was a considerable lack of coordination between national fiscal policies, since the contractionary effects of fiscal austerity in the periphery was not (at least partially) counterbalanced by more expansionary fiscal stances in those (core) economies having more budgetary leeway. In the end, macroeconomic management of the business cycle was left solely to monetary policy and to the actions of the ECB.

Following the strategy previously adopted by the Bank of England and the Federal Reserve, in January 2015 the ECB announced the launch of its own Quantitative Easing (QE) policy. This decision was meant to expand the asset purchase programs already implemented since 2014 to a much greater scale, and, in particular, to considerably increase the amount of public bonds bought by the ECB in secondary markets.

The ECB's QE effectively started two months later in March 2015. It was expected to last until September 2016. Nonetheless, precarious economics conditions and persistently low inflation expectations³ have forced the ECB to continuously postpone its end. The first round of ECB's QE involved buying 60 billion Euros worth of bonds a month. In April 2016, this increased up to 80 billion Euros a month, before coming back down to 60 billion in April 2017. From the start of 2018, this has dropped down to 30 billion a month. Overall, since the start of the program, **the ECB has injected 1.7 trillion Euros in the eurozone economy through purchases of government bonds.**

QE is usually considered as an unconventional monetary policy tool adopted by central banks when conventional instruments, namely reductions in the target interest rate, are believed to be ineffective or because they have reached the lower zero bound. In its essence, QE takes place when central banks create and inject freshly created money into the economic system through direct unsterilized purchases of bonds, both corporate and government, on secondary financial markets for a prolonged period of time. There are four transmission channels through which QE could influence the economy⁴: (1) the expectation/signalling channel, (2) the portfolio-rebalancing channel, (3) the bank-lending channel, and (4) the exchange rate channel. Through the expectation/signalling channel and the portfolio-rebalancing channel, QE is meant to reduce yields on long-term securities, government bonds in particular, and make the interest rate curve flatter. This might take place due to financial operators anticipating central banks' purchases of long-term assets in order to exploit the possibility for capital gains. On the other hand, QE may increase financial operators' appetite for riskier long-term assets by reducing the return of short-term Treasury bills. Increasing asset prices and lower interest rates may in turn affect the real side of the economies in three ways. First, lower

³ Consistently with its own mandate, the ECB's governing council formally justified the adoption of QE by the attempt "to address the risks of a too prolonged period of low inflation" (ECB, 2015). Nonetheless, it is easy to see how the ECB's attempt to bring back expected and effective inflation closer to the 2% target was also meant to reduce the real interest rate even further and possibly prompt a stronger recovery of the eurozone by boosting investment demand.

⁴ See the report from the European Parliament Directorate General for Internal Policies (2016) for an institutional analysis of the transmission channels of ECB's QE in the euro area.

long-term interest rates may imply lower external financing costs and increase business investment. Second, rising asset prices may give rise to a positive wealth effect stimulating consumption and investment expenditures. Third, credit institutions may be induced to extend credit more aggressively given more solid balance sheets. Similar to the last point, QE may reactivate economic activity through a bank-lending channel by allowing banks to concede new loans more easily. Finally, the expansion of the quantity of money circulating in the economy may prompt a depreciation of the exchange rate, hence boosting exports and the overall economic activity.

There are several studies that investigate the effects of QE on financial variables such as the asset composition of banks' portfolios, the evolution of long-term interest rates and stock exchange indexes, and the dynamics of banks' profitability (Hüttl and Pitchler, 2017; Demertziz and Wolff, 2016). However, there are few analyses about the *macroeconomic effectiveness* of ECB's QE in avoiding deflation, lifting inflation towards the ECB target and, more in general, in feeding faster and more solid economic growth in the eurozone. Previous analysis suggests there is a good deal of uncertainty about the effectiveness of unconventional monetary policies on economic activity (Bank of Spain, 2015). Indeed, it seems that positive effects of QE on GDP mainly concentrate in the short run, and strongly depend on the deepness of the recession and/or financial turmoil QE deals with. On top of this, such short-lived positive effects may be compensated by long-run costs such as mounting asset bubbles, heightened financial instability (in particular when exit strategies start to be discussed by central banks), and distorted investment decisions due to artificially low interest rates (Gern et al., 2015)⁵. When it comes to the specific case of the eurozone, Gambetti and Musso (2017) claim that ECB's QE has led to significantly positive effects on inflation in the medium run, as well as a positive although progressively weaker impact on overall eurozone GDP growth. This point of view however is not undisputed. Frank van Lerven (2016), for instance, casts serious doubts about the capability of QE to jumpstart economic growth in eurozone countries, in particular in troublesome peripheral economies, by prompting an expansion of bank lending to the wider economy and by raising productive investments. Accordingly, he proposes monetary financing, i.e. the direct injection of freshly printed money in the real economy through public investments, or central banks' transfers to citizens' deposits, as a more effective alternative to QE (van Lerven, 2015). On the other side of the spectrum, Gern et al. (2015) argue that the effectiveness of ECB's QE in the eurozone is likely to be even lower than that observed in other countries, and its risks of moral-hazard and fiscal indiscipline even larger (as due to ECB's purchases of national governments' bonds). In a similar vein, Alcidi et al. (2017) claim that it is now time for the ECB to exit from QE and to increase interest rates since core inflation indicators are getting closer to ECB's target and some (core) eurozone economies now operate close to full employment.

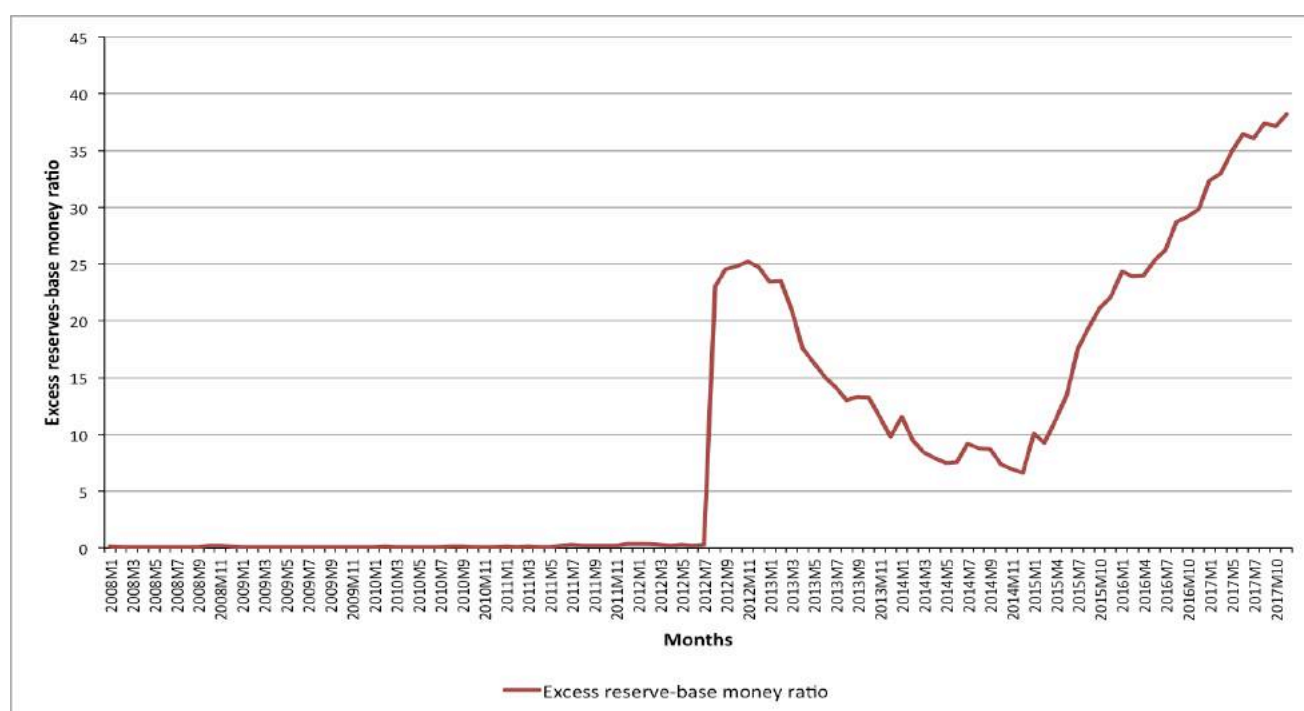
For the sake of this analysis, here we address this issue by focusing our attention on three economic variables. First, we analyse whether QE-led expansion of the money base has effectively triggered an expansion of lending activity to the real economy. We do this by tracking the evolution of excess reserves held by the credit system as a ratio to the total money base. We also observe the evolution of the total amount of outstanding loans conceded to non-financial private economic agents. Secondly, we observe the dynamics of gross fixed capital formation in the countries at stake.

⁵ A recent study from the Directorate General for Internal Policies of the European Parliament (2017) downplays the risks of financial bubbles in the eurozone as due to inflated financial markets by ECB's asset purchases. Yet, it maintains that ECB's future exit strategy from QE should be clearly communicated to financial operators and implemented gradually in order to avoid any possible shock on the market for public bonds.

Indeed, data about gross fixed capital formation provide a first preliminary indication of realised demand for new investments.

Excess reserves are the amount of liquidity available to credit institutions that credit institutions hold idle on their deposit accounts at the ECB beyond regulatory requirements rather than mobilise them through the economy via new loans or asset purchases. **The ratio of excess reserves to the money base may thus reveal how much ECB's QE has effectively led credit institutions to siphon ECB's freshly created liquidity into the economic system.** This is shown in Figure 5 below from 2008 to the end of 2017.

Figure 5 - Excess reserves-money base ratio, overall eurozone, monthly data, 2008M1 - 2017M12.



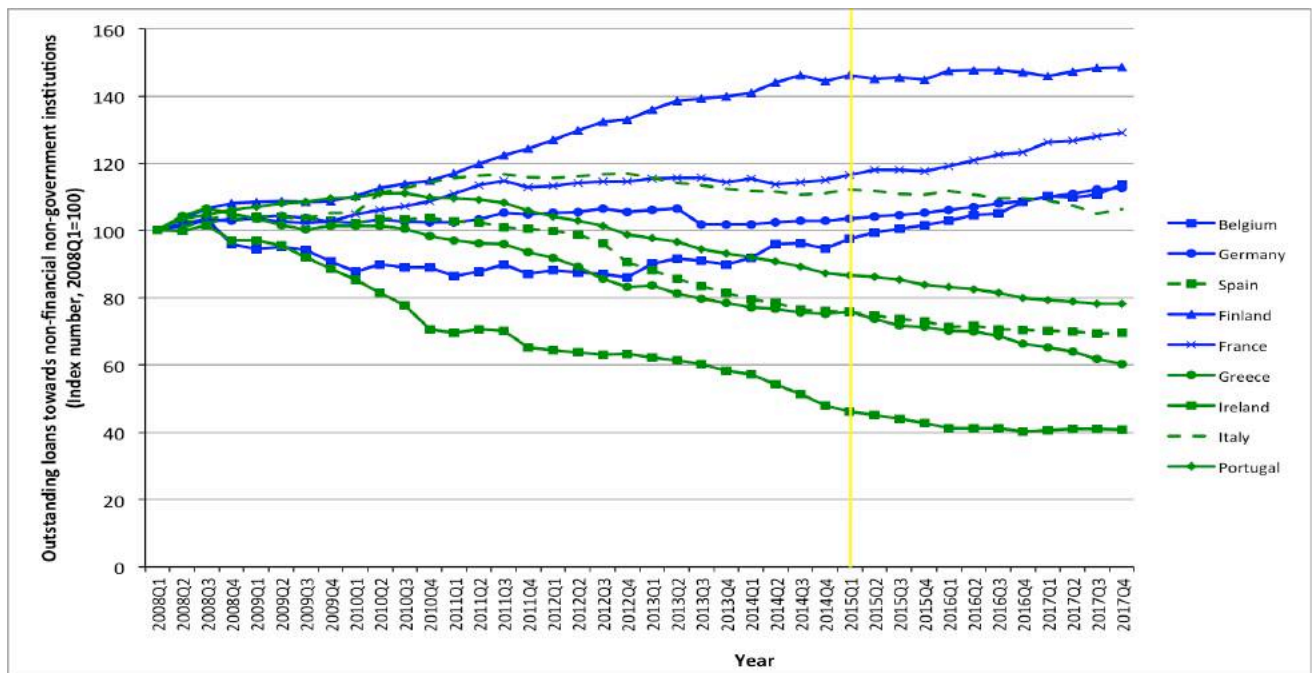
Source: Authors' computation on the basis of data from ECB.

Figure 5 clearly shows that, since the beginning of QE in the first quarter of 2015, credit institutions have constantly increased the ratio of reserves to the total amount of “high-power money” created by the ECB. By the end of 2017, **almost 40 percent of ECB-created liquidity was kept idle on credit institutions' deposit accounts at the ECB itself rather than being fruitfully utilised for the extension of new loans to the real economy.** This is an astonishing amount. It goes without saying that this fact considerably diminishes the alleged capability of QE to stimulate the provision of loans to the real economy from the supply side by injecting new money into the economy.

Figure 6 shows the evolution of loans extended to non-financial private actors for selected eurozone countries according to data available from the first quarter of 2008 until the end of 2017 (index value with 2008Q1 as base). Once again, a clear discrepancy emerges between the core of the eurozone and the periphery. In the core of the eurozone, the stock of loans to non-financial non-

governmental institutions certainly increased throughout the sample period. QE may be behind these positive developments (for instance, in the case of Belgium, France and Germany). **In the periphery of the eurozone, credit institutions have continued to go through a process of considerable deleveraging despite the implementation of QE.** Accordingly, they reduced their assets and the stock of loans to the real economy stagnated (Italy) or decreased (Portugal, Spain, Greece and Ireland). From Figure 6, it seems to be clear that the launch of QE did not manage to invert such a trend, so that credit creation at the benefit of non-financial non-governmental borrowers continues to suffer in the periphery of the eurozone. Indeed, our finding is consistent with Albertazzi et al. (2018), when, in their attempt to evaluate the effectiveness of the portfolio-rebalancing channel, they detect different responses to ECB's QE in "less vulnerable" (read core economies) with respect to "more vulnerable" (read peripheral) countries. In less vulnerable eurozone economies, the QE portfolio-rebalancing channel stimulated an increase in lending to non-financial corporations, while the opposite happened in the case of more vulnerable economies. This is why, when it comes to bank lending, i.e. the volume of bank lending to the real economy, they find that "evidence of [positive QE-induced] effects [on bank lending] are limited to non-vulnerable countries" (Albertazzi et al., 2018, p.20).

Figure 6 - Stock of loans conceded to non-financial non-governmental borrowers by credit institutions in selected eurozone countries, 2008Q1 - 2017Q4, index number (2008Q1=100).



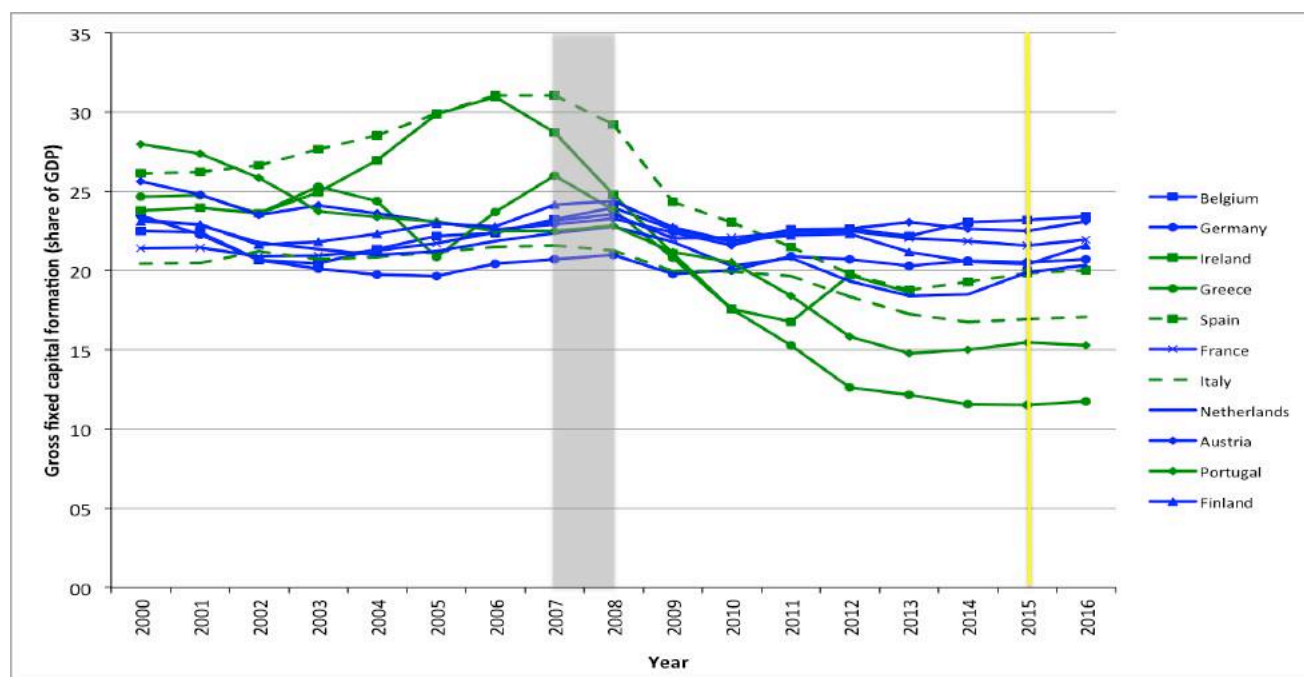
Source: Authors' computation on the basis of data from ECB.

Note: The yellow line associated to 2015Q1 identifies the first quarter of implementation of ECB's QE.

Figures 5 and 6 provide a snapshot of the supply side lending, i.e. the will or capability of credit institutions to provide credit to the real economy in order to finance investment (or consumption) expenditures and induce economic recovery. To gain insights about the demand side, we look at the

realised demand for investment. In particular, Figure 7 shows the evolution of gross fixed capital formation as a share of GDP from 2000 to 2016 in eleven eurozone countries. It comes with no surprise that the economic scenario characterising core eurozone countries looks rather different from that characterising the periphery of the eurozone. In the core of the eurozone, after an initial contraction associated with the outbreak of the worldwide financial crisis, gross fixed capital formation slowly converged back to pre-crisis ratios, so that they appear as rather stable through time. In the case of the eurozone periphery, the reduction in gross fixed capital formation has been much more pronounced, as partially caused by the collapse of the construction sector in Spain and Ireland. **Gross fixed capital formation is now much lower than its pre-crisis level in all the five peripheral economies, and it is considerably lower than the same figure registered in the core of the euro area.** The time periods of the data is too short to make a reliable assessment of the effect of ECB's QE on the demand for investment, as the annual data for investment ends in 2016 - just one year after the launch of ECB's QE. With this caveat in mind, we can surely affirm that the supposedly positive effects of ECB's QE on invest demand has not yet materialised in the periphery of the eurozone.

Figure 7 - Gross fixed capital formation (as a share of GDP), selected eurozone countries, 2000 - 2016.



Source: Eurostat.

Note: Years associated to the outbreak of the 2007-2008 financial crisis in grey colour. The yellow line associated to 2015 identifies the first year of implementation of ECB's QE.

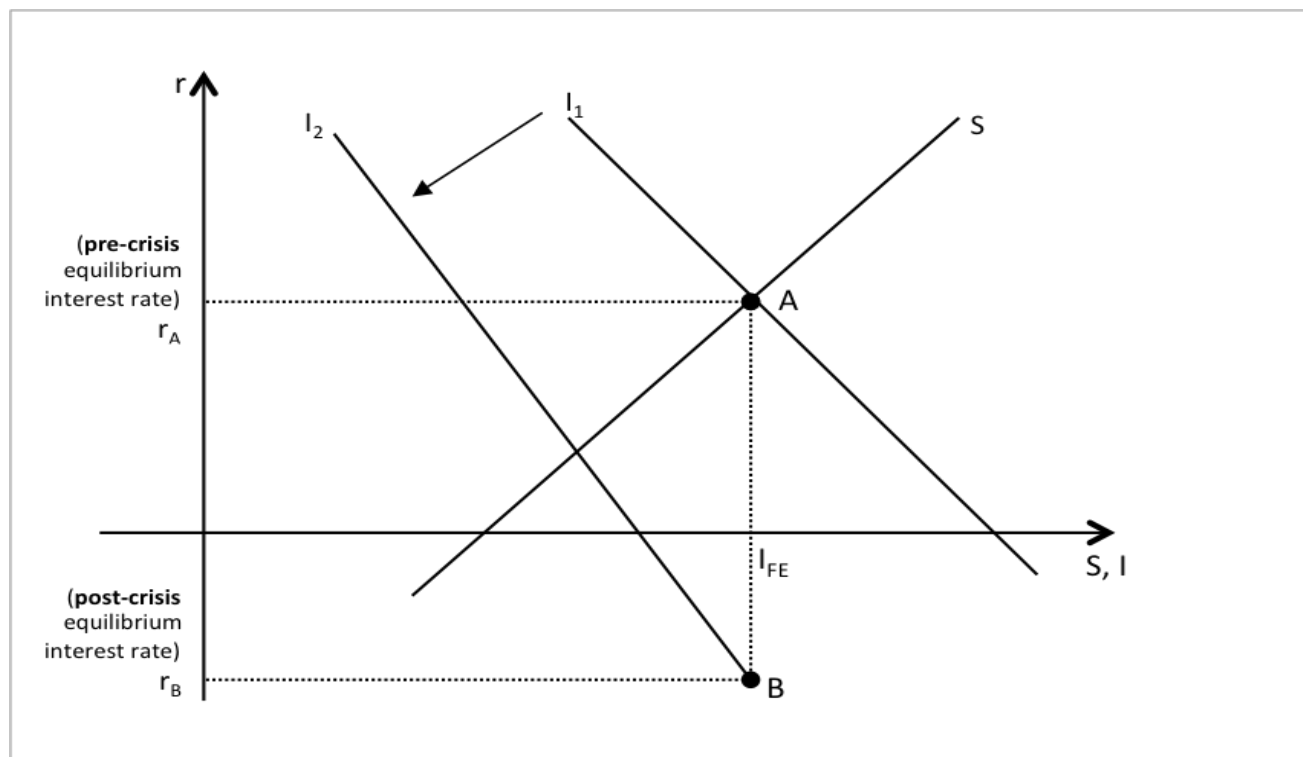
4. POLICY ALTERNATIVES AGAINST SECULAR STAGNATION AND THE DIVERGENCE BETWEEN THE CORE AND THE PERIPHERY IN THE EUROZONE

Since March 2015, ECB's QE may have certainly contributed to keeping the Eurozone intact. Under mounting financial turbulences, the combination of Mario Draghi's famous "what ever it takes" statement, the subsequent (virtual) implementation of the OMT program, and finally ECB's QE all helped to calm down financial turmoil and to stabilise the economic and financial environment of the eurozone. This fact notwithstanding, the evidence provided in section 3 **casts some doubts about the capability of ECB's QE to boost investment and economic growth, at least in the periphery of the eurozone.** There are some good reasons to believe that **even ultra expansionary unconventional monetary policies, if not coordinated with other policy measures, cannot be the optimal policy recipe in order to revitalize fast, sustained and sustainable economic development in the eurozone.** This is even more so given the widening discrepancies dividing some eurozone member states from others.

The concept of secular stagnation, as introduced by Alvin Hansen and recently re-elaborated by Larry Summers, directly points to the ineffectiveness of monetary policy alone to lift investment and ensure full employment. According to their views, secular stagnation is characterised by the fact that investment demand is highly inelastic to the real interest rate. But more than this, the essence of secular stagnation lies in the persistent lack of investment demand regardless how low the real interest rate might be. In this sense, the existence of secular stagnation is revealed in the diagram putting together saving supply (S) and investment demand (I) – see Figure 8 below, by the (apparently unmovable) position of the investment demand schedule far to the left of the I-S plot, rather than by the rigid slope of the investment demand schedule as such (European Parliament, 2016). For monetary policy, it thereby becomes (almost) impossible to reach a deeply negative "equilibrium" real interest rate (if ever exists) that might ensure high investment (IFE) and full employment, even by stimulating a higher inflation rate when the nominal interest rate has already reached the zero lower bound. This is even more so if we consider that inflation dynamics appears as only loosely responsive to massive monetary expansions in times of depressed entrepreneurial animal spirits. In such a context, ECB's QE likely turns out to be a rather useless policy tool to boost investment and economic activity, at least in the depressed periphery of the eurozone.

In the eurozone, the task of the ECB gets even more complex. Indeed, with stable inflation below but close to 2 percent - its primary goal - the ECB pays attention to the dynamics of average inflation for the euro area as a whole, regardless of widening "regional" differences and of individual country specificities. Even if we accept that ECB's QE might positively affect economic activity in the periphery in the long run, the ECB itself would likely terminate QE before it could ever display such positive effects in the face of rising inflation. The ECB's target is likely to be reached, even with a depressed periphery, given the expansionary effects of QE in the core of the Eurozone.

Figure 8 - Saving supply (S), investment demand (I) and the "equilibrium" interest rate (r).

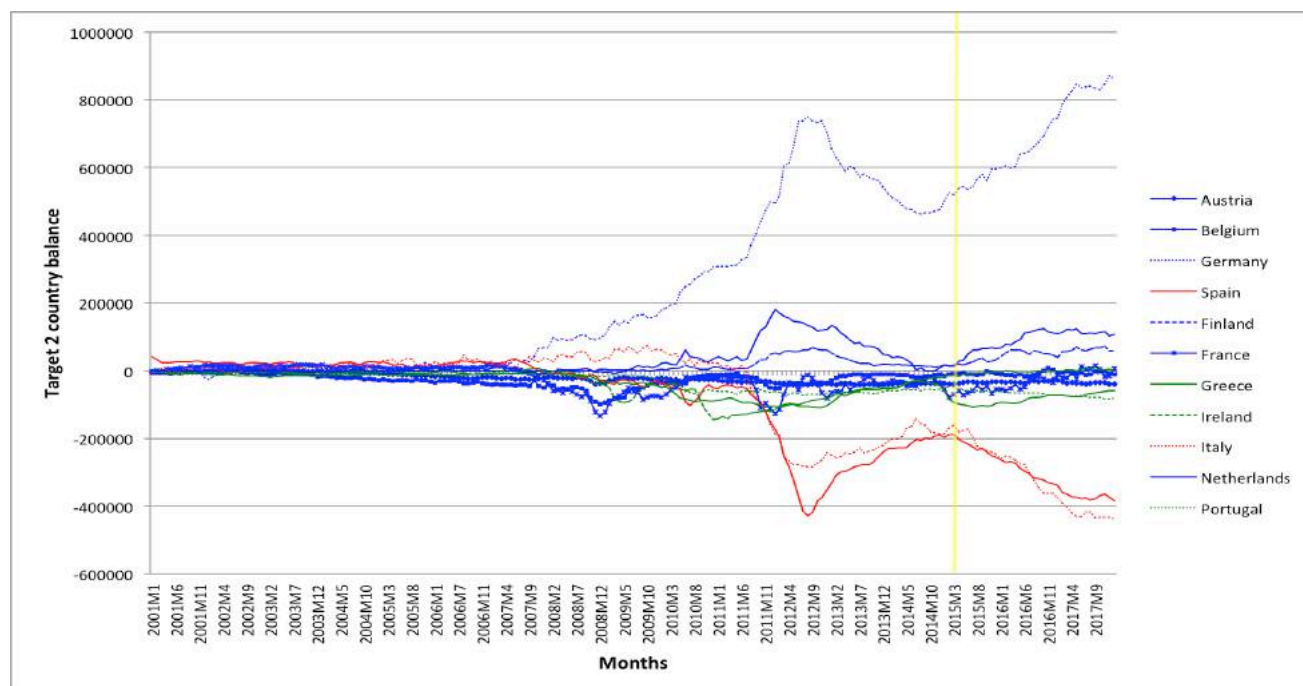


Last but not least, there is a subtle third reason why QE is likely to be ineffective in forestalling secular stagnation in the periphery of the eurozone. According to its plan, QE does inject money in all parts of the Eurozone in a rather proportional way. In fact, asset purchases take place in the various eurozone countries according to their contributions to ECB's capital, which in turn reflect each country population and GDP shares with respect the aggregate European Union. This fact notwithstanding, fresh liquidity injected in the financial system of a given economy is by no means bounded to "remain there", and to support credit expansion, in one way or the other, in the original "designated" economy. For example, Italian banks, which are credited new liquidity by selling eligible securities to the ECB according to the QE asset purchasing programme, may then use these resources to buy corporate bonds issued by German corporations or to extend loans in other eurozone countries rather than providing credit to Italian businesses. If so, QE's original plan of stimulating economic growth in Italy by providing new resources to the Italian credit system in order to ultimately allow it to extend more credit to domestic households and firms becomes ineffective. More than this, ECB's QE, if left alone and uncoordinated with other complementary policies, could even exacerbate diverging dynamics between the core and the periphery of the eurozone rather than taming them.

Figure 9 below shows that the economic scenario described in the final point above is not pure conjecture, but it rather constitutes a good representation of what has been going on in the eurozone since the beginning of 2015. Figure 9 portrays the evolution of Target 2 balances for selected eurozone countries. Target 2 is the electronic system through which international payments and flow of resources among eurozone countries take place and are recorded. In particular, a single country imbalance in the Target 2 system mirrors imbalances in the current and/or financial account

of its own balance of payments. A Target 2 deficit, for instance, may stand for a current account and/or financial account deficit. Vice versa, a surplus in the Target 2 emerges when a eurozone country is running a current account surplus versus other eurozone countries and/or it is receiving net positive financial inflows from eurozone counterparts (i.e., it is running a surplus in the financial account).

Figure 9 - Target 2 balances for selected eurozone countries, 2001M1 - 2018M1.



Source: ECB

Note: The yellow line associated to 2015M3 identifies the first month of implementation of ECB's QE.

From the introduction of the euro currency until the beginning of the financial crisis, Target 2 accounts were broadly balanced for all eurozone countries. This was due to the fact that current account deficits (surpluses) in the periphery (core) of the eurozone were matched by corresponding financial account surpluses (deficits). In other words, core eurozone countries were recycling their net positive payments due to surpluses in the current account in order to finance current account deficits in the periphery⁶.

This recycling system all came to end with the worldwide financial breakdown and the sovereign debt crisis. Sudden stops and capital reversals hit peripheral eurozone countries (Merler and Pisani-Ferry, 2012). Financial markets disintegrated and capital moved back from the periphery to the core.

⁶ Micossi (2012) labelled such an integration pattern as the “unholy compromise” between core and peripheral eurozone countries. It was triggered off by the process of monetary integration itself, and regulated (in an unstable and unsustainable way) the reciprocal development of core and peripheral eurozone economies until the outbreak of the worldwide financial crisis.

Accordingly, financial account deficits now emerged alongside long-lasting current account deficits in the periphery of the eurozone, leading to widening Target 2 deficits. In the core of the eurozone, financial account surpluses went hand-in-hand with current account surpluses, as well as Target 2 surpluses.

Deep core-periphery imbalances in the Target 2 system partially decreased from the second half of 2012 onwards after the virtual implementation of the ECB's OMT program. Indeed, financial operators took the OMT program as an implicit public guarantee against the risk of sovereign default. Accordingly, a resurgence of (net positive) capital inflows took place from the core to the periphery. A new and final reversal in such dynamics eventually started with the beginning of ECB's QE (yellow line in Figure 9). As stressed above, only a limited part of fresh resources injected in peripheral economies via QE were eventually used to purchase domestic assets or to provide loans to domestic firms and households. On the contrary, a significant part of them took the form of capital flows "inflating" core economies. This is why, since 2015, core (periphery) surpluses (deficits) in the Target 2 system reached astonishingly positive (negative) values that were never recorded before.

4.1 Alternative policies

There is an abundant and long-standing economic literature about the ineffectiveness of monetary policy as a stabilization tool when different regions of a monetary union are hit by asymmetric shocks (Mundell, 1961; Frankel and Rose, 1998). Our analysis shows that a common monetary policy is likely to be suboptimal even when different regions are hit by common shocks but then follow asymmetric dynamics.

The ultra expansionary unconventional monetary policy launched by the ECB since March 2015 certainly contributed to maintain tranquillity on financial markets, reducing financing costs for national governments and creating leeway for the implementation of more expansionary fiscal policies. Nevertheless, it may easily turn out to be useless (or even counterproductive) when it comes to the reduction of increasing (structural) economic gaps between different member states of the eurozone. In this sense, ECB's monetary policy cannot address regional convergence and development. Alternative policy options are more appropriate to deal with secular stagnation in the periphery of the eurozone. In our view, such policy alternatives should be orchestrated around four key areas: industrial policy; regional orientation; pan-European value chains; and clustering.

1. **Industrial policy:** Regional convergence can be achieved only by developing and strengthening the productive structures of peripheral eurozone countries. Innovation, sectoral diversification, and structural change towards new and more productive sectors are the three major processes at the basis of productive development. Very importantly, they do not unfold as spontaneous outcomes of market forces and market integration. Past and more recent international experiences show that successful productive development requires strong institutional and governmental support (Wade, 2010; Farla et al., 2015). For this reason, an active EU industrial policy characterized by a strong regional character represents the best policy option to tackle the short- and long-term aspects of secular stagnation in peripheral eurozone countries. The importance of industrial policy for social cohesion and economic prosperity is already recognized and well accepted by European institutions. The same applies to regional convergence and solidarity. And indeed, a combination of regional and industrial development goals already exists in EU policy, since EU regional policy traditionally entailed some typical aspects of industrial policy (say supporting employment creation and structural change in less developed EU regions). What we suggest here is a change in

the priorities and in the focus of EU policies. The overall EU industrial policy should now present a strong regional flavor, i.e. it should primarily target productive (re-) development of the eurozone periphery.

2. **Regional orientation:** In our view, the implementation of a “region-oriented” EU industrial policy implies that cohesion funds, structural funds, and EU resources for R&D and innovation should become integrated pillars of EU industrial policy itself. Two points are worth stressing in order to make a region-focused EU industrial policy effective. First, According to Farla et al. (2015), funds for regional goals represented about 0,38 percent of EU GDP under the 2007-2013 Seventh Framework Program. Given outstanding evidence of deepening divergences among eurozone countries, the European Commission (EC) should take the increase of funds for regional convergence as an absolute priority. Such increase in EU funds for regional-oriented industrial policy does not imply any radical reform of EU institutions and/or EU policy framing. It just amounts to recognizing that the last financial crisis triggered a discontinuity in the relative dynamics of different eurozone regions, and that the EU should counterbalance these diverging tendencies by putting far more emphasis on the already established EU goal of regional convergence via EU industrial policy. Second, a region-oriented EU industrial policy should be modulated according to specific regional productive strengths and weaknesses. Indeed, Ireland is different from Italy and Spain, which, in turn, are different from Greece and Portugal. Accordingly, EU industrial policy in Ireland should target the development of domestic productive networks and domestic value creation, whilst maintaining Irish specialization in highly dynamic sectors on international markets (Botta, 2014). In the case of Italy and Spain, EU industrial policy should have a more vertical character and encourage the fast expansion of dynamic technology-intensive sectors in order to reshape country comparative advantages away from more traditional low-tech industries. In the case of Greece and Portugal, the major goal of EU industrial policy should be to favor the creation of new productive sectors, hence the diversification of strongly concentrated relatively underdeveloped productive and export structures.
3. **Pan-European value chains:** The emphasis on regional industrial development in the periphery of the eurozone is not at odds with the adoption of a comprehensive Europe-wide perspective, which envisions the creation of an integrated European productive network. Indeed, productive development in the periphery can be achieved by increasing productive, technological and innovation linkages among eurozone countries (between core and peripheral eurozone countries, in particular) and across sectors. The development of a deep, tight and dense pan-European productive value chain is strategic for two reasons. First, productive integration might give rise to technological spill-overs and be source of innovation and technological development in peripheral eurozone countries. Second, productive integration between eurozone countries can contribute to synchronize business cycles among eurozone countries themselves. Un-synchronized business cycles are one of the main asymmetries that undermines the effectiveness of monetary policy. This might therefore facilitate the implementation in the future of expansionary monetary policies as a useful tool against similar shocks and more correlated dynamics in different euro countries.
4. **Clustering:** Innovation and the diffusion of technological progress take place through the interactions between a variety of actors such as universities, research centers, and firms. Accordingly, EU industrial policy should prioritize the development of innovation and technology-based clusters in peripheral countries. It could do so by undertaking two actions. First, EU funds to

the periphery should aim at raising expenditures on higher education, scientific education above all; strengthening physical infrastructures (say labs) devoted to host research activities; financing international research programs held in peripheral countries; creating EU-funded public research centers of excellence. Thanks to these actions, peripheral countries might close (or at least reduce) the widening gap with respect to core economies in terms of the accumulation of high-skilled human capital (Botta, 2014). On top of this, peripheral economies may become more capable to absorb technological knowledge and create innovation. All these actions are all the more important, as knowledge accumulation and technological progress hardly take place autonomously in local underdeveloped productive systems. In underdeveloped regions, firms perceive university-industry interactions, and spatial proximity to universities and research centers, as essential sources of innovation and technological progress much more than in advanced regions (see D'Este, Guy and Iammarino, 2013). Second, the above actions on the supply-side of knowledge creation can become effective if appropriately matched with demand-side policies that aim at raising the demand for investments in innovative and technologically advanced sectors. In this regard, we think about region-specific preferential treatments (e.g. tax and subsidy incentives, easy credit, and the direct provision of external funds) to new and fast-growing innovative businesses clustering around universities and EU-funded research centers. There is no doubt that such region-specific incentives may create distortions in European-wide markets. This fact notwithstanding, their introduction should be justified by acknowledging the existing productive and technological asymmetries between core and peripheral economies. On top of this, structural change and productive development in underdeveloped regions can effectively take place only if industrial policies identify and tackle demand-supply mismatches and coordination failures that could otherwise easily frustrate the efforts of supply-side measures or demand incentives taken alone. A well-designed EU industrial policy should simultaneously undertake complementary supply-side and demand-side actions.

The implementation of a redesigned region-oriented EU industrial policy has serious implications as to the financing of EU industrial policy itself. Fiscal policy, both at the national and EU level, has to address this industrial policy target. Indeed, the existing EU-imposed constraints to public budgets strait jacket national governments' capabilities to expand resources devoted to industrial and innovation development. This is why the financial endowment of EU institutions should be dramatically increased in order to allow them to take direct action and implement a strengthened and integrated cohesion-industrial-technology policy. More than this, vital financial support to productive development in peripheral eurozone countries should come from the European Investment Bank (EIB). The EIB was founded at the beginning of the European community with the purpose of supporting economic development in underdeveloped regions, and counteracting centripetal forces possibly unleashed by market integration. EIB's actions mainly focused on the financing of infrastructural projects. Although important, the EIB's traditional concern about infrastructure financing cannot fully remove economic bottlenecks and coordination failures that prevent productive upgrading to take place in the periphery of the eurozone. In our view, the EIB should be reformed in a full-fledged public development bank, with a major stake in the provision of direct financial support to new business activities and innovation processes at the basis of structural change in peripheral economies. In doing so, the role of the EIB should not be limited to the provision of public guarantees to private finance, protecting the latter from lender's risks. Direct financial support from the EIB should also have a strong anti-cyclical character, i.e. expanding lending

activity and increasing its share in co-financed projects during periods of economic and financial distress.

5. CONCLUSION

Since March 2015, the ECB's QE has undoubtedly contributed to preserve stability in Eurozone financial markets and credit systems, and to alleviate the burden of fiscal adjustments on national governments. This fact notwithstanding, there are good reasons to believe that it has been rather ineffective to stimulate sustained and sustainable economic recovery in the periphery of the eurozone. Indeed, the stylized facts and empirical evidence presented in this paper suggest that a widening gap is opening between the core of the eurozone, which is close to high employment and whose potential growth does not appear to have been affected by the last financial crisis, and the periphery, where secular stagnation emerges as a concrete concern. In this context, ECB's QE could have paradoxically played a perverse role in aggravating these divergences, as new liquidity injected in peripheral economies has not been deployed for the development of domestic productive systems, but rather flowed into core economies.

The existence of diverging dynamics between the core and the periphery of the eurozone makes regional cohesion and convergence the most relevant issue for EU institutions and policies to deal with in the near future. A one-size-fits-all nature of monetary policy is not the appropriate response to such "regional" development problems. On the contrary, the EU can successfully tackle the eurozone core-periphery divide through the implementation of a region-oriented industrial policy, whose primary aim should be to support the productive and technological development in underdeveloped peripheral regions. The reform of EU industrial policy, and its designation as central strategy for the achievement of Europe-wide structural convergence, should come together with the reform of the European Investment Bank. The reform of the EIB should aim at creating a full-fledged public development bank, which directly provides (anti-cyclical) finance to new innovative and technologically advanced entrepreneurial initiatives in relatively underdeveloped eurozone regions.

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