Facultad de Ciencias Económicas y Empresariales

TRABAJO FIN DE GRADO

PROGRAMA INTERNACIONAL DEL DOBLE GRADO EN ADMINISTRACIÓN DE EMPRESAS Y ECONOMÍA

Economic policy in an environment of secular stagnation

Leyre Iriguibel Aldunate

DIRECTOR

Ricardo Aláez-Aller

Pamplona-Iruña

15 de Junio de 2016

ABSTRACT

Secular stagnation has become one of the main economic issues over the last years. It seemed forgotten until 2013, when Summers revived it due to the weak recovery experienced after the Global Financial Crisis. This is probably, consequence of some structural factors that are changing the global economic pattern. A global increase in the propensity to save (global saving glut) and a decrease in the propensity to invest have led to a declining trend of real rates. Besides, episodes of financial instability and ZLB are likely to be more common in the future while monetary policy efficacy is constraint by these almost zero rates. This is why a discussion about the adequate economic policies to be implemented has arisen among different economists, who agree that the conventional tools have become obsolete in this new possible environment of secular stagnation.

KEY WORDS

Secular stagnation, Real interest rate, Inflation/ deflation, Changes, Policies.

INDEX

1. INTRODUCTION

Almost eight years after the Global Crisis 2008/2009, the recovery is still anemic despite years of almost zero interest rates and central bank monetary policies. Has the world economy entered a period of secular stagnation? The question of whether or not the advanced Western economies are suffering from this affliction is one of the biggest and most important in modern economies, as it could have important consequences in terms of real economic policy.

The hypothesis of secular stagnation supports that the weak economic situation after the Global Depression is due to some structural causes which have led to a decreasing trend in real interest rates, which may impede sustainable long-term growth. Besides, an environment of secular stagnation involves the necessity of negative real interest rates in the capital market in order to equate savings and investment at full employment. This fact undermines conventional monetary policies by Central Banks, which have to face Zero Lower Bound for nominal interest rates and low inflation targets. The immediate consequence is a context of financial instability risk, where speculative credit-driven bubbles are very likely to take place and Governments need to deal against their devastating impact when they burst.

The following paper thus firstly studies the characterization and the causes of this phenomenon that was born in 1938 and developed by Hansen after the Great Depression of the 30s, and which has come back to economists and policy makers´ minds since 2013 thanks to Larry Summers and the Great Depression of 2008. Moreover, the second part addresses the possibility that the conventional economic policies may have become inadequate under a context of secular stagnation. Therefore, monetary and fiscal policy should be deeply revised in order to apply structural reforms which overcome this problem.

The following pages will develop this theme through a literature review, in order to shed light in what could be considered the true theater of developed countries economic welfare: secular stagnation.

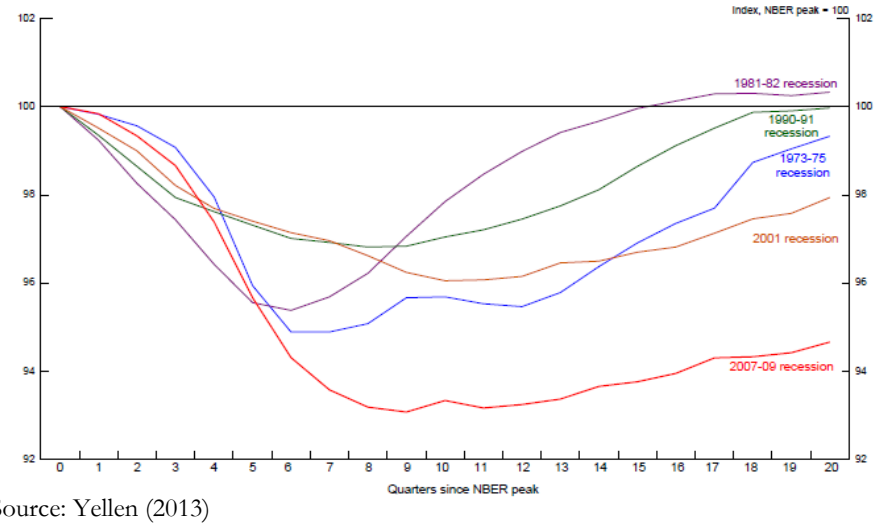
2. SECULAR STAGNATION

2.1 Concept and characteristics

It was in 1938 when Alvin Hansen, disciple of Keynes, used for the first time the term "secular stagnation" (Hansen, 1939). The concept was created in order to explain the weak recovery of the United States after the Great Depression. At that time, Hansen identified three main causes of stagnation: decreasing population growth, changes in the character of technological progress, and thirdly, the falling availability of new territory in the US. Indeed, he thought that this decline of both population and technological progress would decrease the opportunities of investment. At the same time this would lead to an accumulation of savings which would produce the collapse of the economic growth, if any stimulus to push aggregate demand was done by the Government (Hansen, 1939). Nevertheless, this idea ended up on the scrap heap of history due to the arrival of the Golden Age of capitalism (1945-1973), when USA became the first world economic power.

In 2013, in the International Monetary Fund Economic Forum, the economist and ex-Treasurer of the United States during Clinton´s presidency, Larry Summers, recovered the concept of "secular stagnation" (Summers, 2014). After the global financial crisis and the Great Recession of 2008/2009, not only the US but also the Euro Area and Japan experienced only weak recoveries. In fact, the economic expansion after the 2008/2009 crisis has been, and still it is, the weakest in after the WWII in the US (Yellen, 2013, See Figure 1), and according to Summers (2014), the economies are still depressed. Few advanced economies have returned to pre-Crisis growth rates despite years of near-zero interest rates, and the shadow of long-run stagnation or secular stagnation has started to be on the agenda of economists and policy advisers.

Figure 1: Nonfarm Payroll Employment in Selected Recessions and Recoveries



Source: Yellen (2013)

Officially, the debate began in 2013, with the contribution of Summers, who argued that "the trend in growth can be adversely affected over the longer term by what happens in the business cycle" (Summers 2014a, p. 66). The length of the Global Recession just after the financial crisis 2008/2009, and the extraordinary measures to combat it, created a widespread but ill-defined sense that something had changed. It might have led to a "secular stagnation" for the years to come, a real threat for the new generations. As Eichengreen, B. (2014, p.3) supports: "The idea that America and the other advanced economies might be suffering from more than the hangover from a financial crisis resonated with many observers".

The economic crisis has led to a crisis in the field of macroeconomics. The following Figures 2 and 3 depict the gap between actual and potential output estimated for both US and the Eurozone. They show that all the convergence between the economy´s level of output and its potential has been achieved not through the economy´s growth, but through downward revisions in its potential in both places. "The recovery has not represented a return to potential; and, according to the best estimates we have, the downturn has cast a substantial shadow on the economy´s future potential" (Summers 2014, p.66).

Figure 2: Actual and potential GDP in the US

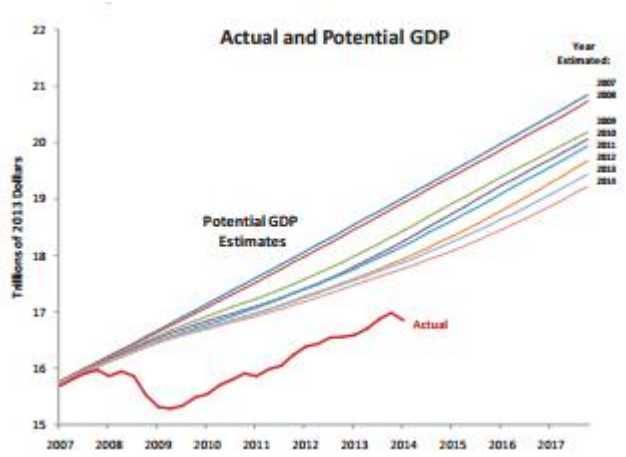
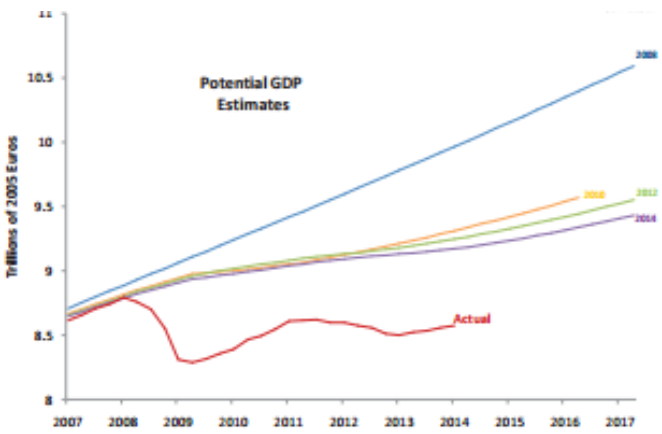


Figure 3: Actual and potential GDP in the Eurozone



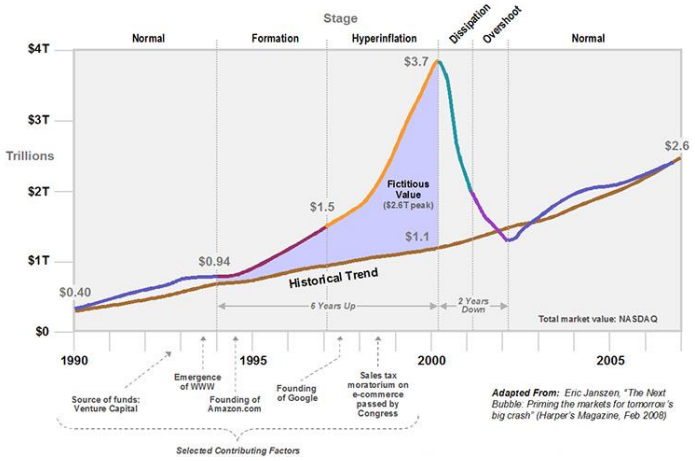
Source: Summers (2014): Reflections on the "New Secular Stagnation Hypothesis"

Afterwards, we will focus on the last 20 years of some of the advanced economies to see if growth was sustainable or if there was something else behind. Looking backwards in the case of the US, prior to the 2001´s small but prolonged downturn, the economy experienced a positive period of strong growth which was not totally sustainable, as it was

partly based on the substantial stock market bubble of the late 1990s, denominated the dot-com bubble (See Figure 4). The years previous to the Global Recession, this is from 2002 to 2007, the economy growth rate was adequate, with satisfactory levels of capacity utilization and employment. However, it was neither totally sustainable because the housing bubble was a relevant fact which was behind an important part of this growth.

Consequently, during the last 20 years, at least US could have not experienced a fully sustainable growth, as it has been partially based on speculative bubbles, which some of them can lead to financial instability, such as the housing bubble of the beginning of the XXI century. Let´s check out now other advanced economies such as the Euro area or Japan.

Figure 4: Dot.com Technology Bubble: 1994-2002



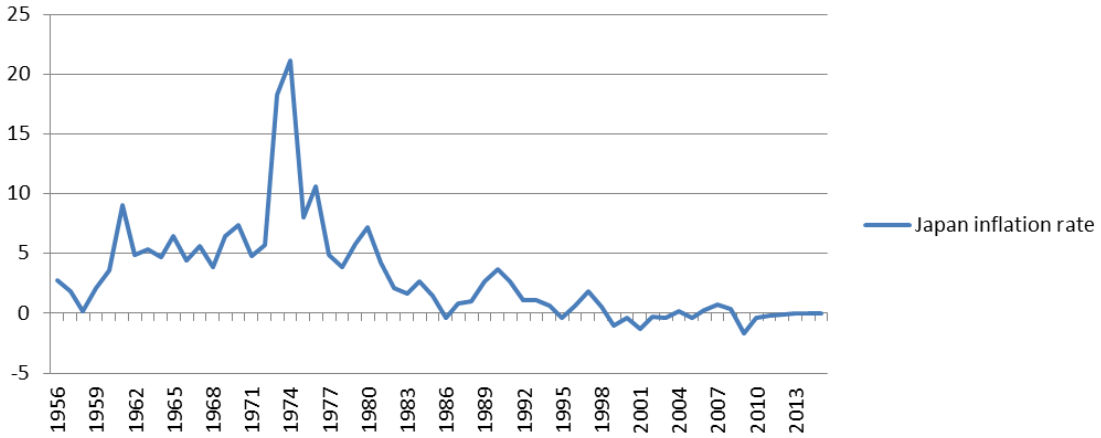
Source: www.Kampasresearch.com

In the case of the Euro area, the period just after the creation of the euro and the Eurozone looked very favorable, enjoying an economic performance stronger than expected. However, nowadays we can say that it was not the case, and that this growth was in part sustained on bubbles, mainly in Southern countries such as Spain or Ireland. It firstly occurred with the dot-com bubble and afterwards, from 1997 until 2007, part of the spectacular growth of these countries was also due to a housing bubble with terrible consequences. Therefore, Europe may also be a case in which demand has been partly supported by bubbles, which create an environment of financial instability risk according to Delong, J. Bradford and Summers(2013).

Japan is sometimes used to emphasize the change in the economic paradigm that was supported before 2008 and which has been demonstrated to be wrong. Prior to 2008, it was believed that spending shocks could create massive unemployment which would be

solved in maximum three years. This is, each year, an economy such as the United States, would recover approximately a 40% of the gap between the actual and potential output. Related to long-run, this is about 3 to 7 years, there was no doubt that the economy would reach previous natural employment and production (Yellen, 2013). However, the current crisis and recession have shown that all this might be wrong. Japan has experienced that the short-run can last decades, and that the long-run implies a new normality in which a new depression has lasting consequences. Apart from its weak GDP recovery after the 2008/2009 crisis, "Japan has suffered from a long-lasting but mild deflation since the latter half of the 1990s" (Nishizaki, K.; Sekine, T. and Ueno, Y., 2012, p.1). As it can be observed in Figure 5, since the eighties Japan has not been able to achieve reasonable levels of inflation, being 0.6% the average of the last 30 years. The paper of Nishizaki, Sekine and Ueno (2012) examines some underlying structural factors of the Japanese economy which may explain Japan's chronic deflation, such as the zero lower bound on the nominal interest rate, weaker growth expectations coupled with declining potential growth or the lower natural rate of interest, risk-averse banking behavior or deregulation.

Figure 5: Japan annual inflation rate 1956-2015



Source: www.inflation.eu (Database)

In conclusion, over the last years some of the advanced economies have not been able to maintain totally sustainable growth. The growth rates achieved have been partially pushed by speculative bubbles which have impeded to avoid financial instability risks. This pattern of growth may be the result of secular stagnation and it can be derived, that there may exist a structural obstacle behind these behaviors (Pérez Artica and Delbianco, 2015). This structural fact could be low real interest rates, which will be explained in the following paragraphs.

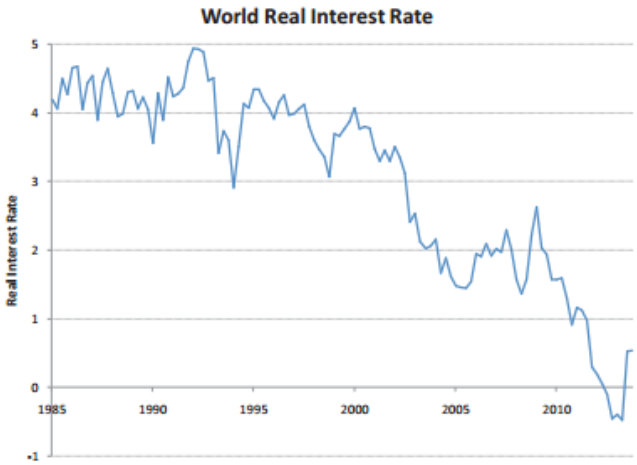
Reached this point, we should start with the definition of "secular stagnation" from the point of view of Larry Summers, who emphasizes the argument of the decline in the equilibrium or natural real rate of interest; understanding this rate as Olson, P. and Wessel, D. (2015) do, as the rate that would keep the economy operating at full employment and stable inflation.

"I shall argue three propositions. First, as the United States and other industrial economies are currently configured, simultaneous achievement of adequate growth, capacity utilization, and financial stability appears increasingly difficult. *Second, this is likely to be related to a substantial decline in the equilibrium or natural real rate of interest*. Third, addressing these challenges requires different policy approaches than are represented by the current conventional wisdom." (Summers 2014a, p. 66)

"I would suggest that in understanding this phenomenon, it is useful at the outset to consider the possibility that changes in the structure of the economy have led to a significant shift in the natural balance between savings and investment, *causing a decline in the equilibrium or normal real rate of interest that is associated with full employment."* (Summers 2014a, p. 69) (See Figure 6)

Remember that real interest rate is nominal interest rates minus expected inflation, or in another way, the rate which equals supply (savings) and demand (investment) of loanable funds (Bank of Spain, 2015).

Figure 6: World average real interest rate



Source: Teulings and Baldwin (2014) Secular stagnation: Facts, Causes and Cures.

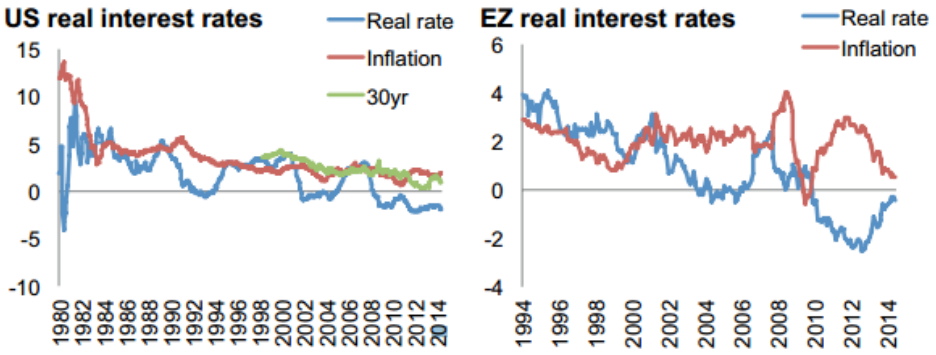
As Eichengreen, B. (2014) says, although the concept of "secular stagnation" has been continuously repeated recently, it is not equally understood by all the parties. Despite of this disagreement, there are some points already mentioned by Summers (2014) in which it exists a consensus.

Firstly, secular stagnation involves that negative real interest rates are needed to equate saving and investment at full employment; and secondly, it makes much harder to achieve full employment with low inflation and a zero lower bound (ZLB) on policy interest rates. In another way, firstly, the level of investment needed to achieve full employment and full use of economic resources can only be reached with borrowing costs that are negative in real terms. Secondly, nowadays both inflation and interest rates are almost zero in nominal terms, so the real rates cannot be cut down sufficiently to achieve the necessary investment levels which would lead to full employment. Therefore, although it is early to ratify the existence of secular stagnation, economists and policy makers should start thinking about new economic policies. The macroeconomic policy mainly used during the Great moderation periodmight be inadequate, as secular stagnation involves that these periods of zero policy interest rates are going to be much more common in the future.

As a remark regarding the impact of secular stagnation in the different advanced economies, Crafts, N. (2014) supports that Europeans should be much more afraid than Americans. "The depressing effects of slower growth of productive potential will probably be felt more keenly in Europe." (Crafts, N. 2014, p.2) His opinion is also shared by other economists asJimeno, J; Smets, F. andYiangou, J.(2014).

Regarding the existence of a possible structural fact, real interest rates have dropped from 5% in the 1980s, to 2% in the 1990s and to 1% in the 2000s. In fact, since the Lehman collapse, they have averaged about -1% (See Figure 7). It is clear that there has been a downward trend in real interest rates for almost 40 years, at least in both US and the Eurozone. However, let´s see more in detail the evolution of global real interest rate and why these low rates matter that much.

Figure 7: Real interest rates in the US and the Eurozone



Source: Teulings and Baldwin (2014) Secular stagnation: Facts, Causes and Cures.

Previous figures show clearly that at least in these two economic areas real interest rates have decreased. Nevertheless, we should talk about global real interest rate, understood as the rate which equals the supply and the demand of loanable funds at global scale (Bank of Spain, 2015). In order to understand the evolution of global rates we should remember that supply represents savings and demand represents investment;and clarify that supply of loanable funds is increasing with interest rate (increase of savings), and that demand decreases with interest rates (decrease of investment). This is, real interest rate would decrease if there is a shift downwards of the supply curve, this is, an increase in the propensity to save; or by a shift downwards as well of the demand curve, which implies a reduction in the propensity to invest.

Coming back to historic evolution, there is quite sufficient evidence that since the 80s, real interest rates have been declining in many of the advanced and emerging economies. Regarding supply and demand movements in the different economic areas, in the case of advanced economies there has been a decrease in savings and investment rates since the beginning of the century; while on the contrary, emerging economies have experienced an increase in these rates of both savings and investment, although the increase of the first surpassed greatly the increase of the second one. The consequence of this global behavior was a final increase of the global saving rate of 1.6% from 2000 to 2007, according to the Bank of Spain (2015), which mainly makes responsible to China and raw materials exporting countries. All in all, these facts would have made real interest rates fall.

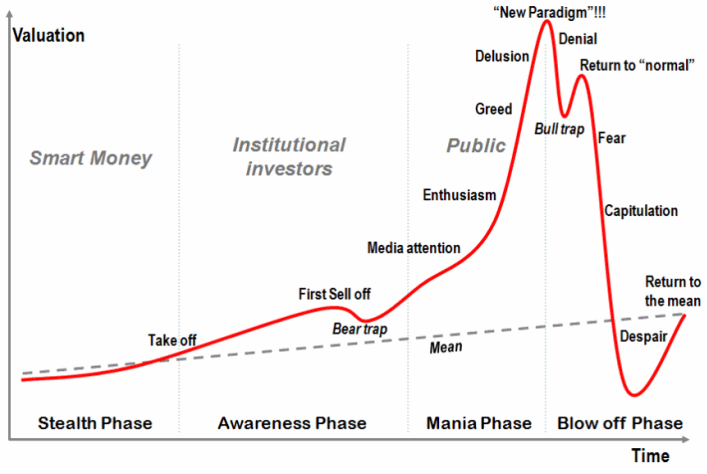
Once we understand the meaning and the evolution of real interest rates during the last 30 years, it is time to question ourselves why natural rates matter. Krugman (2014) explains their implications: Firstly, if real interest rates are low in normal periods, adverse

macroeconomic shocks are more likely to require negative real rates to restore full-employment and the investment-savings equilibrium.

Furthermore, today´s low-inflation environment (target of 2% in the Eurozone and USA) and the ZLB, undermine the effects of monetary policy. In fact, the key of secular stagnation is that despite the interventions in monetary policy trying to mitigate the effects of the financial crisis of 2008/2009, the level of economic activity remains very much lower than its potential level. The "new secular stagnation hypothesis" stresses the inadequacy of conventional monetary policy in order to achieve full employment, satisfactory growth and financial stability simultaneously (Summers 2014, p.29).

Besides, low real interest rates create an environment appropriate for the creation of bubbles. This phenomenon is an alternative way for society to deal with excess saving when fiscal policies are not implemented. In fact, investors get more profits from speculating and playing at the stock exchange and the consequence is the emergence of this phenomenon. Buying today bubbly assets thinking of selling them in the future is an alternative way of saving for future consumption. If everyone follows the same practice, the price of these assets increases, reporting benefits to their sellers who will be able to increase their future consumption (See Figure 8).

Figure 8: Evolution of bubbles



Source: www.knopcorn.com (2015)

In fact, Summers (2014) sustains that holding real interest rates at levels low enough to generate investment at full employment would increase risk taking and put the financial system in danger. This is the reason of the existence of a global question regarding the possible implications for financial stability due to the existence of long periods of

permanent low real interest rates. He lists four channels through which low interest rates may lead to instability:

(i) They encourage risk-taking, as investors look for more yield, both particular investors and institutional investors, such as banks. Regarding the financial system, banks would find that their yields are very low due to the low rates, and the way they would follow in order to get more profitability would be increasing risks, which in the future, makes the financial system much more vulnerable to a crisis; (ii) As a consequence of the previous channel, low real interest rates would promote massive lending because of the easiness of meeting coupon obligations, as banks are more likely to lend to anyone to improve yields, no matter the risk; iii) This environment makes bubbles a more common phenomenon, which in some cases could cause financial crisis and instability as well; and (iv) They make Ponzi financial structures more attractive as interest rates look low relative to expected growth rates. Ponzi scheme is referred to a fraudulent investing scam promising high rates of return with little risk to investors.

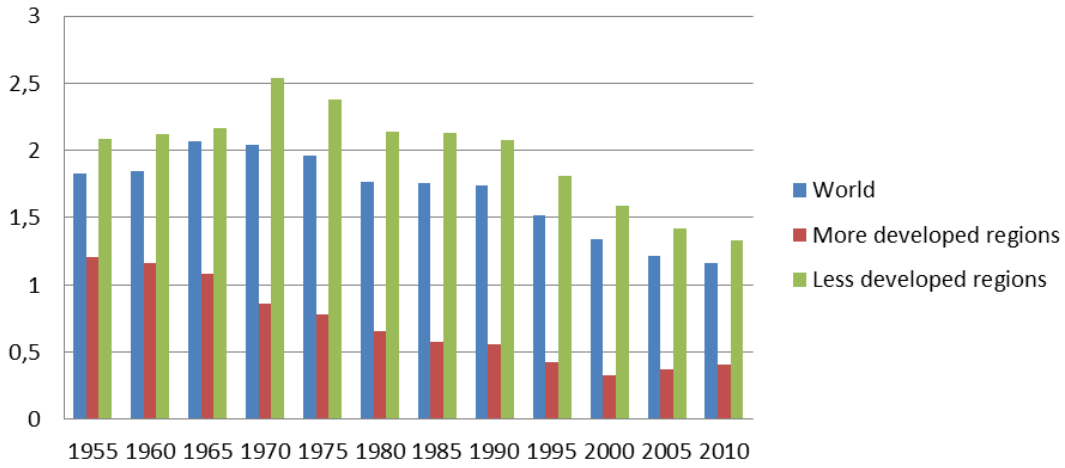
Therefore, the structural feature which is behind the actual pattern of growth of some advanced economies might be the continuous decline and actual low real interest rates previously explained. Consequently, this reasoning then makes us question about the causes of this phenomenon and the possible determinants of the evolution of demand and supply, this is, investment and saving, which will make us better understand the idea of secular stagnation.

2.2 Causes

The predominant explanation makes responsible for the slowdown of the global economy, to the decline in the equilibrium real rate of interest, which at the same time is the result of a chronic shortage of demand and excess of saving respect to investment, as supports Rossi, D. (2015). But what has occurred in the world to arrive to this point? Several structural "headwinds" are common in several authors such as Moreno, A. (2014); Hein, E. (2015);García, M.A (2016) and Eichengreen, B. (2014):

- Population characteristics: Slowing population growth, aging population and therefore a decline of the labor force.

Figure 9: Growth population rates

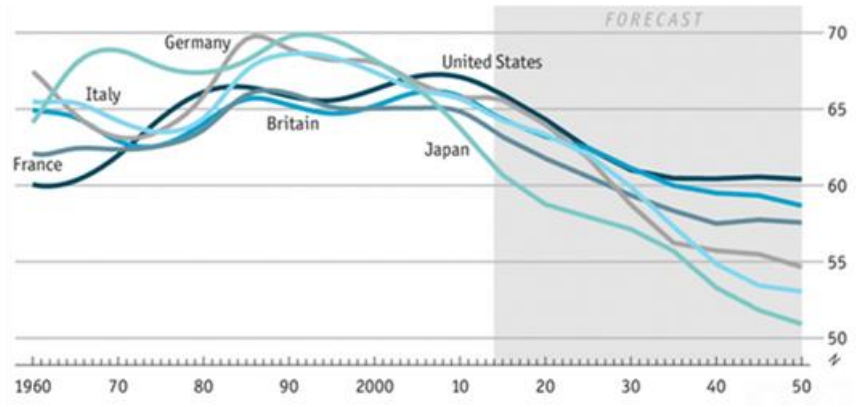


Source: Ourworld in data (Database)

The slowing population growth was already attributed to secular stagnation by Hansen (1939), who blamed it for the decline in investment during the thirties, with the consequence of reducing the natural rate of interest. Since 1970, a declining population growth can be observed in the whole world(See Figure 9). In fact, it is estimated that in the XXI century the world population will multiply by 1,78, while in the XX century it multiplied by 3,7. Besides, in the seventies, the average growth rate was 0,82% in more developed regions and 2,46% in less developed ones, while in XXI century the average was 0,39% in the developed regions and 1,375% in the less developed ones. The result of these lower rates of population growth may imply lower rates of GDP growth in the future.

At the same time, the overall rate of longevity has been increasing for more than 40 years, ratified by the World Bank, while the world population is aging at an increasing rate and fertility rates are decreasing (See Figure 10). This point is linked to the excess of savings through *the paradox of ageing societies*: Ageing leads to an increase in the required stock of savings, responsible for pushing the real interest rate down. In fact, in the last years, the proportion of population of medium age has increased, which according to the theory of vital cycle is the segment with the highest propensity to save due to the proximity of retirement. This excess of savings produces which is called "global saving glut".

Figure 10: Working-age population. % of total



Source: Teulings and Baldwin (2014) Secular stagnation: Facts, Causes and Cures.

This theory is represented in Table 1 which calibrates the model of Eggerston, G. and Mehrotra, N. (2014). The numbers show that in the last 40 years the change in demographics has led to a huge shift of required stock of savings, as share of GDP in the four countries: US, China, Japan and Germany.

Table 1: The implications of demographic change for the required stock of savings

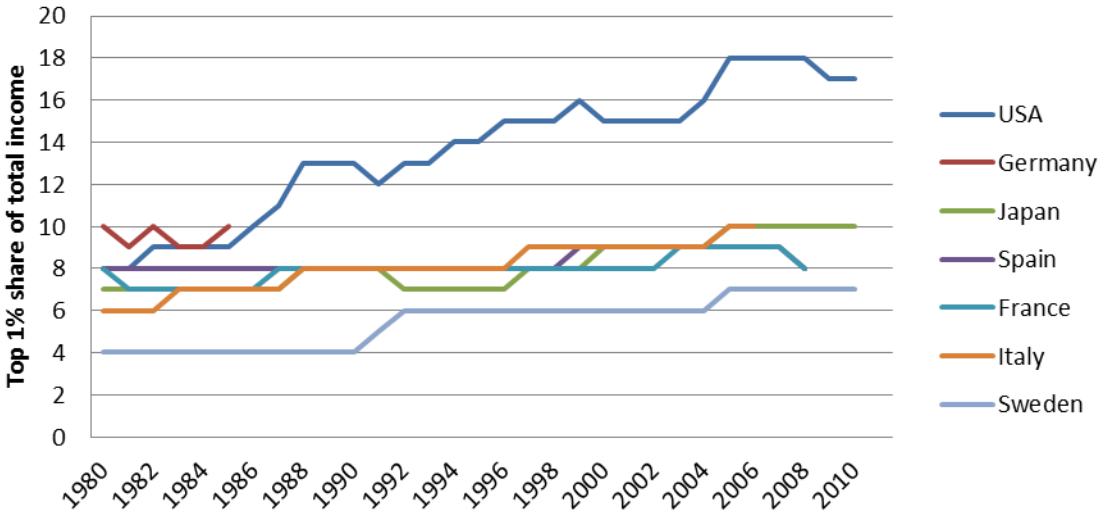
	Share of world GDP (%)	Life expectancy (years)			Required stock of savings (share of GDP)		
	2010	1970	1990	2010	1970	1990	2010
US	23.37	70.90	75.30	78.60	-2.28	-0.20	0.52
China	9.26	62.90	69.50	74.90	-0.40	-0.48	0.86
Japan	8.58	72.00	78.90	82.90	-1.76	-0.27	1.19
Germany	5.17	70.60	75.30	80.50	1.89	2.49	3.25

Source: Teulings and Baldwin (2014) Secular stagnation: Facts, Causes and Cures.

This new ageing demography, which represents the retirement of baby-boom generation, the rise of life expectancy, combined with uncertainty about future pension benefits, leads to a new global tendency of shifting accumulated savings to safe havens, which has lowered even further the equilibrium real interest rates in developed countries and involves a greater risk of speculative bubbles.

- It is widely known that an increase of inequality in income and wealth is taking place. The raising share of the top 10% of the income distribution has deprived the middle class since 1980, and this concentration of wealth leads to an increase of the propensity to save (See Figure 11). Those with very high incomes have a relatively low propensity to consume and a higher propensity to save (Bean et al. 2015), and certainly, all the income gains in the case of US have gone to those with very high incomes. Besides, according to the Bank of Spain (2015), unskilled workers have suffered a decline of their relative wealth in advanced economies, due to the automatization of many jobs and the offshoring of many companies to emergent economies consequence of the cheaper labor force. The following figure shows the evolution of the top 1% share of total income in different economic areas of the world. All of them show an increasing tendency of this percentage which ratifies the increasing trend of world income inequality. In the case of US, it has gone from 8% in 1980 to 17% in 2010, or in the case of Italy, from 7% to 10%. In sum, this increased propensity to save represents an increase in supply, which therefore operates in the direction of a lower equilibrium real interest rate.

Figure 11: World income inequality

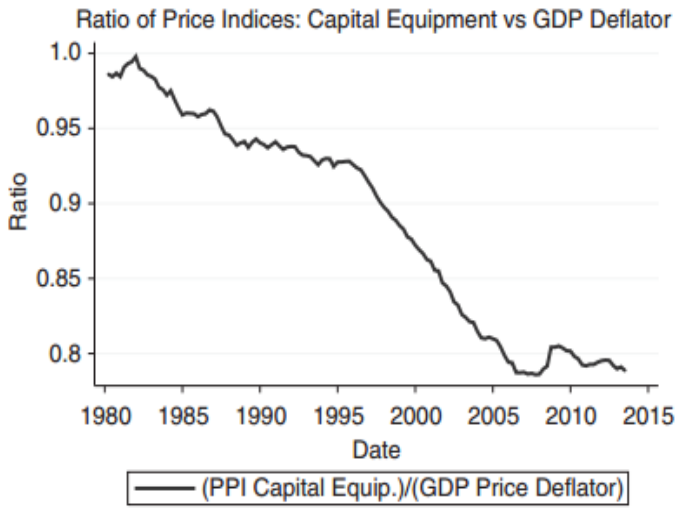


Source: Our world in data. (Database)

- Capital goods have suffered a decline in their relative prices since 1980 (See Figure12). Therefore, a smaller nominal quantity of money is required to make a determined level of real investment. "Cheaper capital goods mean that investment goods can be achieved with less borrowing and spending, reducing the propensity for investment." (Summers 2014, p.70) Besides, information technology continues

to decrease rapidly in price while to account for a larger share of total capital investment. In fact, today leading companies such as Apple and Google are attacked for holding on to huge cash hoards.

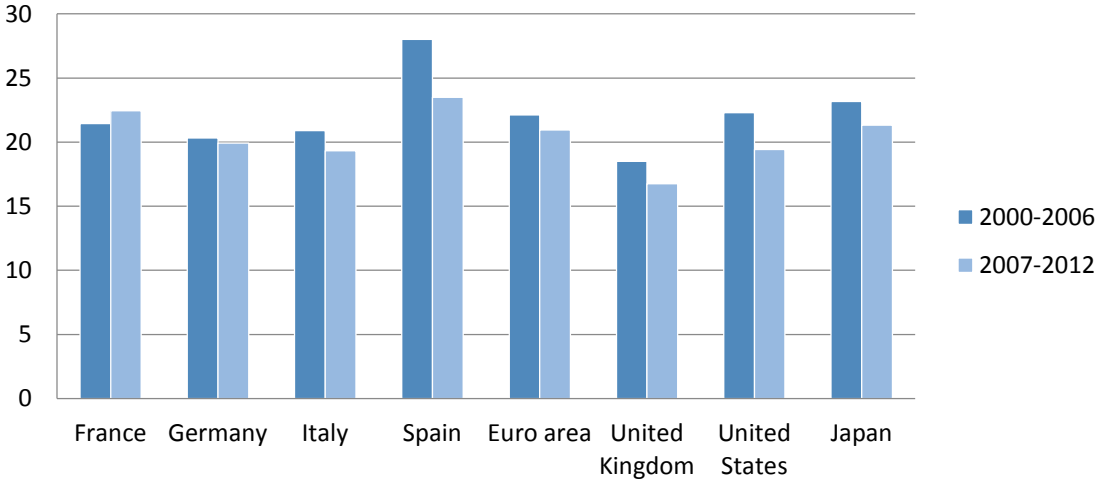
Figure 12: Price of capital equipment



Source: Summers (2014) Secular stagnation, Hysteresis, and the Zero Lower Bound

The smaller quantity of nominal investment needed, leads to a decrease in the share of gross fixed capital formation investment as a percentage of GDP (See Figure13).

Figure 13: Gross fixed capital formation (as % of GDP)

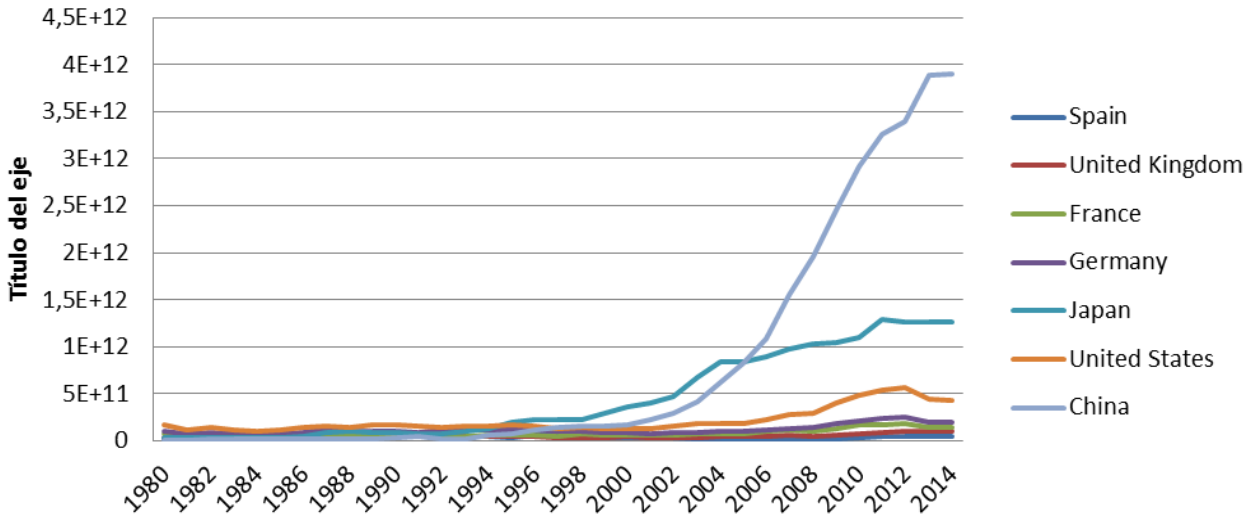


Source: The World Bank Data Indicators Economy & Growth

This decrease in the propensity to invest is also reinforced by the transformation of the economic structure of advanced economies, where there is a continuous increase in the proportional weight of the service sector, in detriment of the secondary or manufacture one. Investment in service sector is much less than the amount required in manufacturing. Therefore, this decline in the demand side (investment) intensifies the decline in real interest rates, although its quantitative relevance is limited (OCDE, 2015).

- Lately, there exists a tendency of countries´ Governments of accumulating international reserves by their Central Banks (See Figure 14). This pattern is followed by most of the economies, but it is in China, emerging countries and petrol exporting ones where it is deeper (Bank of Spain, 2015). The start of this tendency was due to the financial crisis of the nineties which led to a trend of self-insurance in order to avoid future crisis. Therefore, these reserves are usually materialized in liquid assets such as US Treasury Bonds, because of the limited development of the financial markets and the limited supply of safe assets in these economies. These conservative investment strategies operate consequently driving down safe interest rates (Warnock and Warnock, 2009).

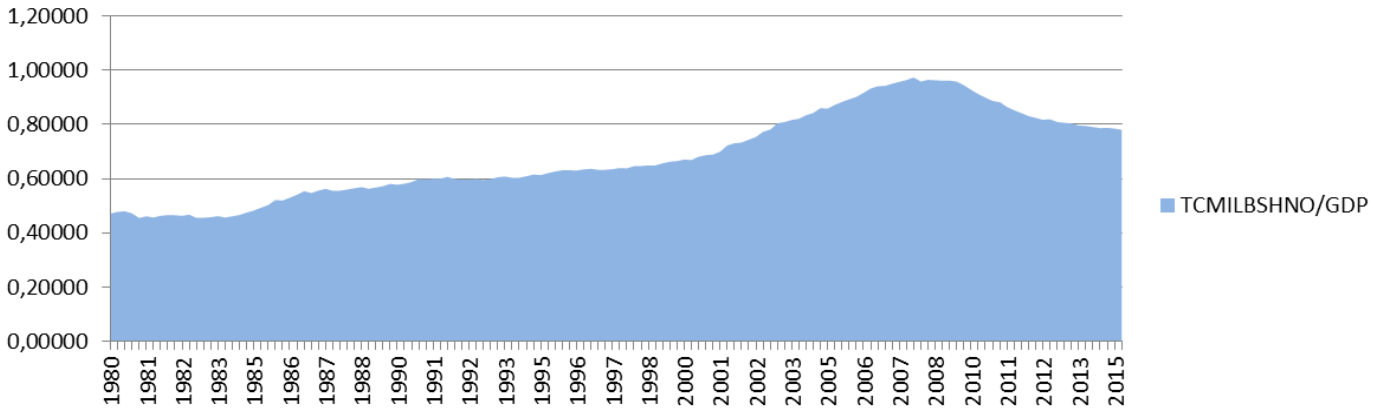
Figure 14: Total reserves (includes gold, current US$)



Source: The World Bank Data Indicators Economy & Growth

- Capitalism needs continuous new debt in order to maintain a stable economy. In fact, as it can be seen in Figure 15, indebtedness has always been increasing in the case of the United States. However, the crisis of 2008/2009 the situation changed: despite the decrease in the interest rates until 0.25%, investment has not recovered.

Figure 15: US Households and nonprofit org. liability level/GDP (bil. $)



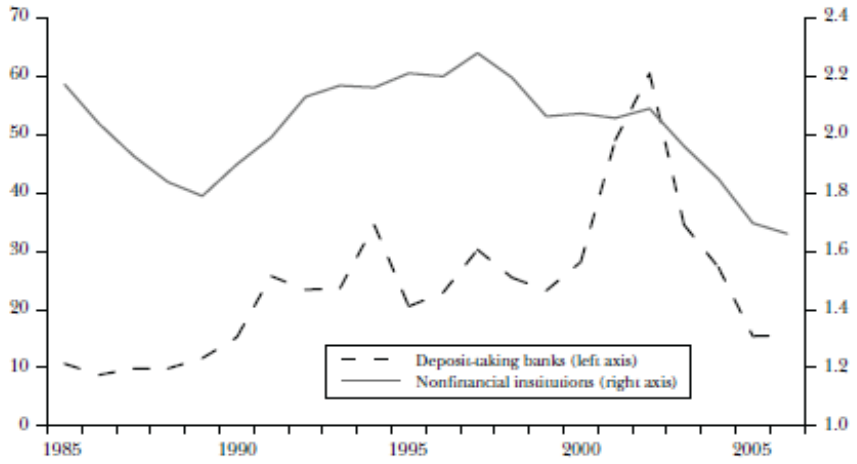
Source: Federal Reserve Bank
TCMILBSHNO: Households and Nonprofit Organizations Credit Market Instruments Liability Level.

This point explains in a part the excess of savings currently existent. When a credit-driven bubble bursts, which is the case of the last financial crisis, firms and households simultaneously attempt to pay down their debt, phenomenon which is the result of "deleverage". Previous to the crisis, firms and individuals acquired too much debt due to the facilities of the banking system, therefore acquiring too many risks. Nevertheless, the crisis demonstrated that these risks could have really negative consequences, and therefore, economic actors decided to reduce their exposition towards risks reducing their indebtedness, process which is denominated "deleverage". The obvious result is a lack of aggregate demand and besides, if the new savings do not find any investment opportunities, GDP may fall even more, prolonging the recession (Koo, 2014).

This phenomenon already took place in Japan after an enormous bubble in asset prices in the 1980s. The bursting of the bubble led to severe economic problems for overleveraged households and firms, as well as for financial entities holding high quantities of loans. The crisis and the consequent economic slowdown ended into deflation, and finally into the process of deleveraging (Ueda, 2012). The huge shock produced by the shark decline in asset prices led to enormous losses to financial institutions with high exposures to mortgage loan-related assets, and

consequently Japan´s banks constrained their risk taking severely. The consequence has been a decreasing trend in leverage, which is total assets (including loans and reserves), divided by net worth (Ueda, 2012) (See Figure 16).

Figure 16: Leverage for Japan´s Nonfinancial Firms and Deposit-taking Banks



Source: Ueda (2012) "Deleveraging and Monetary Policy: Japan since the 1990s and the United States since 2007

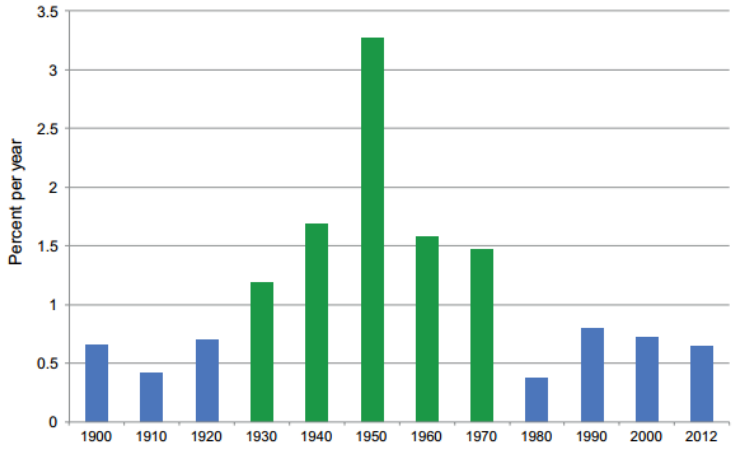
All this can be summarized in an increase in the propensity to save due to caution, and in a decrease in the propensity to invest, intensified by fewer and worse offers and financing conditions, and by more uncertain perspectives. Higher supply simultaneously with lower demand may only lead to lower real interest rates.

- Regarding technology there exist two points of views according to the economist and professor Gordon, Robert J. (2014): techno-pessimists and techno-optimists, who disagree in terms of the future evolution of innovation and productivity, which is understood as to positively determine the propensity to invest, and therefore real interest rates.

  On the one hand, techno-pessimists such as Gordon, support secular stagnation. They defend that the new and powerful information and digitalization technologies of the XXI century will not improve the total productivity of production factors as the technologies of the previous century did (electricity, automotive, combustion…). As observed in Figure 17, total factor productivity kept increasing during the first half of the XX century. However, in 1950 it started decreasing and it has not stopped until nowadays. The result of this decrease in productivity is a decrease in investment yields, which make investment less attractive. This fact

would push real interest rates further down, supporting the thesis of secular stagnation.

Figure 17: Annual growth rate of Total Factor Productivity for ten years preceding years shown, years ending in 1900 to 2012



Source: Teulings and Baldwin (2014)

De la Dehesa, G. (2015) sustains that the last technological advance has been the Internet. He continues saying that robotization in the industry and digitization in services may not have any effect on GDP growth yet. Moreover, he defends his thesis arguing that technology could produce a "technological stoppage" (due to the unnecessary workers) and more wealth inequality. Besides, Gordon (2015) argues that USA rates of technological change will keep around 0.6%, as it has occurred since 1980, and which are very much lower than the ones of 1920-1970 (Bank of Spain, 2015). In fact, Table 2 shows future projections of total factor productivity according to the OECD, which in 50 years is not likely to increase, but to decrease in US, the Eurozone and emerging countries.

Table 2: Total Factor Productivity

	2010-2014	2014-2024	2024-2060
OCDE	1,0	0,9	0,6
Estados Unidos	1,0	0,9	0,7
Área del euro	1,0	0,9	0,6
Economías emergentes (a)	0,9	0,8	0,5

a: Brasil, China, India, Indonesia, Russia and South Africa
Source: OECD Economic Outlook – Long-term baseline projections

Nevertheless, techno-optimists do not agree with secular stagnation. They support that actual GDP is unreal because it does not reflect the massive free information on the Internet, such as Google, or other technologies such as biotechnology or robotics. All these facts have been functioning for a decade without being correctly measured and improving GDP (Mokyr, 2014). Moreover, they think that in a while, these technologies will improve productivity at the expense of millions of jobs. According to Donay(2013), manager of economic analysis of Pictet Wealth Management, a radical innovation shock will eventually take place (Internet, information technologies, automatization, transport, energy, sciences and intelligent materials), and it will be spread all over the world, leading to a lasting push to the economy which could reach a US growth of 4% and a 3% in the case of Europe.

The consequence of this technological revolution would be an increase in productivity and therefore in investment yield. Then, people would be more likely to invest and not in saving, which would have an upward effect on real interest rates.

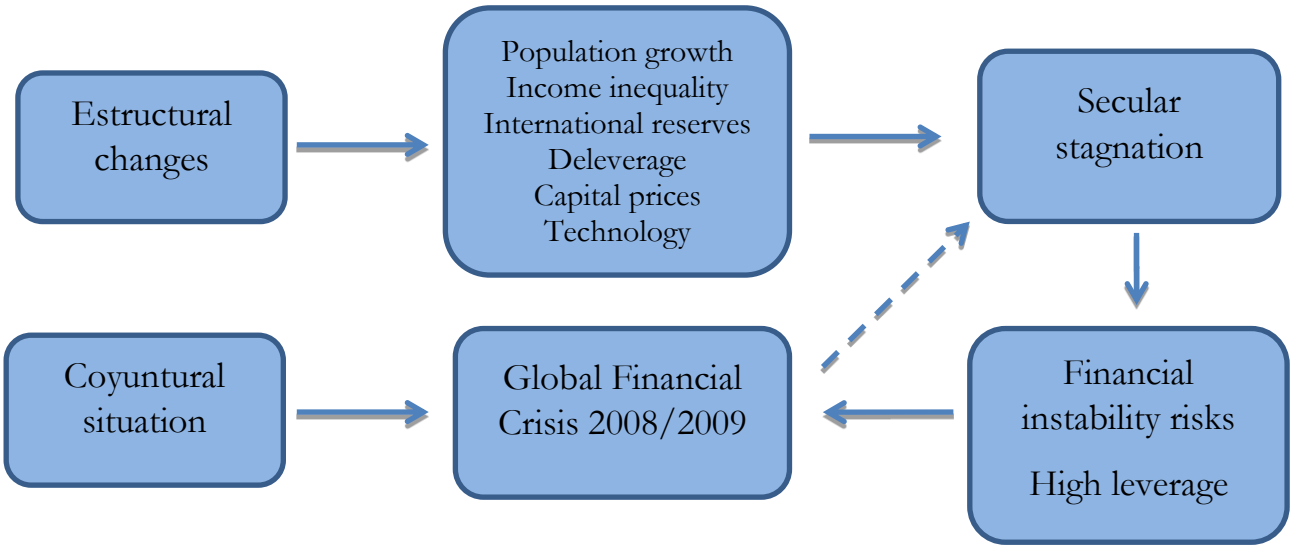
- Eichengreen, B. (2014) supports another point of view, which suggests that output and total factor productivity growth are stagnant because of the failure of developed countries such as US to invest in infrastructure, education and training. Although empirical conclusive literature do not exist, the author says that "Intuitively we know that there is something here; we just don´t know how much" (Eichengreen, B. 2014, p.44).

All these facts together have an effect on savings and investment, being a net excess of savings the consequence. In a context of secular stagnation, with near-zero interest rates and insufficient demand, and increase in savings would have a negative impact on GDP. This provokes a decline in natural interest rates (this is the rate which equals savings and investments at full employment) until a negative value. However, real interest rates, which are nominal interest rates minus expected inflation, can only be negative through two facts: firstly, a decline in nominal rates. Nevertheless, there is a lower limit of zero, the Zero Lower Bound (ZLB) imposes a minimum rate that cannot be surpassed, zero; and secondly, inflation. However, the impossibility of achieving significant levels of inflation by these economies impedes negative real interest rates. Remember that in the case of the European Union and the USA inflation target is just 2%. Therefore, the disequilibrium between savings and investment cannot be restored due to the impossibility of achieving negative natural interest rates which would restore the equilibrium.

Consequently, this hypothesis conditions the economic policy to be implemented. "Macroeconomic policy as currently structured and operated may have difficulty maintaining a posture of full employment and production at potential, and if these goals are attained there is likely to be a price paid in terms of financial stability" (Summers 2014, p.6).

In conclusion, previous pages can be summarized as follows: On the one hand, supporters of this phenomenon sustain that it is the consequence of global structural changes such as aging population, increase of inequality or the increasing accumulation of international reserves. On the other hand, opponents find that the current conjunctural environment, consequence of the Great Depression may have seemed as if secular stagnation was taking place, but it was just an impression. What would be clear is that the financial crisis has been partly the consequence of high financial instability risks and high leverage, which for the supporters of secular stagnation are consequences of this phenomenon. Besides, supporters of secular stagnation opt for more fiscal presence, for increasing the inflation target and for unconventional monetary policies, as the necessary structural reforms for the new economic situation, characterized by the presence of ZLB. All in all, two points of view coexist regarding the current economic environment, two opinions with different causes, consequences and different possible solutions.

Figure 18: Relation between current situation and secular stagnation



Source: Own elaboration

3. ECONOMIC POLICY IN AN ENVIRONMENT OF SECULAR STAGNATION

3.1 Monetary policy

This new economic period brings to the economists´ minds new ways to deal with a situation of Great Depression and secular stagnation. In terms of monetary policy two aspects should be taken into account. Firstly, the objectives of these policies might be changed in order to get out of this agonic era, where negative real interest rates cannot be achieved due to the ZLB (Zero Lower Bound) and the low inflation target of 2%. Secondly, instruments used should also suffer a revision. Conventional monetary policy is not as useful as it could have been in previous years due to the low rates which undermine its effects. As these periods of ZLB are likely to become more usual in the following years, nonconventional monetary policies should attract more attention as they could be an important part of the solution.

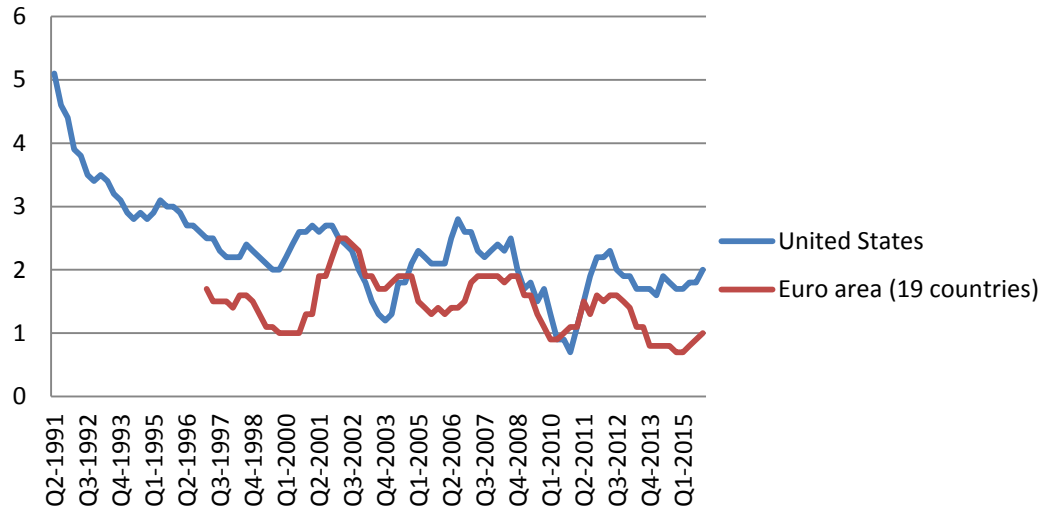
3.1 Objectives

During the last two decades, Central Banks´ principle objective, if not exclusive, has been stable and low inflation (Blanchard et al. 2010). This behavior was the result of two facts called "divine coincidence": firstly, the reputational need of central bankers to focus on inflation rather than on activity (70s inflation level was too high); and secondly, the intellectual support for this inflation targeting coming from the new Keynesian model. Aláez-Aller (2013) points out that it was Milton Friedman in 1977 who led to this point of view, arguing that a permanent increase in inflation would have negative consequences on economic growth and output. This is why this paradigm has dominated economic policy during the last twenty years. "Six years ago, macroeconomics was primarily about the use of monetary policy to reduce the already small amplitude of fluctuations about a given trend, while maintaining price stability. That was the preoccupation" (Summers, 2014, p.65).

Remember that real interest rates equal nominal rates minus expected inflation. Therefore, the lower the expected inflation, the smaller the feasible decrease in real interest rates and less room for expansionary policy in case of an adverse shock. Nevertheless, the probability of arriving to a situation of liquidity trap was thought to be small and if it was the case, temporary. However, Japan has shown that this point of view was wrong, as it has been coexisting during more than twenty years with deflation, zero interest rates and a continuing slump. The counterargument to this case was that Japan was not able to commit future expansionary monetary policies and future inflation (Blanchard et al. 2010).

This kind of monetary policy has been implemented by the Central Bank during the last twenty years of the Great Moderation, whose positive results in terms of price and output stability were based on the priority of monetary policy authorities of keeping inflation rates low at 2%, both in the US and the Eurozone.

Figure 19: Consumer prices – all items non-food, non-energy



Source: OECD Statistics

The good results and the period of reasonable stability which took place during the Great Moderation would be the result of "good luck", due to the "success" of monetary policy and to some structural changes in the 90s which include globalization and the increase in productivity. Both of the previous changes, led to a decrease in costs of production because of the reallocation of companies´ activities to developing countries, enabling prices to be constant. All this led to a period of stability which allowed maintaining interest rates very low. However, these low rates could have been the main cause of "secular stagnation" and of the Great Recession.

The predominant paradigm that low inflation rates would benefit economic growth and output is being compromised. Large adverse shocks can happen, and it has been demonstrated with the Great Recession. During the last years, very low inflation rates have been accompanied by negative economic growth rates. Consequently, it is being questioned if policymakers should raise target inflation in normal times, in order to increase the room for monetary policy to react to such shocks. In fact, Summers (2014) supports that it may be appropriate to reduce the actual real rate of interest in order to permit adequate economic growth, and this could be achieved by the increase in the inflation target.

Teulings and Baldwin (2014) conclude that if nowadays the requirement of negative natural rates is going to be much more frequent, and nominal rates need to be positive, why not raise the inflation target to, say, 4%? Nevertheless, it is not easy to arrive to a consensus in this controversial reform, where there are both parties in favor and against, although all in all, there is wide agreement that in most advanced countries, it would be better if inflation was higher today (Blanchard, 2013).

As previously said, Summers (2014) is one of the main economists in favor of raising inflation target with the objective of further reducing real interest rates. Despite the positive effects of this policy, he admits that it would increase financial stability risks, which in turn may have negative output consequences. This could be the counterargument of the opponents of raising inflation rates if these measures are not accompanied by any restriction or supervision of the financial system. The reason is that higher inflation rates would mean lower real interest rates, which would encourage financial stability risks, as investors would find risky assets more attractive, and therefore the creation of bubbles would me more probable. This is why, in order to avoid this disadvantage of increasing inflation, supervision and regulatory measures should be implemented in all the financial system. These practices will be explained more in detail in the last part of the present project.

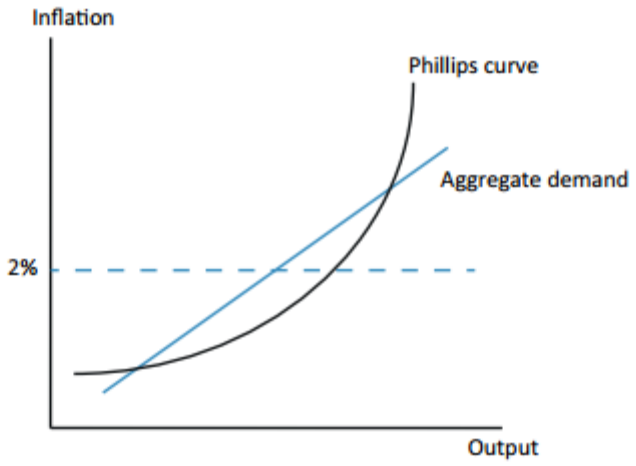
Blanchard (2013) coincides with the opinion of increasing target inflation. He defends that higher rates in normal times would make possible to drive down nominal interest rates more substantially so that real interest rates fall even further in crisis times. If inflation had been 2% higher before the crisis, nowadays it would have been 2% higher as well, and therefore the real rate would be 2% lower. This means that probably, we would be closer to an exit from zero nominal rates today, closer to avoid the liquidity trap.

Aláez-Aller (2013) also shares this point of view. According to the author, with higher expected inflation rates, nominal interest rates would not have decreased that much, and probably, real rates would have remained at higher levels, as the inflation risk premium would have been larger. Furthermore, economic authorities would not have faced deflation fears. The logical consequence of higher nominal interest rates would have been less financial instability risks, as risky assets would have been less attractive, demand for these would have been lower, credit demand as well and credit-driven bubbles would have been less probable.

Krugman (2014) proposes another way of raising inflation. It consists in convincing the public that there has been a regime change. That the central bank is going to maintain an expansionary monetary policy even after the recovery of the economy. "The traditional view that monetary policy is ineffective in a liquidity trap, and that fiscal expansion is the only way out, must therefore be qualified: monetary policy will in fact be effective if the central bank can credibly promise to be irresponsible, to seek a higher future price level" (Krugman, 1998). The purpose of this practice would be to increase demand and inflation as well, but this would need a strong element of self-fulfilling prophecy in order to occur. "People have to believe in higher inflation, which produces an economic boom, which yields the promised inflation" (Krugman, 2014).

Central Bank should be able to manipulate agents´ opinions in order to make them believe that an inflationary process is going to happen. The hypothetical result would be the decrease of real interest rates and a rapid recovery of the economy and the end of deflation (Álaez-Aller, 2013). This expected inflation should be high enough to produce this economic boom, because if it is not, actual rate will be inferior, and failure would be ensured despite people do believe the inflation goal. The reasoning is that if this target is not high enough and agents are aware that an economic boom cannot take place at that level, they will finally stop believing this inflation objective and consequently, it will not be reached. This is what is called "timidity trap", shown in the following Figure 20.

Figure 20: A timidity trap?



Source: Krugman (2014): *Four observations on secular stagnation*

The problem can be represented by two curves: firstly a hypothetical non-accelerationist Philips curve which shows the relationship between inflation and output, and secondly, an aggregate demand curve which depends positively on expected inflation as it reduces real

interest rates. The graph represents what occurs when a Central Bank announces an inflation target of 2%. As it can be observed, the actual inflation rate would fall short of 2% despite everyone believes the promise, as they will realize that it is not enough for an economic boom to happen. In conclusion, translating this to our current situation, if the economy really needs a 4% of inflation and the Central Bank finds it too radical and due to its prudency it implements a target of only 2%, failure would be insured and actual inflation would be the lower intersection of the two curves (Krugamn, P. 2014). This theory is supported by Caballero and Farhi (2014), who think that an inflation target that is too low will have no effect in an economy experiencing secular stagnation.

Wolff, B. (2014) also expresses his opinion regarding the change of target inflation. The economist defends that higher inflation cannot be a permanent cure for secular stagnation, and this is why he supports the use of new instruments, as the implementation of a targeted quantitative program in the Eurozone, a nonconventional monetary policy that will be further explained in the following epigraphs.

On the other hand, the main argument against raising inflation target is the compromise with Germany. German hyperinflation of 1923 led to a contract under which this country subscribed to the monetary union, and therefore the change in the inflation target would mean the breach of this mentioned contract. Moreover, Wolff (2014) sustains that credibility and trust in a young institution such as the ECB would be undermined.

Besides, he thinks that this review of the objective of inflation would be ineffective as it would not be achieved in the relevant time horizon and therefore, the gap would increase. Furthermore, it is reasonable that higher inflation rates and therefore lower real interest rates, would lead to higher risks of financial stability if regulatory measures are not taken in parallel. Williams (2009) also disagrees with higher inflation, as under his point of view, the economic costs of the Great Recession, in terms of employment and growth could not have been avoided thanks to higher inflation rates.

All in all, in spite of some critic voices, many authors support the idea of raising inflation target in order to allow real interest rates to be negative and therefore achieve the investment-saving equilibrium at full employment. Consequently, this could represent a very important step towards overcoming secular stagnation.

3.2 Instruments

3.2.1 Conventional monetary policy

Conventional monetary policy main instrument has been policy interest rate, which is defined as the short-term interest rate that the central banks can directly control through appropriate open-market operations, in response to macroeconomic shocks associated with inflation and the output gap. Nevertheless, the current economic situation of low interest rates, and more common and longer future periods of Zero Lower Bound may support the opinion of Larry Summers: "It may be impossible for an economy to achieve full employment, satisfactory growth and financial stability simultaneously simply through the operation of conventional monetary policy" (Summers, 2014, p.2).

During the Great Moderation, discussions of monetary policy would have based on changes in the policy rate, normally a short-term interest rate. This was due in large part because the ZLB was not seen as a problem, as it was considered a transitory and not common phenomenon. Nevertheless, it has been shown that it can last years and that it will become much more common in the future. This is why this new global economic situation should make economists and policymakers start thinking about new economic policies, as the conventional ones would be undermined by secular stagnation and the ZLB. Teulings, C. and Baldwin, R. (2014, p.15) affirm: "Secular stagnation is different since it undermines the most powerful and flexible tool we have for keeping growth near its potential rate- standard monetary policy".

3.2.2 Unconventional monetary policy

As previously said, the new situation of ZLB has led to new unconventional monetary policies which started in the late 1990s in Japan, and after the Great Recession it expanded to other Central Banks around the world, such as the Federal Reserve and the ECB (Ueda, 2012). Unconventional policies we will talk about will be Quantitative Easing and Forward Guidance. Both alternative policies are being used by Central Banks when standard/conventional monetary policy becomes ineffective.

First of all, Quantitative Easing is about increasing Central Banks reserves. QE consists either in large-scale asset purchases or in injecting liquidity in the financial system by granting collateralized loans to banks. This is, lending to financial institutions, providing liquidity directly to key credit markets in order to reactivate the credit in the economy.

Regarding the large-scale asset purchases, Claeys et al. (2014) expose the possible consequences of such a program focused on the purchase of bonds, corporate bonds and ABS, which would help to increase inflation, as well as a portfolio rebalance. However, Blanchard (2013) concludes that the effects of unconventional monetary policy are very limited and certain compared to the ones of conventional monetary policy.

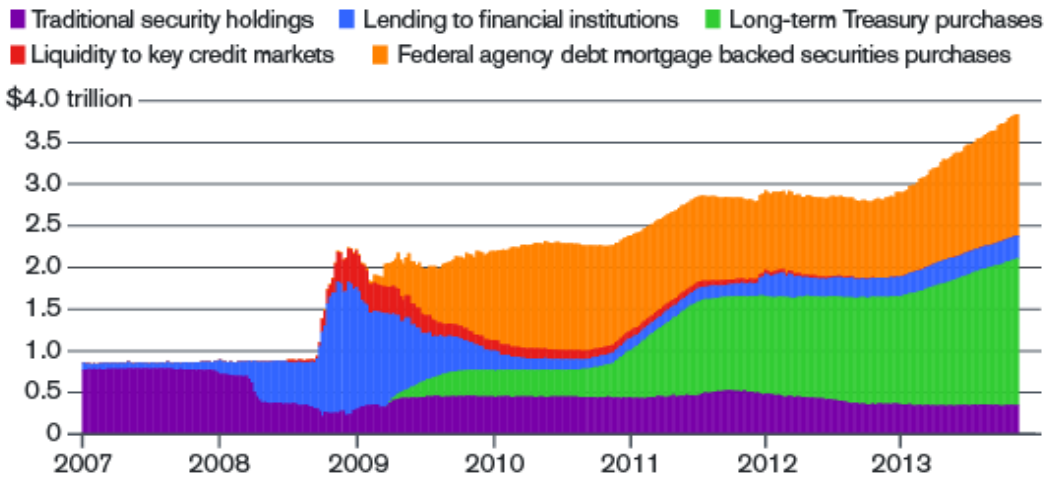
In the case of japan, in 2000 it started using large-scale asset purchases trying to mitigate deflation, although results never arrived. On the other hand, the FED of United States started implementing these policies after the Great Recession.

In the beginning of the Great Recession, the real value of many of the risky assets of commercial banks was hardly reduced generating important losses. Taking into account the effects of this on the capital to risk assets ratio, which examines the available capital of a bank in relation to extended credit, in order to maintain it at same levels, banks´ only solutions were to increase their capital or to reduce lending. The first point looked too complicated due to the existent distrust and therefore, they opted for the second one which meant the end of the credit. At the same time, distrust extended between people and deposits started to be removed. The situation led to liquidity problems and the immediate response by the FED was to inject liquidity by giving loans to commercial banks, Money Market Mutual Funds and Investment Banks.

Due to this response of emergency, the FED started thinking about increasing its balance as an unconventional monetary policy to be implemented. Thanks to that, it would increase liquidity of banks, and credit would be reactivated, in theory. This is the moment when we could say that Quantitative Easing in its first form was carrying out. However, credit did not reactivate and this policy failed.

The consequence was a new way of increasing its balance and liquidity: the purchase of specific financial assets, this is, by large-scale asset purchases. In fact, in 2008 the Fed in cooperation with the US Treasury Department, begun to purchase asset-backed securities such as MBS (Mortgage Based Securities) and government bonds in parallel. Moreover, in November 2010 the FED announced a second round of large-scale asset purchases of Treasury Securities followed by a third round in 2012. It was in October 2014 when maybe the biggest emergency economic stimulus in the US history was overafter adding more than $3.5 trillion to the Fed's balance sheet (Kearns, 2015). (See Figure21)

Figure 21: Federal Reserve Total Assets



Source: Federal Reserve Data

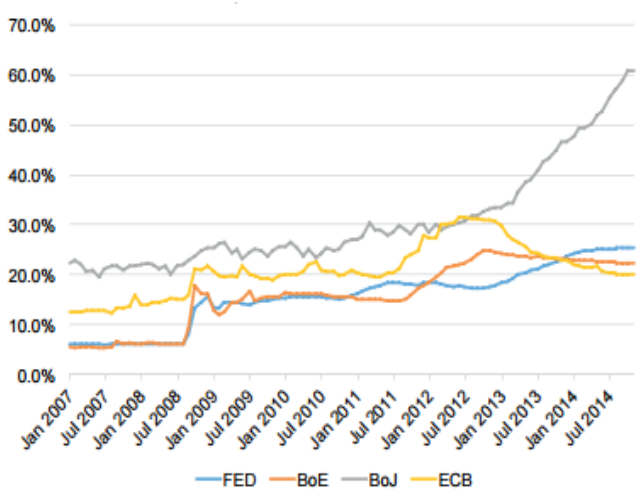
On the one hand, the purchases of MBS pushed commercial banks to give mortgages, as they were sure that afterwards they would be bought by the FED. On the other hand, the purchases of Treasury Bonds increased their price by reducing its yield. Consequently, people were more likely to buy riskier assets in order to get higher yield. Therefore, large-scale asset purchases accomplished its objectives and credit was reactivated. The reason is that instead of granting collateralized loans, the FED focused on specific segments of the financial markets, which were sensible for reactivating credit.

In the case of the Euro Area, the ECB firstly introduced QE by providing access to unlimited liquidity for periods ranging from one week up to six months at a fixed rate. Furthermore, monetary conditions improved by expanding the list of assets eligible as collateral in Euro system refinancing operations (BiniSmaghi, 2009).

Nevertheless, these policies did not succeed and credit was not reactivated. Therefore, on 22 January 2015 Mario Draghi, President of the European Central Bank, announced an 'expanded asset purchase program' whose purchases were composed of sovereign bonds and securities from European institutions and national agencies (Claeys et al. 2015).Continuing with this strategy, On 10 March 2016, ECB increased its monthly bond purchases including corporate bonds under the asset purchasing program and announced new ultra-cheap four-year loans to banks.

The immediate consequence has been an increase of Central Banks´ balance sheet, this is, its monetary base. This effect can be observed in the following Figure 22, where the Central Banks of US(FED), England(BoE), Japan(BoJ) and the Euro Area(ECB)behave in the same way since 2007 (Ueda, 2012).

Figure 22: Balance sheets of major central Banks (% of nominal GDP)



Source: Bean et al. (2015): *Low for Long? Causes and Consequences of Persistently Low Interest Rates*

Theoretically, due to the large-scale asset purchase, prices of certain assets would increase, which would stimulate economy through the wealth effect. Owners of stocks, bonds or houses for example would feel wealthier thanks to these higher prices, and therefore, they would be more likely to spend. Consequently, QE may increase output and employment (Brightman, 2015).

The last point of unconventional monetary poicy regards forward guidance, briefly defined as explicit statements by a central bank about the likely path of future policy rates. Through forward guidance central banks can exert a stronger influence on market expectations of future short term interest rates. The reasoning is that long-term rates are *primafacie* averages of expected short-term rates, so the expectation channel would tend to flatten the entire yield curve when policy makers commit to stay at the lower bound. If the management of expectations is successful, real/long term rates would decrease, reactivating borrowing and aggregate demand (BiniSmagui, 2009).

During the Great Moderation, when the ZLB was not a common phenomenon, interest rates function was "signaling". In fact, when they were decreased, they signaled expansionary monetary policy. Nevertheless, as these rates are almost zero right now and it seems they are going to remain at that level, they cannot give this kind of information. This is why forward guidance is necessary as it has acquired this important role of signaling.

The Federal Reserve introduced it as one of the main tools against the Great Recession of 2008, looking forward to help interest rates remain low to improve credit availability and stimulate the economy. In fact, the FOMC (Federal Open Market Committee) in 2013 and

early 2014 said that it would continue to keep the federal funds rate at the lower bound at least until the unemployment rate fell to 6.5% and inflation increased to 2% annually (FOMC, 2013).

In the case of the Euro Area, since July 2013 the ECB has been providing forward guidance on the future path of the ECB's policy interest rates conditional on the outlook for price stability. It was the 4th of July 2013 when the Governing Council of the ECB communicated that it "expects the key ECB interest rates to remain at present or lower levels for an extended period of time" (Draghi, 2013). The Central Bank has continued with this policy since then, being firmly reiterated in January and February 2014.

The objectives of the ECB forward guidance were the following:

- Curbing interest rate volatility over the policy-relevant horizon;
- Anchoring rate expectations more firmly around a path that ensures the degree of monetary accommodation warranted by the outlook for price stability.

Although it is too early to answer if previous objectives have been fulfilled, the European Central Bank has made a preliminary assessment which can be summarized in three statements: i) The influence of shocks coming from outside the euro area has been dampened; ii) the uncertainty about future monetary policy has declined and iii) the sensitivity of money market forward rates at various horizons to news and data surprises has reduced (Coeuré, 2013).

Besides, thanks to forward guidance long-term interest rates would fall due to the explicit statements by Central Banks. Consequently, inflation expectations would increase which would lead to a decrease of real interest rates pushing the economy towards an exit from the depression.

In conclusion, nonconventional monetary policies are essential to deal against the current economic situation, both existing measures and others still not implemented. This is why it seems they are going to acquire a more relevant role in the following years.

3.2 Fiscal policy

We have seen that monetary policy suffers exhaustion and it is undermined and limited when interest rates are near zero. Consequently, other instruments such as fiscal policy should also play a controversial role in a context of secular stagnation. This idea is

supported by several authors who agree with the opinion of increasing the leadership of fiscal policy in a context of depression and secular stagnation.

Until the Great Recession 2007/2008, fiscal policy was thought to play a secondary role, while stable and low inflation was presented as the primary mandate of central banks (Blanchard et al. 2010). However, it has not always been like this: Blanchard, Dell´Ariccia and Mauro (2010) explain that it was after the Great Depression of the 1930s and following Keynes, when fiscal policy enjoyed from being the main macroeconomic policy tool. In the following decades, 1960s and 1970s, both fiscal and monetary policy equaled their roles. While in the last three decades, fiscal policy has acquired this current secondary role due to some reasons such as the existent skepticism about its effects and its possible inaccurate forecasting, the new priority of stabilizing and decreasing high debt levels and budget deficit, the late assumption of fiscal measures in times of recessions and because of the distortions produced by political constraints. Besides, fiscal policy suffers from time lags, which imply that the effects of the policies may take a long time, being too late in some cases. Apart from this, fiscal multiplier is also an obstacle, as it has not been deeply studied and therefore there are relevant differences between the different models, undermining the confidence on these fiscal policies. ñ

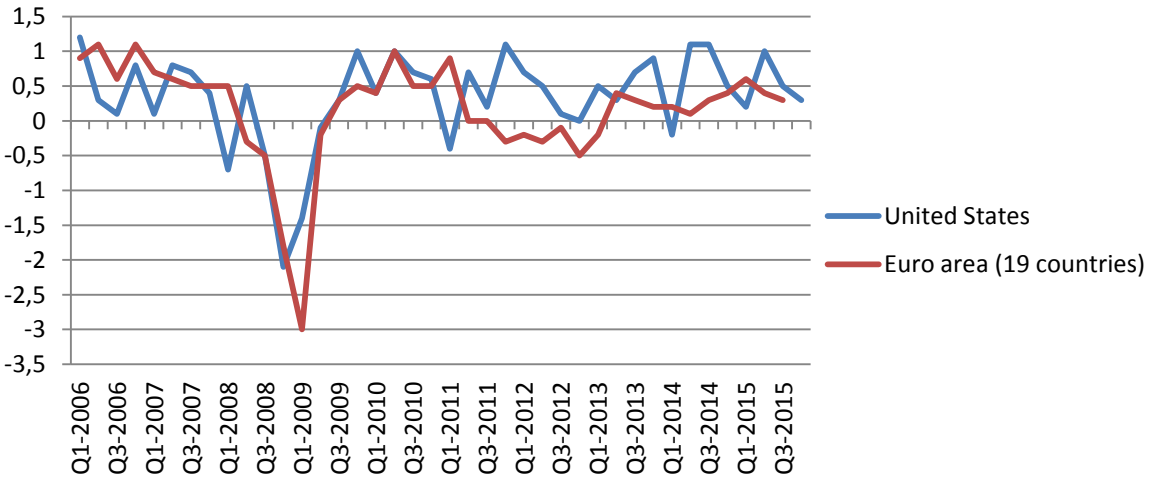
Due to this limited role of fiscal policy, there are some economists which have criticized the situation, appealing to the lack of results of monetary policy. Summers (2014), Roach S. (2016) and Koo (2014) find that the solution rests in the demand side, as it is the part affected by a panic to indebtedness, which has led to a "balance sheet recession". The following is their point of view: negative rates represent a penalty on excess reserves which are deposited in central banks; therefore, private banks are almost forced to make loans no matter the demand for such funds, this is, by acting through the supply side of the credit equation (Roach, 2016).

Jimeno, Smets and Yiangou (2014, p.162) also support that structural reforms should also focus on the "lack of effective demand": "The same policies that will help avoid secular stagnation in the future will help boost demand in the current environment. Investment is not only tomorrow's supply, but also today's demand."

Koo, R. (2014) interprets that fiscal policy is necessary to absorb the excess saving created after a bubble has burst and the private sector has to deleverage. He argues that we should take into account Japan, where monetary policy has not had any effect. Remember that the average inflation during the last 20 years has been 0.8%, and it may be that the focus should be on the demand side of crisis-battered economies. Nevertheless, Japan is not the

only example. US´s consumers demand maintains an average real growth of 1.5% during the last 8 years and moreover, the Eurozone GDP growth has averaged 0.1% from 2008 as well. (See Figure 23)

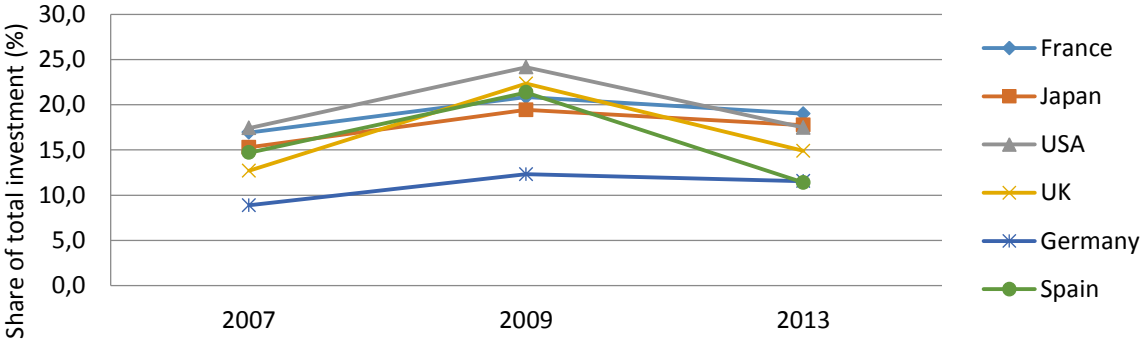
Figure 23: GDP Growth rate 2006-2016



Source: OECD Statistics

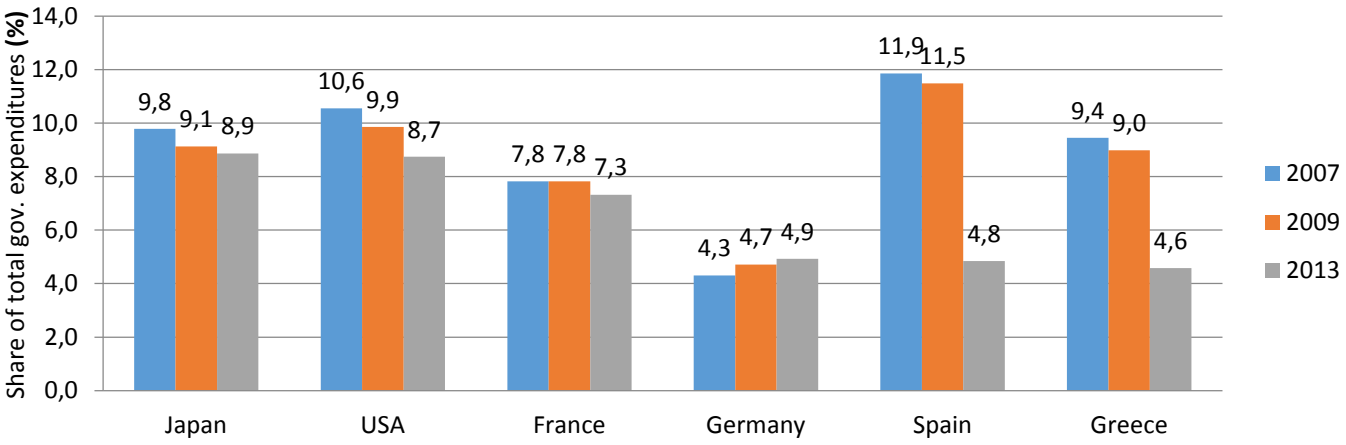
All these are the results of the failure of Central Banks to reactivate aggregate demand of the economies which are facing liquidity traps. According to Roach, S. (2016), this could be the greatest failure of modern central banking. Wolff (2014) supports that one of the big existing problems in the Eurozone has been the weakness in public investment in the last years (See Figures 24 and 25). In fact, between 2009 and 2013, government investment declined by 0.8 p.p. as a share of GDP and 1.4 p.p. as a share of total expenditures on average in OECD countries. This brings us back to the work by Hansen (1939): public investment and new investment opportunities are needed to address secular stagnation.

Figure 24: Government investment as a share of total investment: 2007, 2009 and 2013



Source: OECD National Accounts Statistics (Database).

Figure 25: Government investment as a share of total government expenditures: 2007, 2009 and 2013



Source: OECD National Accounts Statistics (Database).

The problem is the philosophy of "stay patient" (Summers, 2014) and the false hope of the efficacy of conventional and unconventional monetary policies. Consequently, two complications arise according to Roach, S. (2016). Firstly, banks have ignored financial instability risks. Apparently normality and comfort from low inflation rates led to the creation of bubbles in asset and credit markets, which some of them have led to financial crisis and instability affecting the whole economy, such as the Great Recession. The problem appears when unbalanced economies convert into balance-sheet recessions, and inflation cannot work effectively because it is already low. The result is zero policy rates and liquidity injections of Quantitative Easing. Secondly, politicians saw during Great Moderation a false comfort which moved them away from implementing fiscal stimulus, considered by some economists such as Summers (2014) and Roach (2016) the only solution for a situation of liquidity trap. Therefore, central bankers keep injecting more liquidity without realizing that they are doing nothing more than "pushing on a string" as they did in the 1930s (Orphanides, A. 2003).

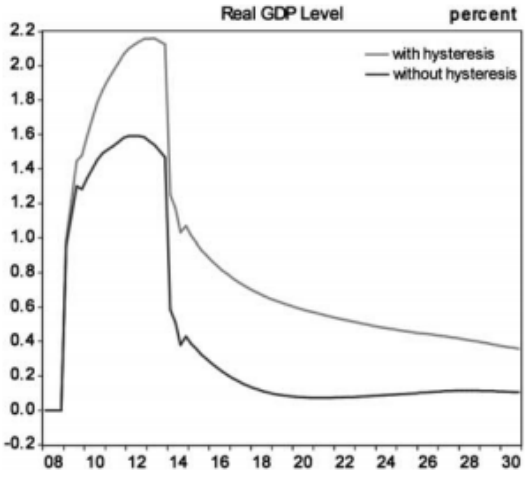
"The preferable strategy, I would argue, is to raise the level of demand at any given rate of interest—raising the level of output consistent with an increased level of equilibrium rates and mitigating the various risks associated with low interest rates" (Summers, 2014, p.72). Therefore, the idea of raising demand can be seen as the best solution to get out of this mess.

The austerity measures are counterproductive unless they generate enough confidence that they lead to a net increase of demand, which it has not been the case in the Eurozone. Summers (2014) suggests promoting regulatory and tax reforms which would encourage

private investment and implementing policies which would promote exports. All in all, despite there may be differences between countries and the strategies might differ, fiscal policies should include increased public investment, reductions in structural barriers to private investment and measures to promote business confidence, a commitment to maintain basic social protection and measures to reduce inequality in order to reroute income towards those with a higher propensity to spend (Summers, 2014).

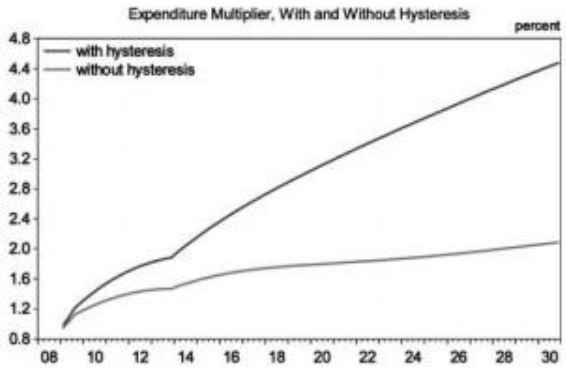
In order to show the positive effects of fiscal stimulus, Summers (2014), with the help of David Reifschneider (2014), made some simulations regarding the standard Federal Reserve macroeconomic model. The results of these simulations are represented in the following Figures 26 and 27, which show a substantial response in real GDP and Expenditure multiplier when fiscal stimulus takes place, not only in the short run but in the long-run.

Figure 26: Simulation Output: Real GDP



Source: Summers and Reifschneider (2014), ongoing analysis.

Figure 27: Simulation Output: ExpenditureMultiplier



Source: Summers and Reifschneider (2014), ongoing analysis .

Regarding the fiscal multiplier, due to the abandon of fiscal policy during the Great Moderation, existent models have not been able to arrive to a consensus about the correct calculations of this multiplier, which leads to big differences in the results obtained by each model. However, there is one point in common.

On the one hand, when fiscal expansionary policy takes place and there is not ZLB, the increase in public debt leads to an increase in interest rates, which undermines private investment and leads to a reduction in the fiscal multiplier. On the other hand, if fiscal expansionary policies take place in a context of ZLB, no increase in interest rates will take place and therefore, private investment would not decrease. Consequently, at least we are

sure that in this case fiscal multiplier would be higher promoting the use of fiscal policies in these moments of ZLB (See Figure 27).

Moving back to Summers and Reifschneider (2014), through the previous study, they tried to demonstrate that a temporary increase in government spending increases demand and reduces the long-run debt-to-GDP ratio, and therefore that United States politicians should reassess the possibility of increasing investment in order to achieve sustainable and adequate growth. Indeed, Blanchard, Fuceri and Pescatori, (2014) support that current low interest rates are favorable for maintaining or decreasing public debt: "Increases in debt-financed government spending, especially public investment, may not lead to increases in public debt in the medium term." This is because real costs of borrowing decrease, being this fact one of the benefits from low rates (Federal Reserve, 2011)

Nevertheless, fiscal action has some limits which depend on: a realistic assessment of the future path of potential output; prospective fiscal burdens; and outstanding public debt. Furthermore, rising public debt can also be a big obstacle, reducing the margin for maoeuvre, as persistent large public deficits entail several risks (Bean et al. 2015).

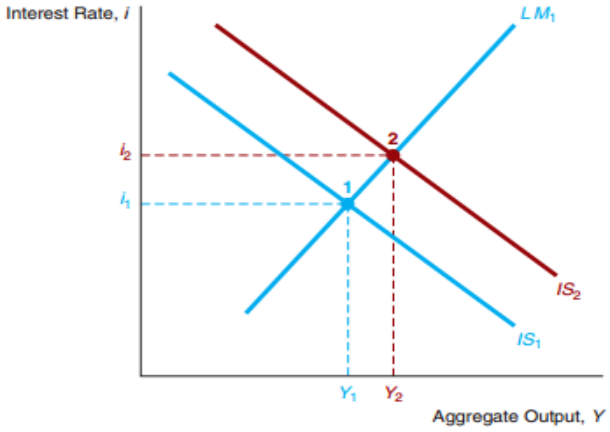
Theoretically, we could look at the IS-LM model and its graphical representation to see the effects of a fiscal stimulus on output and interest rates. In fact, IS-LM model, or Hicks-Hansen model is a macroeconomic tool which represents the relationship between nominal interest rates and real output. IS downward-sloping curve firstly represented the equilibrium between investment and saving, but since 1937 it has been used to represent all equilibria where total spending (consumer spending, private investment, government purchases/investment and net exports) equals the economy´s total output (real income Y or GDP); while LM upward-sloping curve shows the equilibrium between liquidity preference (demand for money) and money supply. Therefore, the model represents the whole equilibrium in both in the goods and services market and the money market.

$$Y = C\left(Y - T(Y)\right) + I\left(r\right) + G + NX(Y)$$

$$M/P = L(i, Y)$$

Consequently, what occurs if a fiscal stimulus takes place? Whether if there is an increase in public investment, a decrease in taxes or there is an agreement in order to encourage exports, total spending would increase for any interest rate and therefore IS curve would shift rightwards, leading to a raise of both equilibrium income and the equilibrium interest rate. (See Figure 28)

Figure 28: Response of Aggregate Output and the Interest Rate



This new equilibrium would promote financial stability due to the higher nominal interest rates as well as the positive consequences of higher real output level and employment (Summers, 2014).

Despite this shared standard argument which finds necessary a public deficit in order to solve a temporary problem of lack of demand, Krugman(2014) thinks that if negative real natural rate is not a temporary phenomenon, a major rethinking of macroeconomic policy should be done so as to find a fiscally sustainable way to support demand. It was already in 1998 when he affirmed that if an economy in a situation of liquidity trap, as Japan in those years, would focus its recovery on fiscal expansion, the stimulus should continue over an extended period. "Which raises the quantitative question of how much stimulus is needed, for how long-and whether the consequences in terms of government debt are acceptable" Krugman (1998).

3.3 Financial instability risks

As we have illustrated along the whole paper, low real interest rates generate a climate of propensity of creation of bubbles and therefore financial instability risks. The problem lies on the possible devastating effects on the economy if the bubbles burst are related to the financial system, as occurred in 2008/2009 with the housing bubble. It has been demonstrated that long periods of low interest rates are likely to result in a leveraged "reach for yield", excessive risk-taking and asset-price bubbles (Bean. et al 2015). Therefore, an increase of the vulnerability of the economy takes place and it may also increase the risk of future financial instability.

Therefore, in a context of secular stagnation whose main characteristic is low real interest rates, central banks and policy makers should focus not only on achieving inflation targets but also on controlling and responding to asset-price bubbles. Dupor (2005) sustains that deviations of asset prices from their fundamental values lead to inappropriate investments,

which decline the economy´s efficiency, apart from output, employment and financial stability losses. The devastating costs that some bubbles can have on an economy makes inevitable to question: What should central banks do about them? Mishkin (2011, 2013) analyzes if monetary policy should try to stop growth of future potential asset-price bubbles or just try to minimize the damage on the economies when these bubbles burst. This is called "lean" versus "clean" debate, which faces two opposite points of view.

On the one hand, the "Greenspan doctrine", supported by Alan Greespan, Chairman of the Federal Reserve Board, and followed by the Federal Reserve in the 90sis an example of the "clean" opinion, in favor of cleaning up asset-price bubbles effects after they burst rather than leaning against them. This thesis was defended with the following arguments:

- Asset-price bubbles are almost impossible to identify;
- It was thought that some economists' opinion of raising interest rates would not imply the end of bubbles, because investors still would find more profitable buying bubble-driven assets;
- Assets prices affected by a bubble may represent only a small fraction of all the existing assets and consequently, policies oriented towards pricking the bubble might affect asset prices in general, being counterproductive;
- Linked with the previous point, action oriented to prick bubbles can have negative effects on the whole aggregate demand. If interest rates rose significantly the economy would slowdown, increasing unemployment and maybe entering in deflation;
- It supported that easing monetary policy just after a bubble burst would be enough to keep its effects, and this was the case after the stock market crash of 1987 and the dot-com bubble in 2000, when the economy did not enter into a recession after aggressive easing monetary policy (Mishkin, 2013).

On the other hand, some economists argue that central banks should sometimes "lean against the wind", increasing interest rates in order to slow a bubble´s growth. Indeed, this would lead to better outcomes as this would prevent the bubble or the bursting would be less severe, with less damage on the economy (Mishkin, 2011).

Authors such as Mishkin (2011) differentiate two types of bubbles in order to determine the type of response:

- Firstly, we have credit-driven bubbles, such as the housing bubble, which are partly consequence of a credit boom. It could be seen as a vicious circle: easy credit leads to the purchase of particular assets, which due to the increase of

demand increase their prices. The raise in price increase its attractive, which encourages further lending, which at the same increases even more its demand…The relationship between credit-driven bubbles and the financial system makes these bubbles a very dangerous phenomenon, which puts in danger the whole economy. If the bubble bursts, the financial system may bring down, leading to a generalized crisis.

- Secondly, we have bubbles driven solely by irrational exuberance. In this case, they are not pushed by any credit boom but only by positive expectations, such as the dot-com bubble, and therefore, the impact on the economy when the bubble bursts is not as severe as in the first case.

Once we have two different types of bubbles with clearly different impacts, what should be done by central banks? We come back to the case for leaning versus cleaning. One of the arguments for cleaning was that leaning costs would be quite high, while the cost of cleaning up burst bubbles could be kept low. However, it has been checked that in spite of periods of output and inflation stability, credit-driven bubbles are likely to be created and besides, the bursting of these bubbles can be extremely costly. This is why Mishkin (2013) thinks that the Global Financial Crisis has provided a much stronger case for leaning against potential credit-driven bubbles rather than cleaning up afterwards, as it was supported by the "Greenspan doctrine". William R. White (2009) arrives to the same conclusion, arguing that monetary policy should be more focused on "preemptive tightening" to moderate credit bubbles than on "preemptive easing" to deal with their effects.

However, which policies should be implemented in order to lean credit-driven bubbles? The main objective of these policies is to avoid excessive risk taking. Therefore, one of the main post-crisis conventional wisdom may be that prudential regulatory measures should be applied in order to manage financial stability risks (Bean et al. 2015). This regulatory policy affecting credit markets should be micropudential and macroprudential regulation, which the Director of Studies of the Bank of Spain (DE), Malo de Molina (2015), is willing to follow in the Spanish housing sector. Financial regulation and supervision would be the responsible for preventing excessive risk taking by the implementation of adequate information disclosure, capital and liquidity requirements, prompt corrective action, close monitoring of financial institutions' risk management procedures, close supervision to enforce compliance with regulations and enough resources and accountability for

supervisors (Mishkin, 2013). All these measures are included in microprudential supervision, as they focus on individual firms.

Regarding macroprudential regulation, it focuses on credit markets in the aggregate. These measures are used to dampen the relationship between asset-price bubbles and credit provision, and would include dynamic provisioning by banks as introduced by the Bank of Spain, lower ceilings on loan-to-value ratios or higher haircut requirements for repo lending during credit expansions (Mishkin, 2011). In fact, macroprudential policies have received much attention by many Governments leading to the creation of specific formal bodies or committees in charge of them (e.g. the Financial Stability Oversight Council in the US, the European Systemic Risk Board in the Eurozone, the Financial Policy Committee in the UK and the Financial Stability Board at the supra-national level).

Furthermore, Nallari R. (2010), Manager of the Growth and Competitiveness Practice at the World Bank Institute, defends that growth in credit and financial leverage should be monitored for systemic risk. He coincides with the opinion of avoiding risk taking, and he proposes that depending on individual country circumstances, Central Banks should develop a range of indicators to assess systemic risks such as the ratio of credit to GDP, the data on borrowers or the analysis of balance sheets of firms for exposures.

In fact, regulation has played a relevant role in the global financial crisis. According to Blanchard et al. (2010) ,it contributed to the amplification of the effects that transformed the decrease in US housing prices into a major world economic crisis. This is why Blanchard and Dell´Ariccia and Mauro (2010) support the importance of using existing instruments to control asset price issues and leverage. These instruments are called cyclical regulatory tools, which involve that if leverage or risk taking seems excessive, regulatory capital ratios could be increased, or if liquidity appears to be low, regulatory liquidity ratios could be introduced.

In conclusion, due to the risks that low real interest rates involve, regulatory measures are therefore essential to guarantee economic growth, full employment and financial stability. The Great Recession has demonstrated that the lack of regulation and prevention leads to excess risk taking, which promotes the creation of sometimes credit-driven bubbles with catastrophic consequences. In fact, consequence of the Great Recession, Bernanke (2010) said "The lesson I take from this experience is not that financial regulation and supervision are ineffective for controlling emerging risks, but that their execution must be better and smarter". Therefore, both macroprudential and micropudential actions should be better

and firmly implemented in order to prevent this unsustainable growth partly based on credit-driven bubbles, whose consequences are much harder to clean than to lean.

4. CONCLUSION

All in all, the success of the Great Moderation might have been the result of structural changes in the economy and not totally because of the monetary policy based on low inflation targets which was being implemented. During these years, economic growth looked adequate and sustainable. Nevertheless, it has been shown that part of this growth was due to unsustainable phenomena such as speculative bubbles that in the case of being credit-driven ones, such as the housing bubble, may lead the financial system to bring down with the consequent collapse of the economy.

It was firstly the weak recovery of the United States after the Great Depression, then the one after the Great Recession and the previous mentioned unsustainable growth what led to the concept of secular stagnation. Thus, the shadows of secular stagnation may indeed taking place over our global economy. It has been shown that that there are some structural factors which all have pushed ,during the last twenty years, real interest rates in the same direction, downwards. At the same time, these low real rates may involve financial instability risks pushed by credit-driven bubbles, Zero Lower Bound and therefore undermined conventional monetary policy.

The new economic environment where ZLB is going to be more common in the future has allowed unconventional monetary and fiscal policies to acquire a more relevant role in economists´ minds and Governments´ actions. On the one hand, many authors agree in new objectives, which involve increasing inflation targets so as to achieve lower real interest rates, and therefore higher output and growth levels. Moreover, unconventional policies such as Quantitative Easing or Forward Guidance look necessary in this context, substituting conventional ones, as they have shown to be unsuccessful due to the ZLB; and finally, after 20 years of abandon, fiscal policy should reappear in order to push aggregate demand and economic growth. Furthermore, we cannot forget about improving and increasing the regulation against excessive risk taking, with the objective of diminish financial instability risks, produced by low real interest rates, consequence of secular stagnation.

In conclusion, it could be thought that the term "secular stagnation" may disappear again as it happened 80 years ago. However, it seems clear that a new economic era is taking place and therefore, it is time for new objectives and new policies. It is time to act and not to wait patient for a solution to come alone, and only these countries will be able to overcome the difficulties that this economic period represents.

5. REFERENCES

Aláez-Aller, Ricardo (2013)*¿Hacia una redefinición de los objetivos de política económica*?, in Economía, Democracia y Valores en un mundo global, Madrid: Plaza y Valdés, pp. 19-36

Bank of Spain (2015)*El tipo de interés mundial: Evolución histórica y perspectivas*, in EconomicBulletin, December 2015, pp. 83-94

Bean et al. (2015)*Low for Long? Causes and Consequences of Persistently Low Interest Rates,* Geneva Reports on the World Economy 17

Bernanke, Ben (2006)*Reflections on the Yield Curve and Monetary Policy*, presentation in the Economic Club of New York, Board of Governors of the Federal Reserve System

Blanchard, O; Dell´Ariccia, M. and Mauro, P (2010)*Rethinking Macroeconomic Policy*, in Journal of Money, Credit and Banking. Vol. 42 (6). Supplement, pp. 199-215

Blanchard (2013)*Monetary policy will never be the same*, in VOX CEPR´s Policy Portal

Blanchard, Fuceri and Pescatori, (2014)*A prolonged period of low real interest rates?,*in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Caballero, J Ricardo and Farhi, Emmanuel (2014)*On the role of safe asset shortages in secular stagnation,* in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Claeys, Darvas, Merler and Wolff (2014)*Addressing Low Inflation: the ECB's Shopping List*, Bruegel policy contribution

Crafts, N. (2014)*Secular Stagnation: US hypochondria, European disease?,* in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Delong, J. Bradford and Summers (2013)*Fiscal Policy in a Depressed Economy*, Brookings Papers on Economic Activity, Spring 2012

Donay, Christophe (2013)*Innovation Shock: The Unimaginable is Possible*, in Perspectives Special Edition 2013

Dupor, Bill (2005)*Stabilizing non-fundamental asset price movements under discretion and limited information.* Journal of Monetary Economics 52:727–47

Eichengreen, B. (2014)*Secular stagnation: A review of the issues*, in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Eggerston, G. and Mehrotra, N. (2014)*A model of secular stagnation*, in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Federal Reserve Bank: TCMILBSHNO/GDP Data 1980-2015

GordonRobert J. (2015)*Economic Growth is Over: The Short Run Meets the Long Run*, mimeo
Gordon, (2014):*The turtle´s progress: Secular stagnation meets the headwinds*, in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Hein, Eckhard (2015)*Secular Stagnation or Stagnation Policy?*Steindl after Summers, Levy Economics Institute, Working Paper No. 846

Hansen, A. (1939)*Economic Progress and Declining Population Growth,* The American Economic Review, Vol. 29, No. 1, pp. 1-15

Inflation.eu: Data of Japan annual inflation rate since 1950

Jimeno, Juan; Smets, Frank andYiangou, Jonathan (2014)*Secular stagnation: A view from the Eurozone*, in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Koo (2009)*The Holy Grail of macroeconomics: Lessons from Japan's Great Recession*

Koo(2014) *Balance sheet recession is the reason for secular stagnation*, in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Krugman, (1998) *It's Baaack: Japan's Slump and the Return of the Liquidity Trap,*Massachusetts Institute of Technology

Krugman (2014)*Four observations on secular stagnation*, in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Malo de Molina (2015)Presentation at theConference*El papel de los distintos agentes en el mercado inmobiliario actual*

Mishkin (2011)*How should Central Banks respond to asset-price bubbles? The "Lean" versus "Clean" debate after the GFC*, Visiting Scholar to the Reserve Bank

Mishkin (2013)*The Economics of Money, Banking and Financial Markets*, Columbia University

Mokyr (2014)*Secular stagnation? Not in your life*, in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Nallari R. (2010)*How to Prevent Future Credit Bubbles?,* The World Bank

Nishizaki, K.;Sekine, T. and Ueno, Y. (2012)*Chronic deflation in Japan*, Bank of Japan Working Paper Series, No.12-E-6, July 2012

OCDE(2015)*Lifting investment for higher sustainable growth*, cap. 3, Economic Outlook, v. 2015/1

Olson, P. and Wessel, D. (2015)*The Hutchins Center Explains: the Natural Rate of Interest*, Brookings

Orphanides, A. (2003)*Monetary Policy in Deflation: The Liquidity Trap in History and Practice*, Board of Governors of the Federal Reserve System, December 2003

Our world in Data: Growth population rates 1955-2010

Our world in Data: World income inequality data 1980-2010

Pérez Artica, Rodrigo and Delbianco, Fernando (2015) ¿*Estancamiento secular? Causas estructurales del exceso de ahorro corporativo en países desarrollados*, in Trayectorias Año 17, No. 41, pp. 52-83

Summers (2014)*U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound,* in Business Economics, Vol. 49, No. 2, pp. 65-73

Summers (2014)*Reflections on the "New Secular Stagnation Hypothesis",* in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Teulings, C. and Baldwin, R. (2014*) Secular Stagnation: Facts, Causes and Cures*, in CEPR Press

Ueda(2012)*Deleveraging and Monetary Policy: Japan Since the 1990s and the United States Since 2007*, in Journal of Economic Perspectives, Vol (26), pp. 177-202

The World Bank: Total reserves data 1980-2014

The World Bank: Government Expenditures (% of GDP) data 2000-2012

Warnock, F. y Warnock, V. (2009)*International Capital Flows and U.S. Interest Rates,*in Journal of International Money, and Finance, 28 (6), pp. 903-919

William R. White (2009)*Should Monetary Policy "Lean or Clean"?,* Federal Reserve Bank of Dallas Globalization and Monetary Policy Institute, Working Paper No. 34

Williams, John (2009) Heeding Daedalus: *Optimal Inflation and the Zero Lower Bound*, in Borrkings Papers of Economic Activity, Fall, pp.1-37

Wolff (2014)*Monetary policy cannot solve secular stagnation alone*, in C.Teulings and R. Baldwin (eds), Secular Stagnation: Facts, Causes and Cures, A VoxEU.org eBook

Yellen J. (2013) *A painfully slow recovery for America´s workers: Causes, implications, and the Federal Reserve´s Response,* Presentation at the Board of Governors of the Federal Reserve System, February 2013, Washington, D.C.

APPENDIX

Brightman (2015)*What´s Up? Quantitative Easing and Inflation*, in Research Affiliates, available online at:
researchaffiliates.com/Our%20Ideas/Insights/Fundamentals/Pages/364_Whats_Up_Quantitative_Easing_and_Inflation.aspx (accesed March 2016)

Casilda, Ramón (2015) *La crisis y el estancamiento secular*, Bolsamanía, October, available online at: bolsamania.com/noticias/expertos/la-crisis-y-el-estancamiento-secular--894017.html (accessed March 2016)

De la Dehesa, G. (2015) ¿*Estancamiento secular en el siglo XXI?,* El País, available online at: economia.elpais.com/economia/2014/12/30/actualidad/1419952480_075822.html, (accessed March 2016)

Gandara, Félix Enrique (2015) *Estancamiento secular del crecimiento*, available online at: http://www.cyme.es/estancamiento-secular-del-crecimiento/

García, M.A (2016)*El estancamiento secular: Una gran sombra sobre el futuro es el prolongado crecimiento por debajo del potencial*, El País Economía, available online at: http://economia.elpais.com/economia/2015/12/29/actualidad/1451404546_728535.html (accessed April 2016)

Kampas Research: *Mapping the Rise and Fall of Market Bubbles,* available online at: http://www.kampasresearch.com/Bubbles.html, (accessed March 2016)

Knopcorn.com (2015)*Economic bubbles,* available online at: http://knopcorn.com/tag/bubble/, (accessed April 2016)

Moreno, A. (2014)*Lento crecimiento de Estados Unidos confirma el estancamiento secular de la economía mundial*, El Blog Salmón, available online at: http://www.elblogsalmon.com/economia/lento-crecimiento-de-estados-unidos-confirma-el-estancamiento-secular-de-la-economia-mundial, (accessed March 2016)

Roach S. (2016)*Opinion: Negative interest rates set stage for next crisis*, in Market Watch, available online at: http://www.marketwatch.com/story/negative-interest-rates-set-stage-for-next-crisis-stephen-roach-says-2016-02-18, (accessed April 2016)

Rossi, D. (2015)*Ocho implicaciones del estancamiento mundial para la inversión*, FundsSociety, available online at: http://www.fundssociety.com/es/opinion/ocho-implicaciones-del-estancamiento-mundial-para-la-inversion (Accessed March 2016)