

FOR DISCUSSION...



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The role of Central Banks in the aftermath of the 2008 financial crisis: A banker's perspective

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(CIRANO)

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For discussion...

Central Banks are powerful institutions that can print money, control liquidity and interest rates and, in many countries, regulate their banking system. So much so that governments have wisely restricted their mandates and made them independent from elected politicians.

Central banks have traditionally been very discreet and always tried to avoid the limelight. In most situations, they worked in the background, using governments or the banking system resources to guide economic forces away from excesses onto the path of reasonable growth and, in worse case scenarios, to solve economic crises.

Until 2008, their decisions, often communicated in impenetrable language, were hardly reported pass the business sections of daily newspapers. Their discreet interventions to regulate or solve a crisis did not make waves beyond the upper financial and banking circle.

Fast forward to 2015.

Central bank actions are now front page material for daily newspapers. Janet Yellen, Chairman of the US Federal Reserve and Mario Draghi Chairman of the European Central Bank are considered among the most powerful persons in the world and treated by the press as celebrities.

When the Chairman of the Fed hints that she might be considering a slight rise in interest rates, markets collapse around the world, there is talk of asphyxiating a fragile recovery and triggering a world recession with political consequences.

The recent Eurozone crisis is an even more remarkable example. As political leaders were meeting endlessly in Brussels to try and find a solution to Greece financial default, all eyes turned on the ECB and its Chairman Mario Draghi.

What would the European Central Bank decide?

Would it cut its lines to Greek Banks, effectively forcing Greece out of the Eurozone thus undermining severely the European Union or will he continue financing a broken economy with no hope of repayment?

The world was watching a reluctant Mario Draghi who had the power to undo with one decision, the European project that took visionary politicians over 50 years to build compromise by compromise and brought peace and prosperity to a continent devastated by successive wars.

Interestingly, the ECB waited for political decisions to be taken and aligned its position with Brussels will to keep Greece in the Eurozone. In the circumstances, it probably was the wisest decision but it also raises important questions:

How did Central Banks become so powerful?

Are they still independent or have they become a political instrument?

One thing is certain: the role of Central Banks has been transformed since the start of the financial crisis.

The role of Central Banks in the aftermath of the 2008 financial crisis: A banker's perspective

INTRODUCTION

The subprime crisis of 2008 was modest compared to previous ones. The reason it became so serious is that it struck at the heart of the global financial system (see reference I on page 49). When the risk of its total collapse became evident, Central banks and governments of major economies acted swiftly, decisively and in a coordinated manner to steady the markets.

Once the situation stabilized, the authorities turned their attention to taking the necessary measures to get back on the road to recovery.

The consensus at the time was that the same set of conventional measures that took us back to prosperity and growth after each of the post war recessions should undoubtedly work again.

Accordingly, the authorities decided to take the same course of action.

It involved at first lowering interest rates and easing the monetary policy to calm the market and help the banking system recover its footing. Then it required implementing some kind of fiscal stimulus to restore confidence among the all important consumers while pushing through politically motivated legislation and high profile chastising of the perceived culprits to keep the public satisfied that the authorities were extirpating the roots of the problem. These measures were to be short term until a healthier banking system could relay these efforts and help fund a more lasting recovery.

The plan did not work as expected.

The financial crisis trumps a well-tested recovery plan

1.1 A successful short term rescue

The speed at which the crisis spread in the fall of 2008 and its magnitude surprised the authorities around the world.

Nevertheless, under the leadership of the Federal Reserve (Fed) and the US treasury the short term rescue of the financial system was a success.

The G10 countries rose to the challenge and acted with appropriate speed, decisiveness and coordination on a global scale. The massive cash infusions into the banking system were instrumental in restoring some degree of short-term confidence. The huge amounts (700 billion \$ in the case of the US TARP) made available by their financial authorities to purchase toxic assets, shore up banks' capital and engineer a few bank mergers, brought back some optimism.

Also, Central Banks dropped interest rates in perfect unison thus avoiding a currency war and showed that they were united in their effort to restore confidence.

The challenge then became to execute a proper long-term recovery plan. This, however, required a good understanding of the financial nature of the crisis that the authorities lacked (see reference I on page 49).

1.2 Governments lose their intervention power

1.2.1 The US case

Despite obvious signs that this crisis was financial and therefore different in nature from the previous ones, the US authorities decided to stick to the old game plan described above and largely failed in its execution.

The challenge then became to execute a proper long-term recovery plan.

First, the US government unveiled an enormous US stimulus plan in 2009. The 789 billion \$ plan included more than 300 different types of beneficiary (ref: The stimulus plan: a detailed list of spending – Propublica <http://www.propublica.org/special/the-stimulus-plan-a-detailed-list-of-spending>).

When we regrouped them according to the criterion described below, it appeared that:

- 9.2% of the total package was dedicated to items without any impact on economic activity.
- 78.5% was committed to the short-term preservation of jobs, support of spending power of the unemployed, large construction and road maintenance projects. These programs were capable of sustaining the economy while funds were still available but could hardly seed new competitive industries or have an impact on future exports or productivity.
- Only 12.32% were dedicated toward industries that improved US competitiveness or research projects with the potential to promote innovative industries.

While the plan did sustain consumption for a while, its effect disappeared progressively after the dedicated funds were spent.

The stimulus plan did not have any sustained effect on the recovery but had a long-term impact on the US federal debt. Under the pressure of TARP, the stimulus plan and reduced tax revenues due to the unfolding economic crisis, the US government debt exploded. From a level of 8 trillion \$ in 2007, it reached more than 15 trillion \$ in 2011, the year when the US debt was finally downgraded to AA+ by Standard and Poors.

Under such conditions, further spending had to be strictly controlled and any further budgetary measures to prop up the economy became out of the question.

The stimulus plan did not have any sustained effect on the recovery but had a long-term impact on the US federal debt.

1.2.2 The Eurozone case

In order to grasp the Eurozone incapacity to intervene efficiently at the member state and European commission level, it is important to understand how the continent was affected by the crisis and, more importantly, why a secondary crisis developed there from 2009 on (see reference IV on page 49).

The European Union was not immediately affected by the subprime crisis. Certainly large European banks had participated in this market but their involvement was not as deep as their American counterparts.

The weaknesses of the Eurozone lay elsewhere.

When the Euro was created in 2000, a set of strict rules were imposed on the participating countries to avoid economic discrepancies that might create unsustainable tensions within the Eurozone and ultimately affect the common currency. The key rule set up a maximum yearly deficit of 3% of GDP for any member country.

However, by 2009 the 3% deficit rule had been transgressed by most countries. The Eurozone on average had a deficit of 6.3%, France 7.5% and even the German deficit was running at 3.3%. Despite these transgressions, the European Commission did not impose any statutory fine.

Moreover, a keen observer could have noticed at that time a far more important weakness: from inception the Euro had bundled in one common straight jacket countries with very different economic profiles, industrial development, size, inflationary expectation and work ethic.

As a result, 8 years after the creation of the Euro, unit labour cost had gone up 50% in Greece, 20% in Italy and Spain while it went down 19% in Germany. The lack of mobility of the European work force due to disparities in language, tradition and education did not allow the Eurozone to even out these differences. On the contrary, the divergence grew at the

expense of the weakest countries that were not able to devalue their currencies as they had before.

Prior to 2008, markets did not really pay attention to these discrepancies but as the crisis progressed, investors became far more prudent. They started noticing that the budget deficits gap between countries had widened and what was perceived before as Euro prosperity appeared now as real estate and financial bubbles in the most fragile economies.

Then in 2009, the attention of financial operators shifted to the difficulties of European banks and the incapacity of some of the home states to bail them out. Suddenly, the weakness of these Eurozone members came to light and their sovereign bond interest spreads widened dramatically.

The EU commission decided to intervene but its political and financial structural weakness as well as the divergence of views between member countries limited the means to deal with the financial tidal wave engulfing the financial markets.

What the EU commission had in abundance, however, was a determination to save the Euro.

Eventually, the European Union began to adopt some measures to deal with their own crisis two years after the US had done the same thing.

In May 2010, the 27 members of the EU created the European Financial Stability Facility (EFSF). Its mandate was to provide assistance through loans to the Eurozone's financially troubled countries, recapitalize banks or buy sovereign debt.

Although markets cheered the creation of the EFSF, the limitation of its lending capacity to 440 billion Euros showed from the onset that the size of the problem had been grossly underestimated by European politicians. Even adding the 60 billion Euros committed by the European Financial Stabilisation Mechanism and the 250 billion Euros from the IMF, it was clear that the amounts were insufficient to solve the problem.

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***The Dodd-Frank bill
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Indeed by January 2012, seven Eurozone states including France and Austria were downgraded and even the EFSF itself lost its AAA rating.

In 2013, the ESFS expired and was replaced by a modest – by US standard - 500 billion Euro rescue funding program called the European Stability Mechanism. Once again the inadequate amount dedicated to this new fund confirms that the authorities never had the financial strength to rescue the European economy from the economic crisis taking root in Europe.

Moreover, these insufficient measures mostly directed to saving some member countries from collapse or saving the Euro did not stimulate in any way the European economy.

At that point, it became clear that government budgetary stimulus, the first engine of long-term recovery could not play its role in the two world largest economies!

Of the three main drivers of past recoveries, only two were then available: Central Banks and the banking system.

1.3- The banking system is stifled

1.3.1- In the US

As soon as The Dodd- Frank bill was passed by the US Congress and its equivalent disclosed in the EU, it became obvious that the authorities, in accordance with the traditional set of measures they were taking to resolve the crisis, had fingered the banking system as the main culprit (see reference III on page 49) in causing the crisis.

The Dodd-Frank bill created a repressive and costly regulatory environment for banks that was relayed by the BIS in Basel into harsher capital requests for all banks worldwide.

In addition, politically-motivated legal cases, scandal-driven hearings and huge fines (100 billion \$ up to 2014 in the US alone triggering a requirement by the Fed for a further 150 billion \$ of reserves to cover

future fines) further paralyzed bank managements and depleted lending institutions of necessary capital and reserves.

The consequence was inevitable: the risk appetite of banks, already shaken by the crisis was further shattered by these measures, the uncertainty of their application and the relentless attacks by politicians and the judicial system.

As a result, banks curtailed drastically their lending.

As such, US, bank loans and leases were down by more than 400 billion \$ in 2010 from their peak in mid-2008. They did not get back the 2008 level until six years later.

1.3.2 - In the Eurozone

Even though the European authorities started working on measures similar to the Dodd-Frank bill through Basel III creating constraints on the banks' future lending capacity, these problems seemed manageable at that time. In the absence of headline bankruptcy, the Eurozone banking system seemed for a while, somewhat insulated from the turmoil across the Atlantic.

Their most serious difficulties arose as the secondary European crisis unfolded (see reference IV on page 49).

Blinded by faith in their monetary union and oblivious of its structural problems, Eurozone regulators allowed their banks to invest their liquidities in bonds of any participating country without discrimination. Moreover, some banks had acquired large networks in southern Europe and, as a consequence, were required to hold bonds of their host countries for liquidity purposes.

As the crisis revealed the risk differential between countries and as markets priced them accordingly, Eurozone banks were tempted to make additional profits through further purchases of risky bonds as allowed by the regulators. Moreover, the ECB programs encouraged such purchases as will be described below.

As an example, Spanish banks' holdings of Eurozone sovereign debt held steady around 100 billion Euros from 2001 to 2009 and then shot up to 270 billion Euros by 2012.

Eventually, several European banks, particularly in Southern Europe, found themselves in the difficult situation of needing bail outs from their insolvent governments precisely because they were holding large quantities of sovereign debt from their own country!

Threatened by new regulations and faced with an economic recession in Europe, a weakened banking system became cautious and, as in the US, curtailed its lending to the economy.

As an example, lending to corporations by Eurozone banks that was still growing in 2008 at an annual rate of 15%, froze in 2009 and is still declining in 2015 at a rate of 5% a year.

At this point, the banking system which was supposed to be the second engine of recovery had stalled on both sides of the Atlantic.

The economic fate of the two largest economic areas was now almost entirely in the hands of their Central Banks.

1.4- The last line of defence: Central Banks

Very early on, the US and Eurozone Central Banks realized that they were in the front line and would have to fight by themselves a financial crisis that markets could quickly turn into a full-blown depression.

They also knew that what was expected of them was hardly compatible with their traditional role.

Indeed, the Federal Reserve Act defines its objectives as:

"The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of

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maximum employment, stable prices and moderate long-term interest rate."

In a situation where danger was imminent, the economy was shedding hundreds of thousands of jobs every month and interest rates were brought to almost 0%, this type of long term goal seemed hardly adequate.

The mandate of the European Central Bank is even more restrictive:

"The European Central Bank and the national Central Banks together constitute the Euro-system, the central banking system of the euro area. The main objective of the Euro-system is to maintain price stability: safeguarding the value of the euro."

With the risk of deflation in clear sight and half of the Eurozone suffering from a strong Euro, this mandate, inspired by the Bundesbank, was also totally out of context.

Clearly, they were faced with an unprecedented situation and they had to rise to the challenge.

Central Banks rise to the challenge

Very soon, the two most important Central Banks in the world took extraordinary measures, acting boldly without much concern about overstepping their restrictive mandates.

They also knew that, faced with turbulent and powerful markets, they had to act in concert with other important Central Banks. This rule was imperative as any breakdown in their ranks would give global markets an opportunity to play one against another, mostly through the currency market, creating a currency war and destroying their intervention capacity.

Even though they had limited means of action at their disposal in view of their restricted mandates, namely monetary and interest rate policies, these were powerful tools. Moreover, markets had great respect for Central Banks derived from their capacity to print unlimited amounts of money, which provides them with a further commanding psychological influence over markets.

2.1 Monetary policy: A weapon Central banks used with fanfare but ultimate prudence

2.1.1- The case of the United States

From the onset, the Federal Reserve put in place a decisive monetary policy to bring stability to a market in turmoil. In view of the exceptional circumstances described above, these short-term measures had to be

extended beyond their normal time span and became the quantitative easing programs.

The Fed launched the first quantitative easing (QE1) in November 2008. The program initiated with the purchase of 500 billion \$ in Mortgage backed securities and 100 billion \$ in debt obligations of government-controlled mortgage agencies.

In March 2009, when the US Stock Market reached bottom, it expanded the mortgage buying program by 750 billion \$ and announced that it would buy 300 billion \$ in longer term treasury securities.

Although QE1 was an open-ended plan, it concluded in the first quarter of 2010. By that time the Fed assets had increased from around 800 billion \$ in 2008 to around 2200 billion \$.

Over that period, the monetary base in the US more than doubled from 800 billion \$ to 2000 billion \$. In comparison, it took 18 years from 1990 to register a comparable percentage increase.

By the second half of 2010, it became apparent that things were not working as expected and the recovery was not taking hold.

For reasons explained above, the banking system had not relayed the Fed's efforts and the stimulus plan was winding down.

The Federal debt level as a percentage of GDP was reaching levels not seen since World War II. At the same time the Greek crisis in Europe was drawing market attention to the risks of sovereign debt.

Clearly, the Fed had to act and provide a financial and psychological boost to the economy while also covering the increasing need to find buyers for the securities the Federal government was issuing.

In November 2010, QE2 was launched and lasted until June 30th 2011.

It allowed the Fed to purchase 600 billion \$ of longer-term Treasury securities. As expected, the total assets of this institution also increased by 600 billion \$ and was reaching now 2600 billion.

QE3 started in September 2012 on a more controversial note.

At that stage, the stock market was 60% higher than its 2009 low point. Also, unemployment was clearly trending down at 8% coming from a high of 10%.

It was therefore difficult to understand why the Fed was taking the risk of increasing its assets further. Moreover QE3 was announced as open ended which means that there was no limit to the amount the Fed was ready to inject in the economy. This is an extraordinary decision coming from an organization created to manage prudently the monetary policy in order to avoid inflation. Nevertheless, the program went ahead and lasted until December 2013.

Although the objective of QE3 at first was to buy 40 billion \$ of Mortgage backed securities a month, this amount was quickly increased in December 2012 to 85 billion \$ a month.

Consequently, the Fed's assets grew from 2.8 trillion \$ to 4.1 trillion \$, equivalent to 85bn a month over that period. Half of this amount or about 1.1 trillion \$ of treasury securities were added to the considerable amount already accumulated.

Even though QE3 was an open ended program, on December 2013, the Fed announced with great precaution, a tapering of the QE program. The move came first as a hint by the chairman of the board 6 months earlier. It was then officially preannounced 3 months before it started. The tapering itself was very progressive with a reduction of 10 billion \$ a month but was conducted to its conclusion with a final purchase of 15 billion in October 2014.

QE tapering was well justified by an improved economy. Indeed, the trend line of GDP increase year over year was around 2.5% in mid-2013 and went on to reach 4% in early 2015 after the tapering concluded.

More importantly, however, the US banking system, flushed with cash, was regaining confidence. After a long period of tepid lending from 2008 to mid-2012, as measured by total loans of all commercial banks, their lending accelerated to the tune of 1 trillion a year. The potential for a runaway increase in liquidity and the subsequent risk of inflation was reason enough for the Fed to stop adding fuel to the fire.

In the end, has QE program been helpful in the context of the crisis?

This often-asked question is a matter of great debate. It is not simple to give a definitive answer but what can be more easily ascertained by looking at the accounting figures, is who was helped by QE.

In total, 3.3 trillion \$ of securities were purchased through QE, of which half were mortgage securities and the other half were treasury securities.

The QE program was initiated to salvage the mortgage market. It made sense as the crisis originated there and such action was helping a real estate market in disarray as well as alleviating a financial system loaded with potentially delinquent loans.

The purchase of such large amount of treasury securities to fund the federal government is more controversial and certainly less compatible, in time of peace, with the mandate of the Fed as an independent Central Bank.

Another question widely debated is whether QE has created systemic financial risk.

A case can be made that the purchase of financial assets on such scale increases liquidity in the economy to such an extent that it can lead to highly detrimental economic events.

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This danger, however, is a function of how the program was funded.

In 2008, the collapse of bank lending and the sharp drop of the velocity of money had to be compensated by a loose monetary policy. In the long run, however, the risks of money printing such as runaway inflation, asset bubbles and currency collapse were real and well understood by the central banks.

The Fed has handled this problem with great skill.

Undoubtedly, the funding of quantitative easing programs requires a corresponding increase of the monetary base.

However, the monetary base has two components:

- The total currency in circulation which can be increased by printing money
- The commercial banks' reserves that are maintained in accounts with the central bank.

The three quantitative easing programs increased the Fed's assets by a total of 3.3 trillion \$ but the total currency circulating grew, over that period by only 500 billion while commercial banks deposits with the Fed swelled by 2.8 trillion.

To achieve this feat, the Fed kept the interest rates on bank deposits slightly higher than the market rates. For example, the overnight Libor has hovered around 0.12% since mid-2011 while the Fed rate on mandatory and excess reserves was maintained at 0.25%.

In the end, 85% of the assets purchases were financed by banks deposits with the Fed! The Central Bank had acted as a conduit to direct bank deposits towards purchases of securities the banks were reluctant to buy.

The quantitative easing program has been considered by some commentators as bold, innovative and instrumental in avoiding a depression and by others as reckless and dangerous and at the root of future even more destructive financial bubbles.

Beyond the hype, the facts indicate that during the financial crisis:

- The Fed supported equally the mortgage market and the large increase of the federal budget deficit. In the process it inflated its balance sheet to unprecedented levels. Whereas helping the mortgage market regain its footing can be justified as a tool to avoid a deeper recession, it is hard to consider funding the treasury needs to such an extent as falling within the mandate of the Fed.
- In order to finance the unprecedented expenses of the quantitative easing program, the Fed, skillfully avoided excessive money printing and managed to collect Bank deposits to fund its purchases of securities. Such policy has limited the monetary base increase and mitigated in the short term, the risk of fueling financial bubbles. However, it has further reduced bank lending to the larger economy and delayed the recovery in the US.

As a consequence, the QE programs have probably been instrumental in bringing back stability to markets and the US economy but it cannot really be credited for the recent economic recovery in the US.

Equally, it is not easy to credit the Fed monetary policy for the record high levels of the US stock market in view of the moderate increase of new money printed as described above. Indeed the stock market continued to rise after the QE program concluded.

2.1.2 -The ECB in the front line

The ECB reaction to the crisis has been slower than the Fed, partly because the crisis developed later in Europe but also due to the more restrictive mandate of the European Central Bank.

However, when it became clear that the mechanisms put in place to address the sovereign debt crisis were seriously underfunded and the no bail out contract of the Eurozone membership made Germany's help very unlikely, the Euro's very survival started to be questioned.

This was an existential risk that the ECB could not take. As Mario Draghi, chairman of the ECB, said in 2012: “We will do what it takes to save the Euro”.

As a consequence, the ECB’s monetary interventions became more aggressive. Parting with its traditional policies of manipulating money supply via refinancing facilities such as repurchase agreements or collateralised loans, the ECB launched the securities market program (SMP) of sovereign bonds purchases in 2011.

Starting progressively with Italian and Spanish bonds, the purchases accelerated at the end of 2011 and by June 2012, reached 212 billion Euros.

This modest intervention did not succeed. As the crisis lingered the ECB had to resort to a shock and awe strategy.

In September 2012, it announced a new bond buying program to replace the SMP: the Outright Monetary Program (OMT) with no limit in size or duration whatsoever.

Such potentially open-ended potential intervention coming from an institution that could print unlimited amount of money, had a profound psychological effect which, by itself, was successful in improving the sovereign bond market of weak countries. The ECB did not even have to resort to the clever funding mechanisms of the Fed as the intervention did not last long.

Indeed, the total balance sheet of the ECB topped at 3.1 trillion Euros in 2012 (coming from around 1.8 trillion Euros before the crisis) and then decreased to around 2.2 trillion in mid-2014.

This decrease was mainly achieved through a large drop in lending to euro area lending institutions from mid-2012 to 2014 as the situation of the banking system stabilized. It is a reflection of the continuing prudence of the ECB which also maintained a liquidity sterilization program up to 2014.

Other measures such as the Long-Term Refinancing Operations (LTRO) designed to lengthen the maturities of its interventions were also taken but none had the impact of the OMT.

Despite the facts that the OMT and other measures stabilized the bond market for a while and the Euro future is now less in doubt, the European economy continued to stagnate and by the end of 2014, threatened to fall into a deflationary spiral.

The European Central Bank was well aware that a deflationary economy can be devastating for highly indebted governments and that, more importantly, Central Bankers have no known remedy for stopping deflation.

The ECB decided to act promptly by taking effective measures and announced in January 2015 a set of unprecedented committed monetary interventions.

The main one is a quantitative easing program of government bonds purchases to the tune of 60 billion Euros a month carried out until at least September 2016. This represents a total of 1.2 trillion Euros, an amount more compatible with the size of the Eurozone economy but still modest relative to the US successive QEs.

In the end, the so far modest ECB monetary interventions have not helped the economy, as evidenced by the stagnation in the European economy. Even the new measures seem insufficient to pull on their own the Eurozone economy out of its difficulties.

Nevertheless, the ECB programs dedicated to purchase governments paper did help control the sovereign debt markets in the Eurozone somewhat like the Fed achievements across the Atlantic through its purchases of Treasury bonds.

There is a quasi-consensus that these loose monetary policies were largely justified in the early years of the crisis.

***We can conclude
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systemic risk.***

Much more dangerous is the second tenet of central banks policies since 2008: the zero interest rate policy or ZIRP.

The long-term extensions of QE is more debatable in view of the fact that the two most influential Central banks could be risking their independence by using their overwhelming monetary power to fund further deficits or, as in Europe, towards political goals.

Also, a prolonged QE policy weakened considerably the financial strength of the two Central Banks.

The Fed, for example, multiplied by 4.5 the size of its assets between 2007 and 2014. However, its capital increased only by 58% and the total assets to capital ratio went from 23:1 to 79:1.

If we consider that the large bond positions the Fed holds are riskier, either because of the quality of the issuer (mortgage backed securities) or the potential loss in value if interest rates increase (treasury bonds), the capital of the Fed could be wiped out by adverse financial moves in the bond market or even dragged into the red beyond the Government capacity to refund it.

Whether Central Banks need capital is subject to debate but the governors themselves think it is important to solidify the confidence in their institution.

In the end, however, we can conclude that QE did not really create a systemic risk.

Much more dangerous is the second tenet of central banks policies since 2008: the zero interest rate policy or ZIRP.

2.2- The excessive manipulation of interest rates

In previous crises, a low interest rates policy, maintained for a reasonably short period of time proved to be beneficial.

First, it boosted bank profits by allowing them to cover the inevitable lending losses they incurred and giving them the confidence to resume lending once their balance sheet had been restored.

Also, by lowering the cost of borrowing, consumers were encouraged to borrow and spend, companies invested more willingly, mortgages became more affordable helping the real estate market; eventually economic growth would resume.

As we argued in 2009 (see reference I on page 49) the nature of the crisis did not allow low interest rates to work as well as it had in previous cases.

Central Banks decided anyway in 2008 to drop interest rates as part of the drastic set of measures designed to shock the economy out of the downward spiral that was forming. As interest rates were already at historical lows around 2%, they had to bring them all the way down to practically 0%.

It is important to note that this Zero Interest Rate Policy (ZIRP) was adopted with only some minor differences by all major central banks in order to avoid a currency war that proved so devastating in the 1929 crisis.

It became obvious relatively early (see reference II on page 49) that the policy was not working properly.

From the beginning, the public were shocked by the turn of events: The sudden loss of millions of jobs, underwater mortgages, disappearing returns on savings and prolonged stagnation of salary levels. Households decided wisely to increase their savings. Personal savings rate in the US shot up from less than 2% to more than 7% at the beginning of the crisis and then stabilized at around 4% since 2010.

Needless to say consumption dipped at first and then recovered at a slower pace in the US whereas it still stagnates in the Eurozone.

For reasons discussed above, bank lending became scarce and commercial loans did not grow as companies also tried to deleverage thus reducing their borrowing.

As for real estate, prices took such a hit that this market collapsed regardless of the availability of cheap mortgages.

Despite these early signs and the fact that ZIRP had not been effective in countries like Japan which conducted this same policy for decades, the two main Central Banks maintained yields at almost nil levels.

2.2.1 A persistent zero interest rate policy

The Fed has consistently tied the expected rise in interest rates to a drop in unemployment according to its mandate to support economic growth.

In 2012, when unemployment was around 8% and declining, it set a level of 6.5% as the starting point for interest rate increases. This level was reached at the beginning of 2014 and continued to decline to the level of 5.6% in 2015 and yet rates have been kept at the same level. At each Fed Board meeting, vague justifications based on patience or similar adjective are put forward. But no clear explanation is given, let alone a firm date for wrapping up this policy as it has been the case with quantitative easing. When some board member mentions the possibility of rate increase in the future, it is always with great care and vagueness.

In the Eurozone where economic activity is still slow and deflation is a real danger, ZIRP is more justified. However, as it is clearly not working as well. The ECB recently cut the refinancing rate from 0.25% to 0.15% effectively bringing down the deposit rates into negative territory at -0.10%.

Experimenting with negative interest rates is taking the ECB into uncharted and, arguably, much more dangerous territory. It is clearly a sign of desperation from a Central Bank faced with the prospect of deflation and a breakup of the Euro that the ECB refuses dogmatically.

This rigid approach on the interest rate front stands in sharp contrast to the flexibility they have displayed in their monetary policies.

In fact, they not only stand firm but have extended their field of intervention in order to control even more closely the yield curve.

Up to 2008, the Fed and the ECB only intervened at the short term end of the yield curve.

The techniques were different: the Fed sets the level of Fed funds and discount rates whereas the ECB works by setting the minimum bid rate of the banking system refinancing. However, the results were the same and a consistent and firm short-term policy was, traditionally, sufficient to keep the markets in line.

Not this time around.

As the crisis lingered, the tensions created by ZIRP and a more conservative view of sovereign risk by markets has compelled these two Central Banks to formally expand their influence to the longer end of the yield curve.

For this purpose, the Fed extended the reach of QE2 to longer maturities in 2010 and the ECB introduced the LTRO in 2012 (see above).

As a result, these two major Central Banks have now unprecedented control over interest rates for all maturities.

All this shows clearly that these two pivotal central banks are ready to firmly pursue ZIRP much longer than originally envisaged and for reasons that do not seem entirely justified by the financial crisis or by the aims of economic recovery.

2.2.2 - The consequences of ZIRP

Numerous studies have been conducted on the influence of ZIRP particularly on the US economy. They are often contradictory or inconclusive. It is indeed very difficult to assess the complete and detailed impact of this policy, as it affects so many aspects of the decision-making process of economic partakers.

However, after 7 years of very low interest rates, it is appropriate to look back at some of the claims for and against this policy and see how they played out.

2.2.2.1 -What ZIRP was expected to deliver but did not really achieve

① Low interest rates will help employment.

Tensions created by ZIRP and a more conservative view of sovereign risk by markets has compelled these two Central Banks to formally expand their influence to the longer end of the yield curve.

This is the major justification central banks have used.

Clearly, the Japanese experience argues against it. From a level of 6% in 1991, Japanese Yen interest rates declined steadily to around 0.5% in 1996 and has remained at this level until now.

Their unemployment rate started rising coincidentally in the early 1990s doubling from a level of 2.5% to 5% in 2010.

Similarly, in Europe, the common currency yielded 4% in 2007. As the crisis unfolded, the rates went down to 1% in 2009 to 2012 and since then they remain at practically 0%.

Coincidentally, the Eurozone unemployment rate which was at a level of 7% at the beginning of the crises, went up to 9% in 2009 and then shot up to 12 % in 2013 and remains today around 11.5%.

In the US, Fed Funds rates went from 5% in 2008 to 0.5 % in 2009 and have since remained there. But the difference with the previous examples is that the unemployment rate rose quickly from 4% in 2007 to 10% 3 years later, and then reversed course and went back down to 6.2% in mid-2014. However, a closer look at the labour market statistics shows that this progress is largely the consequence of a drop in the participation rate from 66% to 63% during the 2008-2014 period. Indeed, the employment rate as a percentage of the working age population dropped in 2008 from 64% to 58% and has not yet firmly recovered from there.

Some analysts insist, along with the Central Banks, that low interest rates need time to influence labour markets, but the Japanese example also negates this opinion.

It could also be argued that in each case the economy had such headwinds that any progress deriving from ZIRP had been negated. Yet, in each case, some favourable winds were also present.

Japan has an aging population and a high national debt but since the mid-90's exports have grown steadily.

Europe continues to suffer from a strong common currency that weaker members cannot afford and a workforce with little mobility, but it also has at its center the German exporting machine.

Finally, even in the US, some unexpected developments in the field of energy, in particular the shale oil exploitation have helped improve labour markets. As a matter of fact, direct employment in the oil and gas industry rose 40% from 2007 through 2013, as compared to a decline of about 3% in the overall U.S. economy.

These examples show that, at best, ZIRP had perhaps a mild effect on employment.

② ZIRP will revive the mortgage and commercial lending market.

As part of the standard response to economic crisis, lowering interest rates was central to a recovery of credit markets and the return to health of the banking system. It allowed the Central Bank to progressively trim down its interventions and return to its traditional role.

As discussed above, the nature of the 2008 crisis did not allow this scenario to play out.

In the US, residential mortgage lending has been regularly and appreciably declining in dollar amounts, and as a percentage of GDP from 70% in 2007 to 60% in 2013. Considering the heavy purchases of mortgage securities and record low interest on mortgages, this can hardly be considered as a success.

The US non-financial sector debt has been more active, recovering to 2007 levels as a percentage of GDP. Yet, it is a modest result overall compared to previous recoveries.

③ Very low interest rates help the economic recovery.

As was the case with employment this justification is not obvious.

Japan's real GDP has grown at a third of the rate of the US since implementing ZIRP in the mid 90's.

Among the economic participants who benefited from ZIRP, two of them stand out.

Equally, the Eurozone's real GDP is still below its highest level before the crisis.

Again it can be argued that these two economies had strong structural headwinds and that the US offers a better example.

Indeed, the US came out of recession in the third quarter of 2009. Since then however, the recovery has been tepid at an average of 2% on an annual basis with even two quarters in negative territory in 2011 and 2014. This has been a much slower post-recession recovery than in previous occasions when rates were much higher.

Furthermore, the direct contribution of the energy sector to the recovery has been exceptional. Low gas prices, investments in new wells and increase in oil extraction have all helped industrial production. It is quite difficult to assess the direct impact of this industry but even the most conservative studies attribute at least 20% of the recovery to this sector. If we take into account the indirect impact and the multiplier effect, the contribution is even higher.

Perhaps most importantly, the increased production of fossil fuels has reduced the external deficit of the US. From a maximum of 900 billion \$ a year in 2006, the merchandise trade deficit stands now at 700 billion \$ with the whole of the reduction attributable to the oil and gas sector.

In 2013 (see reference IV on page 49) we suggested that the only way out of the crisis for the US was to develop its energy production in order to escape from the heavy burden of its external deficit. It seems that indeed what happened since then has helped the recovery considerably.

And so, even in the case of the US, it is difficult to credit ZIRP for more than a mild contribution to the recovery.

The question is then: who really benefited from ZIRP?

2.2.2.2- Who has benefited from ZIRP

Among the economic participants who benefited from ZIRP, two of them stand out without a doubt:

① Governments

Any major beneficiary of ZIRP would have to be a very large borrower with constant needs for fresh funds and unquestioned capacity to repay its debt. At the height of the crisis, only sovereign borrowers were in such category.

The biggest of them is the US Treasury.

From 2007 to 2014, the US federal debt went from 10 trillion \$ at the start of the crisis to almost 18 trillion \$ at the end of 2014.

Interestingly, the debt service in these two years remained at the same level of 430 billion \$. Therefore, the effective average rate paid by the Treasury declined from 4.3% to 2.4%.

This illustrates the huge relief that ZIRP brings to the US treasury.

The benefits to members of the Eurozone are even more striking.

In the Eurozone, sovereign debt is mostly issued by individual countries.

All of them benefited from low Euro interest rates up to 2010 when markets paid closer attention to the problems of the Eurozone. At that point, the tight correlation between yields of Eurozone members suddenly broke.

In 2011, at the height of the crisis, Italian 10 year bonds were yielding 11% more than German 10-year Bunds.

Nevertheless, the ECB managed to control the situation by extending credit lines with no amount limits as described above. Indeed, by 2013, 10 years Italian bond yields had decreased to levels only slightly higher than the German Bund!

Therefore, in the case of the ECB, it is even clearer that ZIRP was meant to lower the sovereign funding cost of member countries and give them a chance to get their budgets in order.

② Markets

Markets traditionally rise when interest rates decline as the economy is expected to improve and cheaper money reduces the cost of more speculative investments.

It is to be expected that ZIRP would take this inverse trend into overdrive. Surprisingly it did not happen for all markets.

It is understandable that the real estate market recovered very slowly as the crisis started there and many investors were still suffering from it.

The elusive recovery and worldwide economic weakness could also have kept most of the commodity markets in check.

The case of gold is more surprising.

As the crisis deepened, the price of gold almost tripled from \$700 an ounce in 2008 to 1900\$ in mid-2011. The market was evidently entering speculative territory. Moreover, the quasi-currency status of gold created a threat to the Central Banks' monetary policies. The rise in gold prices not only highlighted the exceptionally loose monetary policy at that time, but also it soaked up liquidity created for more productive purposes. The lack of return, a common drawback of gold investment, did not deter buyers this time around as their cash balances did not provide any better pay out .

Central Banks have large stockpiles of gold and they do participate in gold markets. In 1998, Alan Greenspan then Chairman of the Fed declared: "Central Banks stand ready to lease gold in increasing quantity should the price of gold rise". It shows that gold markets are under continuous surveillance by the Fed.

In this instance, it is not clear whether a concerted intervention by Central Banks to bring gold price down actually took place. What is undeniable is that from 2011, the back of this speculative bubble was broken with the help comments from high level institutions such as the IMF and shorting recommendations of large investment banks like Goldman Sachs. In two years, the price went back down to \$1200.

It leaves the stock market as the main beneficiary.

Equity markets have doubled from their low point in 2009 and are now in record territory.

This is not surprising as stock markets, traditionally, rise when bond yields decline, the logic being that easier credit will boost the economy and eventually improve corporate profits.

This time however, the rise that started in 2009 is not based on fundamentals. Indeed, six years after the turning point, the economy remains sluggish in the US and is even worse in Europe.

The equity market rise could safely be attributed to a consistent and prolonged zero interest rate policy. This is well illustrated by the fact that often, equity markets tend to rise on adverse economic news that provide Central Banks further justification to prolong their zero rates policies.

Also, in the eyes of Central Banks, rising stock markets are beneficial to the recovery.

They provide companies with cheap source of funds which eventually should help employment. They also shield pension funds from the devastating effect of low yields. Finally they give confidence to the consumer through the trickle-down effect of wealth creation.

As a consequence, the Fed has since 2009 regularly signaled to Wall Street that "They had their back" and would not raise interest rates.

Nevertheless, top governors of the Fed, have occasionally tried to tamper down some speculative situations.

In March 2014, William Dudley, Chairman of the New York Fed declared: "When you look at the U.S. today, I don't really see much excess in terms of things that worry me about financial stability. Still, there are some areas that may be overvalued, such as biotechnology stocks, leveraged loans and farmland". It immediately triggered a substantial drop in Biotech stock prices.

More recently, the Chairman Janet Yellen commented on the high valuation of the stock market.

These unprecedented remarks clearly show that Central Banks are on the lookout for developing bubbles. They do not always have the capacity to directly influence markets but they skilfully use their prestige and authority to try and avoid early speculative bubbles.

Such micromanagement of markets by a Central Bank is unheard of. It is a sign, however, that central bankers are aware of the unusual risks ZIRP has generated

2.2.3- The risks of Zero Interest Rate Policy

Among the many risk analysis of ZIRP, inflation is most commonly perceived as an inevitable consequence that sooner or later will threaten the economic order and trigger very high interest rates.

We disagree with such a conclusion.

As we argued previously (see reference IV on page 49), inflation is not a likely risk in the present conditions.

The monetary expansion has been much more subdued than the authorities and the press might have led us believe. Central Banks have been very careful in controlling the monetary base and bank lending is just starting to rise.

Moreover, the way the inflation index is computed by excluding some asset prices such as real estate tilts it toward reflecting price increases of manufactured goods. These have been kept in check for decades and they continue to be by the deflated cost of labour in developing countries.

Finally, the deflationary environment in Europe as a consequence of keeping the Euro intact weighs on the world economy.

These are sufficient reasons to ignore, for the time being, inflation as an immediate risk.

It remains that in the long term, zero, or very low, interest rates are not a natural state of affairs.

The simple truth is that any lending has an element of risk that should be remunerated. This principle is part of the foundation of the modern economic and financial order. As a consequence, a long-term zero interest rate policy can only be sustained at the cost of real distortions and risks.

Three of them are worth exploring.

2.2.3.1 - ZIRP distorts risk tolerance

The total lack of return in low-risk assets from 2009 on started a rush towards higher yielding assets of any kind among even the most conservative of investors.

Pension funds are a case in point. Low interest rates have affected them in their coverage ratio of future liabilities and reduced the performance of their traditional type of portfolio. To offset the lack of return on their investments pension fund managers have had to abandon their past conservative approach to investing.

This trend is reflected in the OECD annual survey of large and public pension funds in 2014 covering 104 funds and 10.4 trillion \$ in assets managed.

It states:" the threat of market volatility and low interest rates remain a top concern amongst the survey population." The survey further indicates that in 2014, 14.8% of total assets were in alternative investment and 31.6% were dedicated to foreign investments, a clear example of higher risk taking by these important investors.

In addition, trends in assets allocations mention alternative investments, hedge funds, credit opportunities, opportunistic strategies and alternative assets allocation techniques, emerging markets and green investments. Even straight bond investing is now complemented by yield enhancement techniques.

The total lack of return in low-risk assets from 2009 on started a rush towards higher yielding assets.

***After a while,
investors base their
risk assessment on
whether Central
Banks will favour
some sectors over
others.***

It is clear that the risk tolerance of these responsible and usually conservative investors has been distorted and is now much higher.

One can only imagine how less conservative investors have reacted to ZIRP. The fact that from 2008 to 2014 assets under management with hedge funds have almost doubled and now stand at a record high of 2.6 trillion \$ gives an indication of a widespread distortion of risk tolerance.

Large investors have added relatively illiquid riskier assets to their portfolio to reach decent returns. As a result, markets are now more volatile and fragile which could well magnify the consequences of the next economic crisis.

2.2.3.2 - ZIRP requires market manipulation

By nature, lower interest rates favour markets. However, as we approach zero return on cash, the need to take risks becomes compelling and large amounts of cash are directed somewhat indiscriminately towards riskier investments.

This is precisely what Central Banks, reeling from the real estate financial bubbles, want to avoid.

As a consequence, Central Banks have tried rather successfully so far, to control which markets will benefit from their policy and to what extent they could rise as discussed above.

However, the manipulation of markets for a long period of time increases systemic risk even when powerful Central Banks are involved.

There are several reasons for it.

① After a while, investors base their risk assessment on whether Central Banks will favour some sectors over others, rather than by conducting a healthy fundamental analysis.

The pricing of Greek sovereign debt is a good example. In 2011, the spread between Greek and German bonds reached 33%. In view of the crushing economic problems of Greece, this was probably a proper level. However,

the ECB intervention with "unlimited funds" in favour of Eurozone countries brought the spread as far down as 3% in a matter of one year. Clearly the fundamental situation of Greece had not changed as evidenced by the fact that in 2015, it is still on the brink of bankruptcy. However, hedge funds and investors seeking better returns who bought Greek paper when the backing of the Central Bank became obvious made a fortune.

② As more investors conform to the wishes of the Central Banks, the diversity of investment decisions that creates a healthy allocation of funds over many markets, disappears.

This, in turn, creates bubbles and volatility that need to be managed.

It is obvious that the Fed keeps a close watch on any potential speculative trend and does not hesitate to use its influence to correct the situation. Yet, repeated comments or interventions erode, in time, their impact. The recent and unprecedented warning of Janet Yellen mentioned above relating to the high valuation of equities is a case in point. This intervention knocked down prices on Wall Street but only for one day showing that, perhaps, the equity bull market created by ZIRP is now getting more difficult to control.

③ Concentrating the decision of which markets should perform or not in the hands of a few Central Bank governors is not safe.

Keeping markets in check builds up tensions that are powered by the statistical law of return to the mean considered as one of the most imperative and time honoured rule by market operators. When the tensions are released, they can suddenly propel long underperforming markets higher and annihilate years of Central Banks' efforts.

Additionally, the selection of which markets to favour made by the boards of governors or politicians can be mistaken. Such type of mistake was famously at the root of the sub-prime crisis.

A small group of decision makers can also by mistake or out of necessity, omit some speculative situations that could be at the root of future crisis.

Since the beginning of the crisis, Central Banks have decisively turned their attention to potential financial speculative situations. They are ready to manipulate markets to avoid excesses. However, their track record in this respect has not been that successful in the past from the real estate crisis of the early 1990s to the internet bubble of the early 2000 and, of course, more recently the subprime crisis. Nothing new leads us to believe that their chances of succeeding this time around are better.

2.2.3.3 - ZIRP can induce market bubbles

Since implementing ZIRP, Central Banks have been actively engaged in managing potential financial bubbles in major markets.

They did not attempt to interfere with minor markets too small to threaten the global economy such as art or real estate in major capitals. However, their spectacular rise is a reminder what can happen if markets are left on their own in a world flushed with liquidity in search of good returns.

And so, financial bubbles can develop in three different type of markets.

① Markets that have been allowed to grow in a controlled manner, or the known knowns.

The equity market is a good example. A healthy stock market is one of the objectives of Central Bank policies. Although it has been kept under watch and, to a certain extent, controlled through appropriately timed remarks, pockets of speculation in the stock market are evident. The stellar rise of biotech stocks (a 500% gain since 2009) or the performance of emerging market stocks (MSCI index up 120% in 5 years) are clearly speculative.

Yet, under the skilful surveillance of Central Banks, they probably are not likely to create the next crisis.

② Markets that have been kept at bay, or the known unknowns.

This category comprises gold, commodities, energy and currencies.

A combination of the dull past few years performance and a sluggish world economy have kept these markets below the radar of speculators.

The sudden collapse of oil prices in 2014 has made investors even more cautious towards markets that are not clearly supported by Central Banks. It has shown, however, that substantial moves could happen very fast under geopolitical events that are way beyond the control of Central bankers. When such events happen, they can be unpredictable and quite substantial. If they are detrimental to the fragile economic environment, they could trigger a future crisis.

③ Markets that have escaped the careful watch of Central bankers, or the unknown unknowns.

In view of the vigilance of Central Banks, it would be very difficult to find a market that escaped their attention.

However, it can be argued that bond markets are in such situation.

They are certainly large enough to trigger a crisis. For instance, in the US only, the bond market was estimated at 37 trillion \$. Comparatively, the equity market only reached 21 trillion.

Yields on the 10-year Treasury bond which moves in reverse of the price, has been falling with some regularity from the early eighties high of 14.59% in the first quarter of 1982 to 4.10% in mid-2008. Since then the downward move accelerated down to 1.65% in the 4th quarter 2012, an all-time low. In percentage terms, it declined in 4 years almost as much as the previous 20 years.

Clearly, this recent drop has been engineered by ZIRP but it bears the characteristics of the last legs of a speculative move. The situation seems even more advanced in the Eurozone where German bunds recently found takers at negative interest rates.

In the meantime, Central Banks which have created this situation in the first place have the impression that, armed with the whole array of yield curve intervention tools they have a good control of the situation.

But do they?

The answer is uncertain but several factors could make a burst of the bond bubble quite difficult to control.

The first one derives from regulation.

Current banking regulation requires banks to classify their bond holding as held to maturity or trading instruments. When classified as held to maturity, bonds do not have to be marked to market and therefore any variation in price do not affect the P&L of banks. However, these bonds have to be held to maturity. As a rise in interest rates and therefore a potential loss in their bond portfolio became more probable, banks started reclassifying their bonds into this safer category. In the US, 640 billion \$ were moved in such way since June 2013. This represents an 84% increase.

Beyond the obvious liquidity risk that this trend creates for banks, the decrease in bonds available for trading also reduces liquidity in the market itself.

Moreover, bond broker dealers have also reduced considerably their inventory as a consequence of the “Volker rule” that prevent broker dealers to take part in proprietary trading, therefore reducing the amount of bonds they can hold. Indeed, the amount of bonds held by broker dealers stand now at less than a quarter of their 2007 level.

The drop in liquidity is certain to induce more violent and difficult to control moves in the market. The recent and sudden rise in German Bunds is a good example of it.

A second factor could be a run to the exit once Central Banks signal their intention to raise rates. It is not so much the actual potential rise that counts but the anticipation of the move and the uncertainty of how far the move could go. The yields are so low that there is not much downside for large institutional bond holders in selling their portfolio and avoid a potentially large loss.

Such moves have already started. Pimco, which manages some of the world largest bond funds, slashed its US treasuries exposure from 23.4% level in April 2015 to 8.5% in May 2015.

In a market with less liquidity, if this type of movement amplifies, it is fair to wonder if Central Banks can contain a bursting bond market bubble.

2.2.3.4 - ZIRP The policy of no return

Bringing down interest rates to a very low level is easy to implement and is advantageous to many powerful financial, corporate and political players. It is also very difficult to reverse for reasons that we detail below.

① Governments deficits create political resistance to reverse ZIRP.

At the present level of US Federal debt, if rates were to return to their 2007 level, the Government will have to pay over 340 billion \$ in additional interest annually.

Such increase would necessitate a rise of 12% of tax intake. Beyond the possible political consequences, such jump in taxation could, at this stage of the recovery and within a weak international economic environment, send the economy back into recession.

This factor goes a long way in explaining the staunch zero interest rates policy pursued by the Fed in order to reduce the budget deficit and protect the government from a crisis of confidence.

In the Eurozone, the ECB managed not only to bring down the average 10-year bond yield from about 4% in 2010 to 2% in 2014 but also to engineer a convergence of rates for all countries despite the difficulties of many members. This feat has brought enormous political and financial help to the Eurozone. In the case of Spain, as an example, if the average debt servicing rates went up by 2%, it will induce an extra cost of 44 billion Euros effectively doubling the yearly budget deficit that the country has been desperately trying to bring down.

Clearly, raising interest rates at this juncture would trigger strong political pressure on Central Banks. As their cherished independence is under

Any sudden rate rise would trigger a volatile drop in certain markets, starting with the bond market and followed by the equity market.

criticism in many countries, the natural tendency would be to abide and maintain the status quo which is precisely what they have been doing so far.

② Raising interest rates can prompt chaotic market moves.

As discussed above, ZIRP has induced market tensions. It has also changed the risk tolerance of investors and accustomed traders to a predictable yield environment.

In the present circumstances, any sudden rise would trigger a volatile drop in certain markets, starting with the bond market and followed by the equity market. As markets tend to correlate in time of crisis, real estate and commodities could follow suit.

This is a serious outcome that could bring back recession in a world barely getting back on its feet and a considerable hold up on the road leading out of ZIRP.

③ Exiting ZIRP requires a difficult to reach level of coordination between major Central Banks.

In 2008, the most important Central Banks around the world acted with remarkable coordination. They have kept since then a united front, particularly on the interest rates front.

The main reason is that, in a financial world hungry for the slightest extra return, investors would flock to any currency that offers a few more basis points. Conversely, they would leave in droves any currency offering lower returns.

Therefore, a small discrepancy in yields between currencies has the potential to create large divergence in currency values that central bankers cannot counter with direct intervention

Indeed, the size of the foreign exchange market is such (see reference II on page 49) that, as history has shown, no central bank can resist for a long time the tide of FX market movements.

Inevitably the country with the lowest currency value will enjoy trade benefits that will prompt other governments to take measures. Soon the world will be engaged in currency wars. This is precisely what happened in the 1930s with disastrous economic consequences that today's central bankers want to avoid at all cost.

During the current crisis, some carefully timed adjustments were agreed to allow the most troubled economies to engage into controlled devaluations at the expense of stronger economies in order to have a widespread recovery. This has been the case of the Japanese yen since 2009 and the Euro since mid-2010.

However, there are limits to such arrangements and they were always achieved by bringing down interest rates.

In the current environment with some large economies such as the Eurozone, in a weak state it would be extremely difficult to initiate a global rise of interest rates.

In the end, it is obvious that any attempt to start raising interest rates would have to be extremely progressive to avoid shattering markets and limited in scope to accommodate sovereign debt servicing.

Even if extreme caution is applied, any increase, even small enough to have no macroeconomic impact, could be perceived as the start of a major move. As markets often base their judgement on anticipation, their reaction could be magnified requiring another set of reassurances or even a roll back of the move further eroding Central Banks' credibility and limiting the capacity to significantly exit ZIRP.

CONCLUSION

From the onset, Central Banks have been actively involved in fighting the consequences of the 2008 financial crisis.

So were politicians who made several mistakes that deeply unbalanced the financial system. A misguided stimulus plan in the US and a refusal to break down the Euro into more coherent economic parts created deficits that removed the capacity of governments for further intervention. A world-wide veritable witch hunt against banks, identified as the villains of the subprime crisis resulted in overbearing regulation that effectively took out banks from their traditional role as team members in the post-crisis rescue operation.

For the first time, Central Banks were left fighting on their own the consequences of the crisis.

Using monetary tools, the only ones at their disposal, and the immense respect they command in the financial world, they have been successful in avoiding early panic and, in the longer term, the most disastrous consequences for the world economy.

While they claim they tried their best to avoid deflation and recession, figures show that their actions resulted largely in protecting governments in the US as well as Europe from market uncertainties.

In the process, they bloated their balance sheet with sovereign debt paper and degraded its quality even though they have been very prudent in using monetary policy.

However their decision to keep interest rates at very low levels for a long period of time has created distortions and risks that will not be easy to reverse.

In the end, Central Banks have so far avoided the direst possible outcome of the financial crisis but at the cost of creating an unbalanced financial system.

And now, what's next?

The consequences of the 2008 financial crisis still cast a long shadow on the present economic order. The unprecedented austerity measures in southern Europe or the sluggish recovery have also taken a social toll on many countries.

In other words the crisis has not been resolved.

We previously argued (see reference IV on page 49) that the consequences of the financial crisis would not disappear until three main economic unbalances were resolved:

- reducing large budget deficits in the US and Europe to reinstate their ability to conduct fiscal policies
- breaking down the Euro that ties very different economies and structurally creates deflation in Southern Europe
- restoring a more active banking system by reconsidering the current overbearing regulation.

To these we have to add now a fourth one derived from the above analysis: bringing up interest rates to a more sustainable level and deflating Central Banks' balance sheets thereby restoring their capacity to intervene with credibility if a new crisis develops.

In 2013 (see reference IV on page 49), we identified a narrow path to recovery. This path started with increased oil production in the US reducing the deficits and improving the economy. It then went through the US pulling Europe out of recession and giving the continent more leeway

In the end, Central Banks have so far avoided the direst possible outcome of the financial crisis but at the cost of creating an unbalanced financial system.

to steadily adjust Euro membership and then solving the last remains of the crisis consequences.

In some way, this is the path the US was entering in 2014 with, as a first step, a clear improvement of its economy.

Scenario 1

***These measures...
leave the global
system in a much
better position...***

However, this path to recovery has been complicated by a major and unforeseen event.

The recent drop in oil prices will be shifting be 1.5 trillion \$ in liquidity and wealth a year between countries and economic areas. If we consider that subprime outstanding mortgages peaked at 1.1 trillion \$ in 2008, it becomes obvious that this is a major financial event.

It is not the purpose of this paper to discuss its consequences in detail.

It seems clear, however, that consumers in the US and Europe will receive cash benefits. This is akin to a recurrent tax redistribution that worked well in 2002 in softening the effects of the internet bubble crisis. It should therefore help improve the economy, particularly in the Eurozone and reduce its deficits. In the US, this beneficial effect could be somewhat mitigated by the reduction in oil drilling investments but not enough to threaten the current economic recovery.

Nevertheless, the drop in oil prices has widened the path to recovery described above and improved the economic outlook for the two largest economies in the coming years.

Among a variety of outcomes, two scenarios stand in stark juxtaposition:

Scenario 1

In the US, politicians use the recovery to reduce deficits giving more confidence to investors in treasury securities.

They lighten banking supervision in consultation with the industry to revive this sector thus improving liquidity.

Then, as a strong recovery takes hold, the Fed is able to raise interest rates to a more natural level, creating more demand for Treasury bonds and allowing a lightening of its balance sheet.

In the Eurozone, a return to economic growth should alleviate the need for austerity and high taxes. The authorities have the courage to admit their mistake, and reform the Euro membership in a better economic and market environment thus avoiding a market overreaction.

In the end these measures eliminate the last remains of the great financial crisis and leave the global system in a much better position to handle any future setback.

Scenario 2

In the Eurozone leaders persist in keeping the Euro membership as is. They use the windfall oil savings to support Southern Europe countries or even increase taxes on oil to reduce their own deficit thus killing this opportune engine of recovery.

In the US, politicians take a short-term view and, encouraged by better economic conditions, avoid difficult decisions and increase the budget deficit.

Bankers remain the villains and the strict Basel rules are maintained slowing down the recovery of the banking sector.

Finally, Central Banks keep ZIRP alive to lower the cost of budgetary deficits and avoid increased market volatility.

However, if such scenario takes place, none of the distortions and weaknesses created by the 2008 crisis would have been resolved.

As a consequence, if a future crisis has to be fought, these Central Banks will have to take on markets with a weakened balance sheet and interest rates at the bottom of their range.

Will they be able to hold?

Scenario 2

These Central Banks will have to take on markets with a weakened balance sheet and interest rates at the bottom of their range.

Of course these are extreme scenarios and the future course will probably lie in between.

In all probability, oil prices will remain low for a while and its induced savings will be passed to the consumer. The current economic improvement will go on with little inflation.

Encouraged by these results Central Banks will raise interest rates, if anything to pay lip service to their mandate. This process will be conducted very prudently, with several previous warnings and will be modest in scope.

With the help of increased tax revenues, deficits might come under some control.

However, it is difficult to foresee a proper rearrangement of the Eurozone membership or a sufficient lightening of the financial system supervision or even orderly market reactions if and when interest rates start rising significantly. This would leave the financial system in a more vulnerable condition than in 2008 to confront a future crisis.

In other words, the path for Central Banks in the US and Europe, to restore their balance sheet and play their traditional role is still narrow.

References

I - The financial crisis: A banker's perspective
(<http://cirano.qc.ca/files/publications/2009RB-02.pdf>)

II - The financial crisis one year later: A banker's perspective
(<http://cirano.qc.ca/files/publications/2010s-10.pdf>)

III - The Wall Street reform and the consumer protection act: A solution to the financial crisis or an obstacle to future recovery?
(<http://cirano.qc.ca/files/publications/2010DT-01.pdf>)

IV - From one crisis to another: A banker's perspective
(<http://cirano.qc.ca/files/publications/2012DT-01.pdf>)

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