

Rethinking Stabilization Policy. Back to the Future

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Nearly ten years after the onset of the Great Financial Crisis, both researchers and policy makers are still assessing the policy implications of the crisis and its aftermath. Previous major crises, from the Great Depression to the stagflation of the 1970s, profoundly changed both macroeconomics and macroeconomic policy. The question is whether this crisis should and will have similar effects.

We believe it should, although we are less sure it will. Rather obviously, the crisis has forced macroeconomists to (re)discover the role and the complexity of the financial sector, and the danger of financial crises. But the lessons should go largely beyond this, and force us to question a number of cherished beliefs. Among other things, the events of the last ten years have put into question the presumption that economies are self stabilizing, have raised again the issue of whether temporary shocks can have permanent effects, and have shown the importance of non linearities.

These call for a major reappraisal of macroeconomic thinking and macroeconomic policy. As the paper is a curtain raiser for a conference that will look in more detail at the implications for specific policies, we make no attempt at being encyclopedic and feel free to pick and choose the issues which we see as most salient.

In Section 1, we review the response to two previous major crises, the Great Depression of the 1930s, and the stagflation of the 1970s. The first led to the Keynesian revolution, a worry about destabilizing processes, a focus on aggregate demand and the crucial role of stabilization policies. The second led instead to the partial rejection of the Keynesian model, a more benign view of economic fluctuations and the self-stabilizing properties of the economy, and a focus on simple policy rules. The question is then what this crisis should and will do.

In Section 2, we focus on what we see as the main three lessons from the last ten years. First, and not surprisingly, the crucial role of the financial sector, and the costs of financial crises; second, the complex nature of fluctuations, from the role of non linearities, to the limits of policy, to the persistent effects of shocks; third, the fact that we are and may be, for the foreseeable future, in an environment of low interest rates, an environment which interacts with the first two factors, and force a rethinking of not only monetary, but also fiscal and financial policies.

We then focus on the joint implications of these changes for monetary, fiscal, and financial policies.

In Section 3, we focus on the implications for monetary policy. In an environment of low neutral rates and higher perceived risks, we see the main challenge facing monetary policy as being how to deal with the liquidity trap, both ex-ante and ex-post. Should the inflation target be increased, should central banks adopt a price or a nominal GDP target, can the scope for negative nominal interest rates be widened? We believe the issue must be tackled now even in countries where the constraint is

not currently binding.

We also take up two other issues. First, whether and how monetary policy should concern itself with financial stability; we conclude that monetary policy can be of little help, and that financial stability should be left to financial policies, as imperfect as they might be. Second, how central banks should deal with the large balance sheets they have accumulated as a result of the crisis; we conclude that there is no convincing reason why central banks should keep those large balance sheets. To the extent that there are reasons to affect spreads, this is better handled through debt management and fiscal policy.

In Section 4, we focus on the implications for fiscal policy. In an environment of limits to monetary policy, and neutral interest rates below growth rates, we argue that, despite high debt levels, fiscal policy should play a much more active role in stabilization. Automatic stabilizers should be improved, the scope for a discretionary response to adverse shocks revisited. And, in an environment in which the interest rate is likely to remain below the growth rate for some time to come, the usual discussion of debt sustainability must be revisited. At a minimum, debt consolidation should take place more slowly, and there is a strong case for debt-financed increased public investment.

In Section 5, we focus on financial policies, from financial regulation to macroprudential and microprudential policies. While many measures have already been adopted, how best to address financial risks, both ex-ante and ex-post, remains uncertain. We take up two issues. First, whether simple tools, such as capital ratios and stress tests, could be relied on to do most of the work. The evidence makes up skeptical that they can. Second, what the right mix might be between financial regulation and macro prudential policy. We conclude that it may be better to rely primarily on financial regulation, for example to have higher and constant capital ratios, rather than lower and varying ones.

We state our conclusions in Section 6. Ten years ago, few would have predicted the events which were to unfold, from runs on the largest world financial institutions, to interest rates at liquidity trap levels for close to a decade, to inflation still below target today, to output gaps being still large and negative in many advanced economies. We observe a temptation to go back to the pre-crisis ways, a return to inflation targeting and to a Taylor-like rule, no use of fiscal policy, and pushback on financial regulation and macroprudential measures. This temptation should be resisted. In what we now understand to be a world where financial instability, situations where lower bounds on interest rates, and protracted effects of cyclical downturns are ever present threats, strong stabilization policies are key. Monetary policy must be more aggressive, and take into account the potential long run effects

of booms and recessions. Fiscal policy must be reintroduced as a major stabilization tool. And financial policies must continue to be adjusted and reinforced.

1 Crises and macro policy changes of the past

In the wake of the Great Depression, macroeconomists—at least in the English speaking world—converged on a common set of ideas that came out of Keynes' General Theory. Rather than being seen as inevitable, natural and mostly unproblematic like seasonal fluctuations, business cycles and recessions in particular came to be seen as highly problematic manifestations of shortfalls in aggregate demand. Maintaining adequate demand through the tools of fiscal and monetary policy became the primary concern of macroeconomic policy.

The very strong performance of the American and British economies during World War II was seen as a demonstration of the power of fiscal policy. The subsequent strong performance of advanced economies led to great confidence in the capacity of stabilization policy. One of us remembers being told as a child of how the U.S. Department of Commerce publication Business Cycle Digest had been renamed Business Conditions Digest so as to preserve the initials BCD but to reflect the fact that business cycles were no longer inevitable. Confidence in policy was based on confidence that deep understanding had been achieved. There was, to be sure, a concern that increased economic activity would lead to increased inflation as reflected in the Phillips curve. But the idea was that prudent policymakers would choose an optimal point on the curve which would balance the benefits of higher output and less unemployment against the costs of higher inflation.

A combination of intellectual progress and real world events forced a dramatic reconceptualization of macroeconomics between the late 1960s and the early 1980s. Phelps(1968) and Friedman (1968) pointed out that on theoretical grounds one would not expect to see a stable tradeoff between inflation and unemployment as postulated by the simple Phillips curve. At the same time by the late 1970s, and in apparent contrast to the Keynesian view, stagflation emerged as a major problem throughout advanced economies as inflation and unemployment both increased in unison.

The result was again a dramatic change in macroeconomic thinking. By the mid 1980s the mainstream view was that there was no long-run trade-off between inflation and unemployment. Fluctuations in output associated with changes in nominal demand were in the freshwater view an illusion, or in the saltwater view the temporary consequence of wage and price stickiness. Demand management policy could aspire to containing inflation and reducing the volatility of economic fluctuations but not to raising the average level of output over time. Reducing

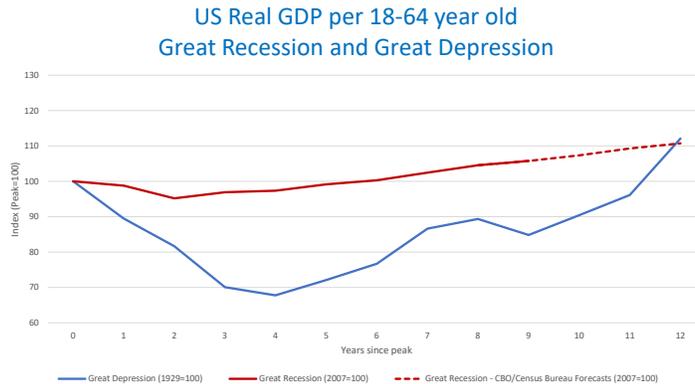
discretion in monetary policy through a combination of political insulation of central banks, the adoption of explicit targets and policy rules would contribute to improved economic performance with less inflation, no loss of output over time, and damped economic fluctuations.

As a consequence of this altered macroeconomic thinking, all major central banks were granted substantial independence and set inflation targets as the principle guidepost for policy. It came to be accepted that one major stabilization policy tool was enough, so interest in fiscal policy diminished greatly. Events like the 1993 Deficit Reduction Program in the United States where deficit reduction led to lower interest rates at all maturities and an acceleration of growth encouraged the view that fiscal policy decisions should be made on long run grounds with little attention to issues of demand management.

The period from roughly the mid 1980s to the mid 2000s was christened the Great Moderation to highlight the success of monetary policy in stabilizing output. To be sure, there were dramatic developments in financial markets over this period, notably the 1987 stock market crash, the bursting of the Japanese bubble at the end of 1999, the emerging markets' dramas in Latin America and Asia during the 1990s, and the bursting of the tech bubble in 1999. But these events were seen as a series of epiphenomena that could be dealt with on an ad-hoc basis and that did not, with the exception of the bursting of the Japanese bubble, lead to major changes in advanced economies' macro performance. The Japanese "lost decade" was interpreted as the result of a succession of policy failures.

Indeed confidence that business cycle had been tamed and that central banks had learned that they needed to respond rapidly to financial crisis combined to enable then Governor of the Fed Ben Bernanke (2002) to apologize on behalf of the Fed for the Great Depression and make clear that such an event could not happen again given the understanding that had been achieved. While Bernanke's own aggressive actions in 2008 made his earlier statement prophetic as a replay of the Great Depression was indeed avoided, it is probably fair to assume that Bernanke's listeners in 2003 did not expect anything like the Great Financial Crisis to materialize. Yet, just as mounting confidence in the existing paradigm and policy approach was followed by disaster in the 1970s, the same thing happened again with the Great Financial Crisis. As Figure 1 illustrates, output per person of working age in the United States likely will have increased no more over the last 12 years since 2007 than it did during the 12 years after 1929. The outcome is even worse in other parts of the advanced world.

Be it in monetary, fiscal, or financial policies, many changes were made, many measures were taken in the heat of the crisis. Ten years after the start of the crisis however, it is not clear however which changes will be abandoned or, instead,



consolidated. Should the crisis lead to a rethinking of both macroeconomics and macroeconomic policy similar to what we saw in the 1930s or in the 1970s? If so, in what ways? This is what we explore in the rest of the paper.

2 Three main lessons

We focus on what we see as three main lessons from the last decade, namely the centrality of finance, the more complex nature of fluctuations, and the implications of very low neutral interest rates.

2.1 The Centrality of Finance

Hyman Minsky (1992) had warned for decades about the consequences of buildups in financial risk. The NBER (1990) and others had held conferences on financial crisis risk. Financial crises were endemic in emerging market countries. And, in advanced countries, the poor performance of Japan after the bursting of the bubble was there for all to see. Yet, prevailing macroeconomic paradigms largely ignored the possibility of financial crises. In macroeconomic models, the role of the financial system was often reduced to the determination of a yield curve, based mostly on the expectation hypothesis with fixed term premia.

The crisis has obviously changed that. It has triggered a very large amount of research on the entrails and the behavior of the financial system. But many questions remain unanswered, and there is not as yet a canonical model of a financial crisis. Let us give two examples of issues crucial for policy that remain unresolved:

First, granting that asset bubble bursts and their interaction with excessive

leverage are crucial in understanding financial crises, what is the relative importance of different mechanisms? One mechanism is that financial intermediaries lose capital and respond by cutting back lending thereby choking off economic activity. This aspect dominates the accounts of the 2008 crisis by Paulson (2010), Bernanke (2015), and Geithner (2014). Another is, instead, that excessive indebtedness coupled with declining asset values led consumers and businesses to retrench and cutback on consumption and investment as argued by Koo (2011) and Mian and Sufi (2014).

Which channel dominates is a central issue for policy. If the second channel is the most important, measures that write off existing debts are crucial to the resolution of financial crisis. This is the position taken by those like Geanakoplos (2010) who believe that the failure to write off mortgage debt on a large scale was a grave error in the United States' handling of the financial crisis. If on the other hand, the key issue is impairment of intermediaries, then such debt writedowns may be highly counterproductive by substantially reducing the regulatory capital of intermediaries and leading them to scale back lending. Indeed for an institution that is constrained in its lending by an 8 percent regulatory capital requirement, each dollar of imposed capital losses may reduce lending by up to \$ 12. It may be that both aspects are central, but at different stages of the crisis: Addressing the first may be essential early on to avoid the economy going into free fall, reducing debt overhangs may be crucial later in making rapid recovery possible. On which side to intervene and when are still very much open issues.

Second, the age-old issue of the relative roles of solvency versus liquidity in precipitating a crisis is still not settled. Official sector accounts of the crisis in the United States suggest that the problems at the major institutions were primarily problems of liquidity rather than solvency—a judgment supported by the finding of the April 2009 stress tests that very little capital was required by the major financial institutions and by the observation that the vast majority of the TARP funds were paid back quite quickly. On the other hand, critics like Bulow and Klemperer (2013) have noted there were substantial reasons to doubt the solvency of some of the largest banks as early as the summer of 2008 and point out that the stress tests represented a kind of implicit liability guarantee for the banks which was like the government providing capital without charging for it. In that view, the success of TARP may have been accidental, the result of a gamble for resurrection that turned out right. While, on that view, Diamond and Dybvig's (1983) celebrated paper on bank runs provides a framework for thinking about liquidity crises, the question of how to deal, in the midst of a generalized crisis, with institutions that are suddenly recognized to be in trouble, remains open.

In short, our understanding of the financial system has improved, but it remains limited. Add to this that the financial system is substantially more complex than

it was in the past, that it is highly reactive to regulation, and prone to regulatory arbitrage. The challenge facing financial policies is considerable. This has a straightforward implication: Financial crises will probably happen again.

2.2 The nature of fluctuations

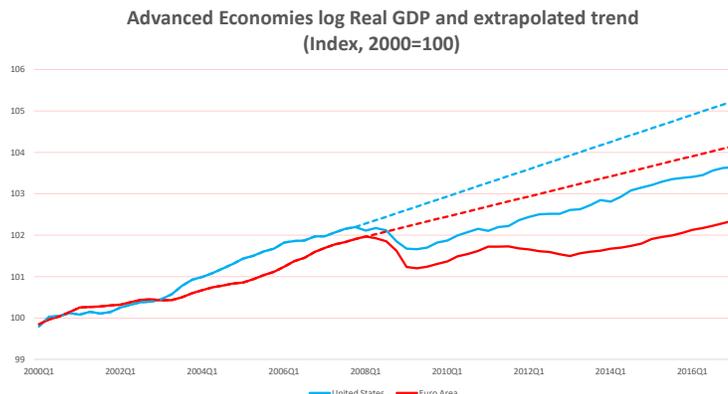
Over the three decades before the crisis, macroeconomics had largely converged on a “shock and propagation mechanism” view of economic fluctuations in advanced economies. The economy was constantly hit by many shocks, some to components of demand and some to components of supply, most of them small, each of them with their own propagation mechanism. And one could think of these propagation mechanisms as largely linear, with the economy ultimately returning to potential after any given shock.

The technical machinery of modern macroeconomics is largely based on that view. In a world of shocks and linear mechanisms, one can think of vector autoregressions (VARs) as capturing the reduced form of these dynamics. Dynamic stochastic general equilibrium (DSGE) models can be constructed to fit and interpret the reduced form, and to give a deeper structural interpretation to the observed dynamics.

Not only has this view become the basic paradigm of much of macroeconomic research today, but it has shaped the design of macroeconomic policy. In a world of regular fluctuations, optimal policy takes the form of stable feedback rules. In the years before the crisis, the focus had been nearly exclusively on monetary policy, and much of the rather Talmudic discussion was about the precise form of the “interest rate rule”, i.e. the best reaction function of the interest rate to inflation and to the output gap. Fiscal policy was ignored as a stabilization tool, although, inconsistently, policy makers were still happy to let existing automatic stabilizers function, no matter how accidental and unadapted they were. And macro prudential policies were simply not the subject of mainstream discussions.

The financial crisis does not fit this image of fluctuations, in a number of dimensions:

First, financial crises challenge how we should think of shocks. The notion of random shocks always raised philosophical issues: Presumably behind a shock to consumption or to wages is some deeper explanation, some underlying shock, which itself should be explained, etc. But, for a macroeconomist, it is probably reasonable to just take some unexplained movements as given, call them shocks, and not try to further explain them (Romer (2016) has made fun of such an approach, referring to such shocks as phlogistons.) One can indeed think of shocks to aggregate demand which affect output over time, with the effects building up and then disappearing



over time. But this seems singularly unadapted to the description of financial crisis. Such crises appear to build up slowly, either in the form of asset price bubbles or credit booms, until perceptions change, prices crash, and the financial system is impaired. The relevant image is much more of plate tectonics and earthquakes, than of regular random shocks.

Second, financial crises are characterized by essential non-linearities and positive feedback whereby shocks are strongly amplified rather than damped as they propagate. The quintessential example is bank runs, in which a small shock, or even no shock at all, leads creditors or depositors to run and makes their fears self fulfilling. This is where the discussion earlier of liquidity versus solvency is important: Liquidity is intrinsically associated with multiple equilibria or at least large effects of small shocks.

Third, financial crises are followed by long periods of depressed output and the Great Financial crisis has been no exception. One of the most dramatic facts of the crisis is shown in Figure 2, which plots the evolution of log GDP in the United States and the European Union since 2000. In both cases, the crisis has led to a step decrease in output relative to the pre-crisis trend (estimated over 2000-2008). In neither case does output appear to be returning to the old trend. This low growth has come largely as a surprise. For example Fed forecasts of GDP have been too optimistic in all of the last 6 years.

These evolutions have led to a revival of the hysteresis discussion, i.e. whether temporary shocks have persistent or even permanent effects on potential output. By itself, the evidence in Figure 2 is not dispositive:

It could be that these economies are still some distance from potential. Sharp

limits on the scope of policies to sustain aggregate demand may have led to output remaining below potential even today. Indeed this is probably the case in much of the European Union. In the United States however, the low rate of unemployment suggests that output is now close to potential, and that what we are seeing is indeed lower potential output relative to the pre-crisis trend.

It could be the coincidence of two independent evolutions. On the one hand the sharp initial drop in output due to the crisis, and on the other, an underlying decrease in productivity growth, and thus lower trend growth of potential output, largely unrelated to the crisis. There is indeed some evidence that, at least in the United States, the decline in measured productivity growth started before the crisis, and thus may be due in part to other factors (for example, Fernald et al 2017). The evolutions shown in Figure 2 might, under this interpretation, reflect a return of output to a more slowly growing potential output trend.

It may be instead that financial crises are like permanent supply shocks, leading to a long lasting, perhaps even permanent, decrease in potential output relative to trend. They may lead to a less efficient financial intermediation system, which affects not only the demand side, but also the supply side. In the United States however, private debt levels have decreased, and the financial system no longer seems impaired. Or it may be that tighter regulation leads the financial system to finance lower risk but also, by implication, lower return, projects and thus lead to lower if more stable potential output.

Or, finally, it could be that recessions, especially deep recessions, themselves affect potential output, that there is hysteresis (Phelps 1972, Blanchard and Summers 1986), either through higher unemployment, lower labor force participation, or lower productivity (Blanchard 2017).

Implications for policy depend on which of the mechanisms described above is most relevant. The first points to the need for ways of using demand policies more aggressively. The second and third point to the difficulties of assessing potential output. The fourth, on which we put some weight, has more dramatic implications, as it suggests that the effects of adverse shocks and thus the role of policy may be much larger than in a world in which potential output is unaffected by cyclical fluctuations.

Some of these issues we just discussed are specific to financial crises. But some apply to all fluctuations. The crisis has put into focus a number of first-order non linearities, which are relevant more generally, even more so in the current low growth, low inflation, low interest rate, environment. The most obvious one is the lower bound on nominal interest rates, which, when it binds, leads the economy to have dramatically different responses to shocks and policies. Another, which has been binding in some southern European countries, is the zero lower bound

on nominal wage changes. As for nominal interest rates, this zero lower bound is not absolute, and some nominal wages have declined, but it has strongly limited the usual process of wage and price adjustment to high unemployment. Yet another non linearity has come from the interaction between public debt and the banking system, a mechanism known as “doom loops”, and which played a central role early in the euro crisis: Higher public debt leads to worries about public debt restructuring, decreasing the value of the bonds held by financial institutions, leading in turn to a decrease in their capital, worries about their health, and the expectation that the state may have to bail them out and be itself in trouble as a result.

In contrast to the standard pre-crisis view, these non linearities have the potential of amplifying initial shocks, potentially leading to explosive or implosive paths, leading again to strong policy challenges.

2.3 Low interest rates

Low interest rates are a major feature of the current macroeconomic environment. As Figure 3 shows, the US short (ex ante) real rate started decreasing long before the crisis, but the crisis lowered it further, and the forecasts are for it to remain low for a long time.¹ Indeed, CBO forecasts are for the real interest rate to remain below the growth rate all the way to 2027. In reference to Hansen (1939), one of the authors has referred to this evolution as “secular stagnation”.

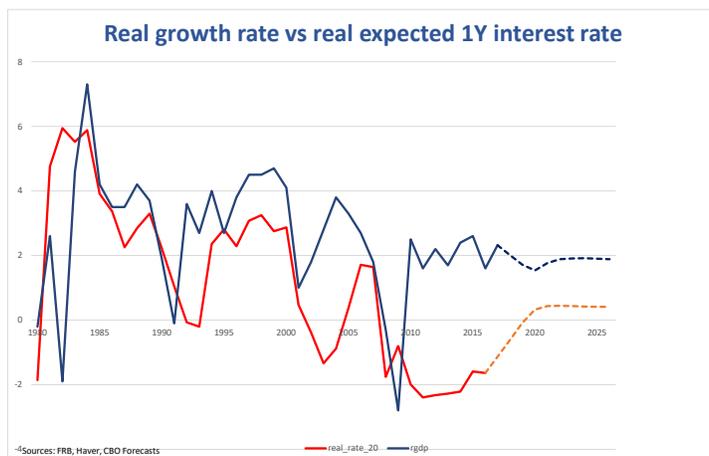
What factors are behind this steady decrease are not well identified. Explanations fall into two groups: The first is that the after-tax rate of return to capital has decreased, leading to a decrease in all rates, risky or safe. The second is that the safety premium has increased, leading to a lower safe rate.

Under the first, one is looking for factors which have increased saving or decreased investment. Research has identified a large number of potential culprits, from the global savings glut emphasized by Bernanke (2005), to the interaction between taxes and inflation, to the decrease in the price of capital, to demographics.

Under the second, one is looking for factors that have increased the demand for or reduced the supply of safe assets. Research has also identified a number of potential culprits, from the accumulation of reserves in the form of safe assets by emerging market central banks, to financial regulation and higher liquidity requirements, to the decrease in the set of assets which were perceived to be safe before the crisis, to the perception of higher risk due to the financial crisis itself.

The abundance of potential factors, without a clear sense of their relative im-

¹The real interest rate is constructed, up to 2017, by using the nominal rate minus the forecast of inflation from 20-year rolling sample estimation of an AR(1) for CPI inflation. Numbers post 2017 are based on CBO forecasts of growth, nominal rates, and inflation. The figure would be roughly similar for other advanced countries.



portance, makes it difficult to predict what will happen to safe rates. For example, the sharp decrease in the current account surplus of China, and even more so, of oil producing countries, may lead to higher rates. Or, as memories of the crisis fade, the equity premium may decrease, as it did after the Great Depression, leading to an increase in equilibrium safe rates. Market pricing indicates however that investors expect low real rates to prevail for a long time to come. As this is written, yields on 10-year indexed bonds are 0.4 percent in the United States, -1.0 percent in Germany, and -0.4 percent in Japan. Given that indexed bonds are less liquid than nominal bonds and that longer term instruments normally carry risk premia, these figures likely overestimate future expected real yields.

Low interest rates, especially interest rates lower than growth rates, have essential implications, not only for monetary policy but even more so, for fiscal policy.

So far, the focus has been primarily on the implications for monetary policy, and the effective lower bound. While central banks have explored and used other tools, there is little question that the binding lower bound on short term nominal interest rates (zero, or slightly negative) limited the scope of monetary policy to sustain demand during the recovery.

Indeed, this has raised an old but fundamental issue of whether market economies naturally return to potential (as we saw earlier, a potential which might itself be moving, but this is a different issue). One of the first formal discussions was given by Patinkin (1948): in response to low output, the price level would decrease, leading to an increase in the real value of money, and an increase in demand. This mechanism was at the core of the aggregate demand/aggregate supply model of textbook fame: Lower output would lead to a lower price level, which in turn would lead to a

higher real money stock, which in turn again would lead to a lower interest rate, which finally would increase aggregate demand and output. This never felt like a very convincing stabilizing mechanism, especially in a world where central banks increasingly ignored the money supply and focused on the interest rate instead. When central banks adopted inflation targeting and interest rate rules, stability was shown not to be automatic, but to depend on a sufficiently aggressive feedback rule from output and inflation to the policy rate. The effective lower bound, which prevents this feedback from operating, puts into question whether the economy will indeed return to potential after a bad shock. Even away from the lower bound, a positive probability that the constraint will bind raises the same fundamental issue. The observation that 10-year breakeven inflation as inferred from indexed bond yields is 1.5 percent in the United States, 1.2 percent in Germany, and 0.4 percent in Japan—all well below 2 percent inflation targets suggests that investors are not optimistic about the ability of central banks to return and maintain economies at potential in the future.

The limits of monetary policy imply, other things equal, a larger role for other policies, in particular fiscal policy. And low interest rates raise many questions about the design of fiscal policy in such a context. If the interest rate is below the growth rate, could this be a signal that the economy is dynamically inefficient, in which case larger public debt is actually not only feasible, but also desirable? If the economy is dynamically efficient, but the safe rate is below the growth rate, can the state still issue debt without ever paying it back, and if it can, should it do so?

Finally, low interest rates also have implications for financial regulation and macro prudential policy, although these are less obvious. The main issue is the relation between low interest rates and risk taking. It has been argued that a combination of human nature, agency issues, and gambling for resurrection, all lead to more risk taking when interest rates are low. If it is indeed the case, then there is again an important role for financial regulation and macro prudential policy to play.

Having described the landscape, we turn to the implications for monetary, fiscal, and financial policies.

3 Monetary policy

The crisis forced central banks to drastically change the way they conduct monetary policy. Most of the changes and the new instruments were introduced in the heat of the crisis. The question is, looking forward, how many of these instruments should remain, how monetary policy should be reconstructed. We focus on three issues, how

to deal with the effective lower bound on interest rates, whether and how monetary policy should address financial stability concerns, and whether central banks should return to smaller balance sheets.

The United States has experienced six recession episodes in the last fifty years. The reductions in policy interest rates have averaged 5 percentage points, ranging from 2.1 to 10.5 percentage points, as policymakers responded to these downturns. Given that the Fed now believes the long run normal Fed funds rate is only 2.75 percent and that markets do not expect rates to rise to this level for a decade or more, it is clear that there will be less scope for interest rate reduction as a response to economic downturn in the future than in the past. This raises the risk that future downturns will be more serious, and that if this comes to be anticipated, investment will be reduced even in advance of downturns.

What can be done to mitigate this risk? As we have learned, and Yellen (2017) has recently emphasized, even when interest rates are at the lower bound, central banks have a range of tools at their disposal. These include the much discussed the various forms of quantitative easing, forward guidance, and more ambitious strategies of committing to higher inflation when full employment is restored. We are skeptical of the go-forward efficacy of these measures. Were a recession to start in the United States, Europe or Japan, we would expect that long rates would fall to very low levels without any help from forward guidance or QE. This would lead little room for QE policies to decrease them further. We also see little basis for confidence that a central bank that is well short of its inflation target can be credible in committing to high subsequent inflation. Japan's difficulty over the last four years in moving inflation expectations and achieving its inflation target, despite the strong commitment of both political authorities and the central bank, reinforces our sense of the difficulty of stimulating demand with monetary policy in the liquidity trap.

Monetary policy approaches that would raise normal neutral rates and so allow more room for interest rate reductions in the face of downturns should be at the top of the agenda. The most straightforward possibility raised by Blanchard (2010) would be an increase in the 2 percent inflation target to say 4 percent. An alternative suggested in Summers (2018) would be a shift to a nominal GDP target calibrated to assure nominal interest rates in normal times in the 4 percent range. These ideas have obvious drawbacks and there may be better approaches. It is urgent to explore them. We believe that the question of creating the policy capacity to respond to downturns is the most critical one facing monetary policy today.

Turning to the role of monetary policy vis a vis financial stability, it is clear that financial regulation and macro prudential policies should be the first lines of defense. But one cannot expect that they will be fully successful. The question is

then whether monetary policy should be the second line of defense. This discussion is known as “leaning against cleaning” (i.e. increasing the interest rate in the face of a credit boom or an asset bubble, versus taking measures in response to the later decrease). We are skeptical that monetary policy, in the form of movements in the policy rate, can play a very useful role:

First, but this is common to monetary policy and time varying regulatory policies, it is in the nature of asset bubbles or unhealthy credit booms to be difficult to assess in real time. Alan Greenspan’s famous “irrational exuberance” observation was made in December of 1996 when the Dow was at 6300. Given subsequent history it is pretty clear that the stock market was not at that moment overvalued. More generally Goetzmann (2015) has shown that even when markets double over short intervals, they are more likely to double again than to fall in half, pointing up the difficulty of pricking bubbles without responding to upwards movements in asset prices that in fact reflect fundamentals.

Second, lags in the effects of monetary policy make it even harder to act in a way that is stabilizing. Monetary policy acts with a significant lag. A tightening of policy just before a bubble bursts is likely to exacerbate the subsequent contraction. The ability to use monetary policy to promote financial stability therefore depends not just on an ability to identify bubbles but to be sufficiently confident to act in response to them well before they would burst of their own accord.

Third, the interest rate is a very poor instrument to decrease risk. Higher interest rates may slow down credit growth, and lead to less risk taking. At the same time however, higher rates worsen the position of existing debtors, both directly and through their adverse effect on activity, increasing their risk of bankruptcy. They also may in the short run weaken the position of financial intermediaries that have borrowed short and lent long.

For all these reasons, we believe, along the lines of Svensson (2017) and against the arguments of Borio and Lowe (2002) and Kashyap, Gaurio, and Sim (2016), that interest rates should not be used to fight asset bubbles or credit booms, and that, even taking into account the limits of financial regulation, it should bear responsibility for financial stability.

Turning finally to balance sheets: Between 2007 and 2016, the liabilities of the Bank of Japan increased from 21% to 89% of GDP, those of the Fed from 6% to 24%, those of the ECB from 16% to 34%. The increase in liabilities has mostly taken the form of interest paying money, i.e. reserves held by banks at the central bank. Assets are a mixture of government bonds and private securities, with the composition varying across central banks.

Should central banks keep such large balance sheets, or should they go back closer to the pre-crisis balance sheets? It is important to recognize at the outset that in

the institutional environment now prevailing in all major economies where central banks pay interest on bank reserves, “money” is now the equivalent of floating rate government debt. The monetary transmission mechanism stressed by both Friedman and Tobin, that relied on money paying zero interest rate, and so changes in the quantity of money changed all other interest rates and prices is no longer a feature of modern economies. Rather what we call monetary policy is really interest rate policy as central banks set policy interest rates directly, and changes in “money” represent changes in the maturity and perhaps the credit structure of the debt the public has to absorb. In this world, the size of central bank balance sheets is not per se a measure of inflationary pressure, even in the long run.

As Greenwood et al (2014) stress, any judgement about central bank balance sheets must reflect two quite different sets of considerations. It depends on a judgement about what is the optimal maturity structure of the debt that the consolidated government and central banks make available to the public. And given this judgement, it then depends on the optimal division of labor between the Treasury and the Central Bank.

Perhaps the best argument in favor of making a large amount of short rate government debt available to the public has been made by Greenwood et al (2016): They stress that some investors have a preference for very short maturity, very liquid, assets, and that the government is in a unique position to offer such assets, in the form of interest paying reserves or floating rate debt issues. Government short maturity debt is less likely to give rise to risks of runs than privately manufactured substitutes.

Other arguments have been made in favor of decreasing term premia through purchases of long bonds by the central bank. Term premia seem high relative to risks, suggesting distortions in the pricing of bonds, due perhaps to institutional constraints. And, even if there are no such distortions, decreasing term premia loosen the zero lower bound: other things equal, if and when the short nominal rate reaches zero, longer maturity rates will be lower, thus helping aggregate demand. This may be a distortion worth having.

Whatever the case is for shortening the maturity structure of the government debt that the public must absorb, we see however little argument for the current approach where both the Treasury and the Central Bank act independently to affect the maturity structure of the debt and, as in the United States during the QE period, can even do it at cross purposes. We believe that, for the most part, debt management decisions should be taken by Treasuries, or by actions coordinated between central banks and Treasuries. This leaves little role for large central bank balance sheets, perhaps with the exception of government accumulation of private sector claims, which is best left to politically independent central banks. Overall,

we find the case for large balance sheets in normal times to be weak.

In short, we are skeptical that monetary policy proper can be used to decrease the risk of a financial crisis. We also do not believe that the central bank needs to keep a large balance sheet in normal times; some of what QE did can be done by the Treasury through debt management. The central bank can increase its balance sheet quickly if and when needed. We see the priority for monetary policy to reacquire enough margin of maneuver to fight the next recession, wherever it comes from.

4 Fiscal policy

Out of necessity, fiscal policy was rediscovered as a stabilization tool during the crisis, although, in the face of deficits and large increases in debt, fiscal expansion quickly turned to fiscal austerity and debt stabilization. Today, fiscal policy faces a highly unusual environment: On the one hand, and largely because of the financial crisis, debt levels are high by historical standards. On the other hand, interest rates on government debt are low, and, in many countries, expected to remain lower than growth rates for some time to come. As a consequence, levels of government debt service relative to GDP are low by historical standards.

These evolutions raise two main issues.

The first is how fiscal policy can be used as a stabilization tool. Given how short-handed governments were in reacting to the fall in demand in 2008-9, one might have expected both academic work and policy progress on the scope for discretionary policy, for example on whether it is feasible to have a set of truly “shovel ready” projects for public investment, or on improving or designing new automatic stabilizers. There has been surprisingly little academic work, and no policy progress that we know on this front.

The second is how fiscal policy should be conducted in an environment of high initial debt but very low rates on government bonds, indeed lower than the growth rates.

One extreme hypothesis is that these low safe rates reflect an excess accumulation of capital in the world, what is referred to as “dynamic inefficiency.” If this were indeed the case, then higher debt, to the extent that it crowded out private capital, would actually be not only feasible but also desirable. The evidence however strongly suggests that, in most countries, the total returns to capital still far exceed levels of investment so that the Abel et al criterion for dynamic efficiency (1989) is met. (See however Geerolf (2013) for intriguing evidence that this may not be the case in some countries, raising in turn questions about the integration of capital markets across countries.)

If we are in a situation in which the economy is dynamically efficient, but the

interest rate on government bonds is less than the growth rate, how worried should governments be about high debt levels? If we were sure that the safe rate would always be less than the growth rate, then indeed the government could issue debt, distribute the proceeds in the form of reduced taxes or increased spending, and never raise taxes nor repay the debt. The debt to GDP ratio would not explode, but indeed converge to a finite value, no matter how large the deficit. But the world is uncertain, and we cannot be sure that, even if the expected rate is less than the expected growth rate, the inequality will always hold. In this case, theoretical research tells us, it may or may not be the case that the government can run such a Ponzi game. It may be that uncertainty is such that, despite the fact that the inequality holds for expected values, the debt to GDP ratio may still explode. Or it may be instead that the government can issue debt and indeed never repay it. An example here is financial repression. If financial institutions are forced to hold short-term government debt, the government may be able to pay them a low rate, rollover the debt forever and never raise taxes. While such financial repression used to be widespread, it is no longer prevalent. High required liquidity ratios however may achieve a similar result, in less obvious ways.

These are important considerations. From the point of view of debt sustainability, the concern that the interest rate may eventually exceed the growth rate is substantially mitigated if governments can actually lock this low rate through the issuance of long term indexed debt. The real interest rate on 30-year indexed debt is 0.9 percent in the United States, which seems very low relative to even pessimistic views about long term growth.

This triggers the next question: Even if the government can issue debt and never repay it, or, more realistically, repay a small proportion of it if and when the interest rate eventually exceeds the growth rate, should it do it? The answer is again ambiguous:

If the economy is operating at potential, and higher demand does not affect potential output, increased public spending has to come at the expense of private spending. To the extent that private investment is crowded out, the relevant comparison is not between the rate of return on public investment and the interest rate on government bonds, but rather between the rate of return on public versus private investment. It may still be, and we believe this to be the case, that the rate of return on public investment is sufficiently high that public investment should be increased, and financed by debt; but this case is a tougher one to make. Hysteresis, which we discussed earlier, is also directly relevant here. Even if the interest rate exceeds the growth rate, and to the extent that higher output leads to higher potential output, it may be that public spending pays for itself, leading to a decrease in the debt to GDP ratio even in the long run (DeLong Summers (2012)).

In short, it is clear that the new environment requires a rethinking of fiscal policy, not only as a stabilization tool, but also with respect to debt policy. More research needs to be done on both fronts before one can draw robust policy implications. The research on “multipliers”, i.e. the effects of fiscal policy on demand and output, has shown the complexity of the issue, and the dependence of the answer on the precise type of policy and the economic environment. How, in the face of high debt levels and low rates, policy makers should think about fiscal space, debt stabilization or reduction, even pay-as-you go social security, remains to be worked out. This strikes us as a high priority both for researchers and for policy makers.

5 Financial policies

Based on recent experience, a large fraction of whatever consequential instability takes place in advanced economies over the next decades is likely to be associated with financial instability. Note that, in addition to the experience of the Great Recession, the other recent economic downturns in the United States had some roots in financial factors—be it the credit problems associated with real estate and consequent credit crunch in the late 1980s, and the stock market bubble and its collapse in 2000. This raises the issue of both crisis prevention and crisis resolution.

Take crisis resolution first. Some believe one lesson of the crisis is that policy-makers need stronger tools for responding to financial strains, so that for example next time there would be clear legal authority to bailout an institution like Lehman in 2008. Others believe instead that the moral hazard associated with the excessive availability of bailout funds was an important contributor to the excessive risk taking that led to the crisis.

We are skeptical of the moral hazard fundamentalism that has taken hold in many quarters and concerned that both legal changes and the painful political lessons of the past crisis may make the provision of emergency liquidity more difficult the next time a crisis comes along. To a substantial extent, crises have their roots not in conscious risk taking by financial institutions, but in “black swan” events that they do not anticipate—something that cannot be changed by altering incentives. Moreover the provision of liquidity that contains runs arguably does not represent a moral hazard cost because it need not be socially costly. Indeed, as we mentioned earlier, the United States government turned a profit on the TARP program of support for financial institutions. Because major crises only occur every half century or so, we are skeptical that actions in one crisis are important as precedents for the next.

Crisis prevention has been a major preoccupation since the onset of financial crisis in 2008, leading to the passage of Dodd-Frank in the United States, and

the myriad of internationally coordinated activities under the auspices of the FSB. Recently there has been a significant backlash against these efforts with pressures to rollback aspects of Dodd-Frank, and concerns that overly restrictive regulation more broadly is cramping the supply of credit.

It is fair to say that, following the clear demonstration of the inadequacy of previous regulation, and in the absence of consensus among economists on the precise causes of crisis we discussed earlier, regulatory practice has run ahead of theory. There is a multitude of unresolved questions ranging from how central the adequacy of capital is relative to other issues, to the proper measurement of capital, to the question of how regulation should vary with cyclical and financial conditions, to the desirability of regulating the scale and scope of financial institutions, to issues regarding the “shadow financial system”, to issues regarding the stability of capital markets. Here we focus on just two—the efficacy of capital regulation and stress tests, and the desirability of time varying regulatory policies to promote stability.

It is tempting to suppose that, with sufficiently high capital requirements, the stability of major institutions and hence of the financial system can be assured. High levels of capital can be assured in a static sense through direct capital regulation and in a dynamic sense through stress tests that assure that capital levels will be adequate even in an adverse scenario (leaving aside issues of liquidity, which may indeed require an additional instrument).

Bulow and Klemperer (2013) and Sarin and Summers (2016) discuss a number of issues raised by current approaches to capital regulation. Most obviously, most of the institutions that failed in 2008 and 2009 were reported by their regulators to have high capital ratios up to the moment when they failed. As a particularly egregious example, Bear Stearns was reported by its regulator to have a Tier 1 Capital Ratio of 11.6 percent the week before it failed. But it is not an isolated example: Wachovia, WaMu and Lehman all were judged to have high capital ratios on the eve of their failures. Haldane and Madouros(2012), looking at the universe of large global banks, report that there was no correlation between prior capital ratios and chance of survival through the crisis. Bulow and Klemperer note that banks that are resolved by the FDIC typically have liabilities 15 percent or more in excess of assets suggesting large flaws in regulatory capital as a measure of economic capital.

While the official line is that the banking sector is far better capitalized than it was prior to the crisis, Sarin and Summers note that ratios of the market value of equity to bank assets, measures of equity volatility, and returns on preferred stock all suggest otherwise. Stress tests suggest an extraordinary robustness of the banking system at least in the United States today, but we suspect that claims that the system would whether a storm far worse than 2008 without any large institution

needing to raise capital say more about stress test methodologies than they do about banking system robustness.

This has direct policy relevance. A major policy error made in association with the 2008 crisis was the failure of regulatory authorities in the United States to force the raising of capital or at least the reduction of dividend payments and stock repurchases in the Spring and Summer of 2008 even as markets were signaling serious concerns about the health of the financial system. The design of approaches using market information as an input to regulatory policy seems to us a priority.

While we believe that regulatory policies that are more responsive to changes in firms' economic capital are desirable, we are more skeptical of time-varying capital requirements or leverage limits. In part this is for the reasons discussed earlier with respect to the use of monetary policies to promote financial stability. It is very difficult to identify bubbles *ex ante* and even more difficult to confidently identify them enough ahead of their bursting to make countercyclical policy worthwhile. Contrast the difficulty of the task of noticing and acting on capital depletion of banks in 2008 at which the authorities failed despite clear market signals, with the task of gauging early incipient bubbles and acting on them. Political economy issues further complicate the task: Increasing required payments on mortgages in the face of an increase in housing prices, which is likely to primarily affect young buyers, may be extremely unpopular, and, as a result, applied too little or too late.

In short, while much more attention is now paid to financial regulation and macro prudential policies, the task is far from finished. The very complexity of the financial system, our limited understanding of its workings, the ability of the financial players to adjust and engage in regulatory arbitrage are formidable obstacles. We are likely to face more financial crises in the future.

6 Conclusions

Why did we choose to put "Back to the future" in the title of our paper? Because we view the basic lessons from the Great Financial crisis to be similar to those drawn by the Keynesian revolution in response to the Great Depression: Economies can be affected by strong shocks, and cannot be expected to automatically self stabilize. We have no doubt that, absent the strong monetary and fiscal policy responses we have observed, the financial crisis would have led to an outcome as bad or worse than the Great Depression. Thus, strong stabilization policies are simply of the essence.

This is not to say that we should return to the Keynesianism of the 1960s and 1970s. The economic environment is different, the financial system more complex,

neutral interest rates are low, creating problems for monetary policy, but opportunities for fiscal policy.

What we specifically suggest is the following: The combined use of macro policy tools to reduce risks and react more aggressively to adverse shocks. A more aggressive monetary policy, creating the room needed to handle another large adverse shock—and while we did not develop that theme at length, providing generous liquidity if and when needed. A heavier use of fiscal policy as a stabilization tool, and a more relaxed attitude vis a vis debt consolidation. And more active financial regulation, with the realization that no financial regulation or macroprudential policy will eliminate financial risks. It may not sound as extreme as some more dramatic proposals, from helicopter money, to the nationalization of the financial system. But it would represent a major change from the pre-crisis consensus, a change we believe to be essential.

References

- [1] Andrew Abel, N Gregory Mankiw, Lawrence H Summers, and Richard J Zeckhauser. Assessing dynamic efficiency: Theory and evidence. *Review of Economic Studies*, pages 1–20, 1989.
- [2] Ben Bernanke. On Milton Friedman’s ninetieth birthday. 2002.
- [3] Ben Bernanke. The global saving glut and the U.S. current account deficit. 2005.
- [4] Ben Bernanke. *The Courage to Act: A Memoir of a Crisis and Its Aftermath*. Norton, 2015.
- [5] Olivier Blanchard. Should one reject the natural rate hypothesis? *Journal of Economic Perspectives*, forthcoming, 2017.
- [6] Olivier Blanchard, Giovanni Dell’Ariccia, and Paolo Mauro. Rethinking macroeconomic policy. *IMF Staff Position Note 10/03*, 2010.
- [7] Olivier J Blanchard and Lawrence H Summers. *Hysteresis and the European Unemployment Problem*, pages 15–90. National Bureau of Economic Research, 1986.
- [8] Claudio Borio and Phillip Lowe. Asset prices, financial and monetary stability: Exploring the nexus. *BIS Working Paper 114*, 2002.
- [9] Jeremy Bulow and Paul Klemperer. Market-based bank capital regulation. 2013.
- [10] J. Bradford DeLong and Lawrence H. Summers. Fiscal policy in a depressed economy. *Brookings Papers on Economic Activity*, 2012.
- [11] Douglas Diamond and Philip Dybvig. Bank runs, deposit insurance, and liquidity. *The Journal of Political Economy*, pages 401–419, 1983.
- [12] John Fernald, Robert Hall, James Stock, and Mark Watson. The disappointing recovery of output after 2009. *Brookings Papers on Economic Activity*, 2017.
- [13] Milton Friedman. The role of monetary policy. *American Economic Review*, pages 1–17, 1968 1968.
- [14] John Geanakoplos. Solving the present crisis and managing the leverage cycle. *Economic Policy Review*, 16:101, 2010.
- [15] Francois Geerolf. Reassessing dynamic efficiency. 2013. Working paper, UCLA.

- [16] Timothy Geithner. *Stress Test: Reflections on Financial Crises*. Crown, 2014.
- [17] William Goetzmann. Bubble investing: Learning from history. *NBER Working Paper No. 21693*, 2015.
- [18] Robin Greenwood, Samuel Hanson, Joshua Rudolph, and Lawrence Summers. Government debt management at the zero lower bound. *Brookings Institution*, 2014.
- [19] Robin Greenwood, Samuel Hanson, and Jeremy Stein. The Federal Reserves Balance sheet as a financial-stability tool. *FRB Kansas City Economic Policy Symposium*, 2016.
- [20] Andrew Haldane and Vasileios Madouros. The dog and the frisbee. *Proceedings - Economic Policy Symposium - Jackson Hole*, pages 109–159, 2012.
- [21] Alvin Hansen. Economic progress and declining population growth. *American Economic Review*, 29-1:1–13, 1939.
- [22] R. Glenn Hubbard. *Financial Markets and Financial Crises*. 1990.
- [23] Anil Kashyap, Francois Gourio, and Jae Sim. The tradeoffs in leaning against the wind. 2016.
- [24] Richard C. Koo. The world in balance sheet recession:causes, cure, and politics. *real-world economics review*, 2011.
- [25] Atif Mian and Amir Sufi. *House of Debt*. University of Chicago Press, 2014.
- [26] Hyman Minsky. The financial instability hypothesis. *The Jerome Levy Economics Institute Working Paper No 74*, 1992.
- [27] Don Patinkin. Relative prices, Say’s law, and the demand for money. *Econometrica*, pages 135–154, 1948.
- [28] Henry M Paulson. *On the Brink: Inside the Race to Stop the Collapse of the Global Financial System*. 2010.
- [29] Edmund Phelps. Phillips curves, expectations of inflation and optimal unemployment over time. *Economica*, pages 254–281, 1968.
- [30] Edmund Phelps. *Inflation Policy and Unemployment Theory*. Norton, New York, 1972.
- [31] Paul Romer. The trouble with macroeconomics. 2016.

- [32] Natasha Sarin and Lawrence H. Summers. The bank capital volatility puzzle. *Brookings Papers*, 2016.
- [33] Lawrence H. Summers. Secular stagnation and macroeconomic policy. *Forthcoming*, 2018.
- [34] Lars Svensson. Cost-benefit analysis of leaning against the wind. *Journal of Monetary Economics*, pages 193–213, 2017.
- [35] Janet Yellen. Opening remarks: The Federal Reserve monetary policy toolkit: Past present and future. *Economic Policy Symposium - Jackson Hole*, 2017.