Does Central Bank Independence Frustrate the Optimal Fiscal-Monetary Policy Mix in a Liquidity Trap?

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Abstract

"[T]he role of an independent central bank is different in inflationary and deflationary environments. In the face of inflation, which is often associated with excessive [government borrowing and] monetization of government debt, the virtue of an independence central bank is its ability to say "no" to the government. [In a liquidity trap], however, excessive [government borrowing] and money creation is unlikely to be the problem, and a more cooperative stance on the part of the central bank may be called for. Under the current circumstances [of a liquidity trap], greater cooperation for a time between the [monetary] and the fiscal authorities is in no way inconsistent with the independence of […] central bank[s], any more than cooperation between two independent nations in pursuit of a common objective [or, for that matter, cooperation between central banks and fiscal authorities to facilitate war finance] is consistent with the principle of national sovereignty."

Governor Ben S. Bernanke

Section I - Introduction

The United States and much of the developed world are in a liquidity trap. However, policymakers still have not embraced this diagnosis which is a problem as solutions to a liquidity trap require specific sets of policies. There are policies that will work, and there are policies that will not work. Correct diagnosis is necessary to prescribe the right policy medication.

A liquidity trap is a circumstance in which the private sector is deleveraging in the wake of enduring negative animal spirits caused by the bursting of joint asset price and credit bubbles that leave private sector balance sheets severely damaged. In a liquidity trap the animal spirits of the private sector cannot be revived by a reduction in short-term interest rates because there is no demand for credit. This effectively means that conventional monetary policy does not work in a liquidity trap.

Although not using the exact same rhetoric, heads of central banks have already admitted this. For example, Federal Reserve Chairman Bernanke noted that while "…monetary policy can be a powerful tool, it is not a panacea for the problems currently faced by the U.S. economy." Also, Bank of England Governor King noted that in the present case of private deleveraging "…there is a limit to what monetary policy can be hoped to achieve."

Deleveraging can be rational for an individual household. It can be rational for an individual corporation. It can be rational for an individual country. However, in the aggregate it begets the paradox of thrift[1]: what is rational at the microeconomic level is irrational at the community, or macroeconomic, level.

This is not to say that the private sector should not deleverage. It has to. It is a part of the economy's healing process and a necessary first step toward a self-sustaining economic recovery.

However, deleveraging is a beast of a burden that capitalism cannot bear alone. At the macro level, deleveraging must be a managed process: for the private sector to deleverage without causing a depression, the public sector has to move in the opposite direction and re-lever by effectively viewing the balance sheets of the monetary and fiscal authorities as a **consolidated whole**.

Fiscal austerity does not work in a liquidity trap and makes as much sense as putting an anorexic on a diet. Yet, "diets" are the very prescriptions that fiscal austerians[2] have imposed (or plan to impose) in the U.S., U.K. and Eurozone. Austerians fail to realize, however, that everyone cannot save at the same

[1] The paradox of thrift is otherwise known as the fallacy of composition (Keynes, 1936).
[2] The word "fiscal austerians" was coined by Rob Parenteau.

time and that in liquidity traps, the paradox of thrift and depression are fellow travelers that are functionally intertwined.

Historically, austerity has only worked when accompanied by monetary easing – where wealth effects and stronger private demand for credit helped offset the effects of fiscal austerity – and/or a weaker currency - which helped steal others' demand.

In a liquidity trap, however, austerity cannot work because monetary policy is neither functioning correctly nor able offset lost demand, and weak currencies work only at a time of strong global demand and only for individual countries, not for several major countries at one time. Imposing austerity without potential offsets and at a time of weak global aggregate demand is deflationary, which makes deleveraging much harder, balance sheet repair much slower and recovery much less likely to achieve. In a liquidity trap, governments have no logical option but to borrow and to invest.

How could governments borrow more if government debt is also a problem everywhere? Would it not be irresponsible to increase borrowing at a time of record government debt levels? Fiscal austerians are quick to invoke age-old textbook orthodoxies: (1) that additional borrowing will be too much for future generations to handle, citing the law of Ricardian equivalence; (2) that increased borrowing will crowd out private sector borrowing and will most likely delay the economic recovery; and (3) that bond investors will stop buying and send yields higher.

However, in the topsy-turvy world of liquidity traps, these textbook orthodoxies do not apply, and acting irresponsibly relative to orthodoxy by increasing borrowing will do more good than harm.

Austerians argue that reducing deficits and putting nations' fiscal houses in order will help growth through confidence. However, Ricardian equivalence does not work in reverse! It is not confidence, but Godley's tyranny of arithmetic that matters: someone simply has to borrow and invest to fill missing demand.

Crowding out, overheating and rising interest rates are also not likely to be a problem as there is no competition for funds from the private sector. For evidence, look no further than the impact of government borrowing on long-term interest rates in the U.S. during the Great Depression, or more recently, Japan.

A buyers' strike is also unlikely, especially in the case of the U.S. This is because countries with mercantilist policies tied to the U.S. dollar are de facto piggybacking on the U.S.'s internal demand, and simply have no option but to continue to accumulate U.S. Treasuries to moderate the real appreciation of their exchange rates so as to hold their shares of U.S. demand.

Held back by concerns borne of these orthodoxies, however, governments are not spending with passionate purpose. They are victims of intellectual paralysis borne of inertia of dogma that, in the

present circumstances, do not apply. As a result, their acting responsibly relative to orthodoxy and going forth with austerity may drag economies down the vortex of deflation and depression.

The importance of fiscal expansion and the impotence of conventional monetary policy measures in a liquidity trap have profound implications for the conduct of central banks. This is because in a liquidity trap, the fat tail risk of inflation is replaced by the fat tail risk of deflation. In turn, the fatness of the deflation tail is a function of the government's willingness and ability to pump-prime, i.e. to borrow and spend.

For central banks, this is a game changer.

Quoting **Chairman** Bernanke from his **Governor** days from a lecture to the Bank of Japan in 2003, "…the role of an independent central bank is different in inflationary and deflationary environments. In the face of inflation, which is often associated with excessive [government borrowing and] monetization of government debt, the virtue of an independent central bank is its ability to say "no" to the government. [In a liquidity trap], however, excessive [government borrowing] and money creation is unlikely to be the problem, and a more cooperative stance on the part of central banks may be needed."

In other words, in a liquidity trap the central bank's role changes from one of policing the government to keep it from borrowing too much, to one of helping it to borrow and invest by targeting to keep long-term interest rates low by monetizing debt, with the aim of killing the fat tail risks of deflation and depression. Such "**cooperation between the monetary and fiscal authorities […] could help solve the problems that each [authority] faces on its own**" – argued then Governor Bernanke - which are no willing borrowers in the case of central banks and fear of higher rates due to stimulus in the case of governments.

The concept of fiscal-monetary cooperation also defies orthodoxies but, in the topsy-turvy world of liquidity traps acting irresponsibly relative to orthodoxy and central banks facilitating government borrowing will do more good than harm.

Critics invoke the orthodoxy that printing money is inflationary. But in a liquidity trap it is not. Money is as money does, and judging from the trillions in excess reserves on banks' balance sheets, money isn't doing anything. Printed money is unlikely to become inflationary until after the private sector has finished deleveraging and is bidding for funds again.

Critics also note that fiscal-monetary cooperation means a loss of central bank independence, which is bad – another widely-held orthodoxy. Yes, it means less independence, but no, that is not bad. To continue with the Chairman's words: "Under the current circumstances [of a liquidity trap], greater cooperation for a time between the [monetary] and the fiscal authorities is in no way inconsistent with the independence of central bank[s], any more than cooperation between two independent nations in

pursuit of a common objective [or, for that matter, cooperation between central banks and fiscal authorities to facilitate war finance] is inconsistent with the principle of national sovereignty."

Despite the fact that **Governor** Bernanke's observations perfectly apply to the U.S. today, we do not hear **Chairman** Bernanke repeat them in his public remarks. That is understandable as he is now Chairman of the Federal Reserve, operating in the real world where out-of-the-box thinking is welcomed only when in-the-box-thinking is proven manifestly wrong or ineffective. His job is not easy. He is living and working in an arena where, in the words of Keynes "worldly wisdom teaches that it is better for reputation to fail conventionally, rather than to succeed unconventionally."

Historically, fiscal-monetary cooperation has been typically imposed on central banks by governments taking away central banks' independence and ordering them to monetize deficits or to facilitate war finance at low interest rates. The problem has usually been profligate governments and unwilling central banks.

In the present circumstances, however, the problems are austere governments, while central banks know all too well that someone must borrow and spend to avoid a depression. The problem for central banks currently is not to protect their independence, but to help governments let go of their fears of false orthodoxies that hold them back from borrowing and investing.

The political alchemy necessary is for independent central banks to telegraph their cooperative intent and create an environment, by keeping long-term interest rates low via monetizing government debt, that gives governments the license to borrow.

Looked at from this perspective, **the Federal Reserve's recent decision to reveal its forecasts to keep short-term interest rates near zero through 2014 was a step toward fiscal-monetary cooperation**, in addition to prior steps of quantitative easing and ongoing calls by the Fed for more near-term fiscal stimulus,[3] and very much in line with Governor Bernanke's advice to Japan.

The Fed's new communication strategy is an open invitation addressed to the government to act irresponsibly relative to orthodoxy and take advantage of low rates and borrow for as long as the private sector is deleveraging. It is also a politically savvy way for an independent monetary authority

[3] Although the Fed's new rate forecasting regime does not quite yet amount to a long-term interest rate targeting framework – which for innately profligate fiscal authorities is the ultimate license to borrow - it is somewhat similar to the framework of bond-price pegging that occurred during the years before the Federal Reserve-Treasury Accord of 1951. Prior to the Accord, which freed the Fed from the reponsibility of having to fix yields on government debt, the Fed maintained a ceiling of 2½ percent on long-term Treasuries for one decade by enforcing a ceiling on the yields of short-term Treasuries. "The Fed was able to achieve these low rates despite a level of outstanding government debt (relative to GDP) significantly greater than we have today, as well as inflation rates substantially more variable. This supports the proposition that a sufficiently determined Fed can successfully peg or cap Treasury bond yields at other than the shortest maturities" (Bernanke, 2002).

to act irresponsibly relative to orthodoxy and effectively subordinate itself to the fiscal authority – without actually saying it so.

However, the government has yet to "get" this open invitation.

Revealing the Fed's short-term interest rate forecast also marks the end of a 30-year era of the Federal Reserve's "tussle" with the U.S Treasury under Chairmen Volcker and Greenspan to reign in budget deficits and discipline the profligate tendencies of the fiscal authority, and the fiscal authority having to guess how the monetary authority would react to its fiscal policy decisions. The decades-long era of Sargent and Wallace's "Unpleasant Monetarist Arithmetic" (1981) is over. The era of "Unpleasant Keynesian-Minsky Logic" (McCulley (2010)) has begun.

Underwater mortgages are the root cause of private sector deleveraging in the U.S. and fiscal-monetary cooperation can help not only to "macro-manage" the private deleveraging process but also to speed it up and expedite the reverse Minsky journey.[4]

For government-guaranteed mortgages, the taxpayer is on the hook for losses one way or another, and recasting these through **principal reduction** is a fairly straightforward way to speed up deleveraging, at least conceptually. However, the fiscal authority has been resisting such measures on political grounds.

Still, the monetary authority has been a proponent of principal reduction![5] Similar to the new rate forecasting regime, **the advocacy of principal reduction is another example of the Federal Reserve openly endorsing fiscal-monetary cooperation** and Chairman Bernanke quietly following Governor Bernanke's advice.[6]

Principal reduction would amount to fiscal-monetary cooperation because if the fiscal authority followed the Fed's advice and treated Fannie Mae and Freddie Mac as part of the government's consolidated balance sheet - and called on their conservator to stop looking after the GSE's private shareholders and minimizing their losses as its primary objective – if there was a wholesale refinancing of mortgages, the Fed would only be prepaid **par** on the mortgage-backed securities that it had bought at a **premium**.

[4] See McCulley, May 2009, "The Shadow Banking System and Hyman Minsky's Economic Journey," PIMCO: Global Central Bank Focus.

[5] See for example the Federal Reserve's white paper on housing, recent speeches here and here by New York Fed President Dudley and President Dudley's comments on housing in recent interview with the Financial Times.

[6] Our interpretation of Ben Bernanke at the zero bound is quite different from that of Ball (2012) who argues that during his evolution as a policymaker over the past decade, Professor Bernanke and then Governor Bernanke changed his mind about what is feasible to do at the zero bound. We do not think that a volte-face ever took place and that Chairman Bernanke – as our analysis suggests - is still an advocate of fiscal-monetary cooperation. It's just that his hints have been more subtle due to the optical challenges at hand.

In this sense, the Federal Reserve is essentially advocating policies that would inflict losses on its balance sheet, which would reduce the seigniorage revenues[7] that it transfers monthly to the U.S. Treasury and increase the deficit (see Figure 1).[8] In other words, by advocating principal reduction, the Fed is implicitly assuming a fiscal role for itself. And that is very good indeed as it is a policy mindset that is all but orthodox!

However, similar to the Fed's invitation for the fiscal authority to act responsibly relatively to orthodoxy and borrow and invest, the Fed's advocacy on principal reduction has yet to be heard by the fiscal authority. As New York Fed President Dudley remarked in a recent interview, "the power of monetary policy is … impaired … and [the Fed is] trying to basically convince [the fiscal authority] … to do things here [to promote a faster recovery]. There are feasible things that we can do … that can be successful [but] it's not in [the Fed's] power to do these … but we can … provide … advocacy [and cooperation] that makes [the government] more comfortable that this is the way to go."[9]

The "de-orthodoxing" of the balanced budget, crowding out, neutrality of money, and sanctity of central bank independence dogmas are essential ingredients for solutions to a liquidity trap. Even though it may seem irresponsible to discard age-old textbook orthodoxies, a review of economic history suggests that acting irresponsibly relative to orthodoxy periodically is not that unusual and can work. It also suggests that holding on to orthodoxies in circumstances where they no longer apply can do significant damage and may lead down the path of depression.

Instructive cases are: the world's slide into the Great Depression in the late 1920s, solving the depression, and Japan's lessons from its post bubble economy and lost decades.

The first case is instructive in demonstrating how fiscal and monetary orthodoxies can backfire if they are held too religiously in a world in which they no longer apply. The second is instructive in demonstrating how acting irresponsibly relative to fiscal and monetary orthodoxies can work. The third is instructive in demonstrating how not acting consistently irresponsibly and irresponsibly enough relative to orthodoxies can lead to relapses into recessions with costly consequences.

We draw two lessons from history. First, the lesson of the 1930s was that orthodoxies are never abandoned by central banks and fiscal authorities voluntarily: **when orthodoxies were in conflict with democracy, orthodoxies were overruled** by elections and political decisions. Second, the lesson of post-bubble Japan is that even if fiscal orthodoxies are boldly abandoned and depression is expertly

[7] Seigniorage profits arise as a result of the Federal Reserve holding long-term bonds and funding them by issuing "money" at a cost of effectively zero. The revenue earned from this "carry" minus the Fed's operating expenses are its seigniorage profits (for more, see Buiter, 2007).

[8] Mechanically, the Treasury would allow the Fed to not pay any seigniorage profits until it recouped the losses related to prepays at par. This would mean the Fed would accrue its seigniorage revenues for a while and use the accrued profits to purchase Treasuries and thereby monetize government debt.

[9] Calls for US taxpayers to bear housing costs, Financial Times, Jan 8, 2012.

averted, sustaining large fiscal stimulus in peacetime is rather difficult in democracies on political grounds.

These cases hold important lessons for fiscal and monetary authorities and their governments in the U.S., the U.K. and the Eurozone today. They point to frequent changes in government, whether for holding on to orthodoxies or boldly leaving them, and inevitably, a loss of independence of central banks that are fiercely orthodox and uncooperative with the fiscal authorities.

For Fed communication at the zero bound evidence points to the conclusion that the U.S. is in a liquidity trap, that monetary policy is currently ineffective, and that the only road to recovery is through fiscal stimulus aided by fiscal-monetary cooperation. Fiscal and monetary authorities need to view their balance sheets as a consolidated whole and jointly lever them. The Fed should buy Treasuries to keep the costs of fiscal expansion low for as long as private deleveraging continues. Without a willing fiscal partner, unconventional monetary policy will likely not work. The fiscal and monetary authorities need to make this explicitly clear to the public and act accordingly.

In addition, fiscal-monetary cooperation in a liquidity trap also implies that in a fiat currency system, debt sustainability and default risks are a function of central banks' willingness to monetize sovereign debt. In the special cases of liquidity traps, standard definitions of debt sustainability should not be applied, for if they are, they would risk imposing a straitjacket on essential fiscal stimulus without which deficits would be even greater and debt loads even more unsustainable.

Our paper has six remaining sections. Section II discusses the anatomy of liquidity traps, the economic theories that aim to solve liquidity traps, and why discarding economic orthodoxies are necessary prerequisites for solutions to a liquidity trap. Section III, IV and V discuss historical cases where policymakers acted responsibly, irresponsibly and half-heartedly irresponsibly relative to orthodoxy and the consequences of their policies. Our review covers the cases of Germany, France, Great Britain and the U.S. during the global interwar gold standard, and the case of post-bubble Japan during the 1990s and 2000s. Section VI discusses the life-cycle of central bank independence in the case of the Fed and in the context of the U.S.'s private debt super-cycle. Finally, Section VII concludes.

Section II – The Anatomy of Liquidity Traps

The classic definition of a liquidity trap is: "a situation in which conventional monetary policy becomes impotent because the short-term, nominal interest rate reaches the zero lower bound" (see Keynes (1936), Krugman (1998) and Eggertsson (2006)).

Liquidity traps typically arise after the burst of debt-fuelled asset-price bubbles. After bubbles burst, asset values decline but the debt that financed them does not; debt – an inflexible and unforgiving form of financing - must still be paid in full.

Falling asset prices and inflexible debt reduce the private sector's net worth and private agent's ability and willingness to borrow and spend in a self-reinforcing, negative cycle.

Ability to borrow declines as lenders re-evaluate the debt limit that they perceive private borrowers can safely be subject to given borrowers' diminished, post-bubble net worth and incomes.

Revisions to debt limits follow the Minsky moment and mark the beginning of the reverse Minsky journey (see McCulley (2009)).

Willingness to borrow declines as borrowers re-evaluate the level of debt they can comfortably service and the savings required out of diminished current incomes to rebuild net worth.

If the resultant deleveraging – compelled by lowered debt limits or impelled by a perceived need to save more – is large enough, short-term interest rates may get pushed up against the zero lower bound in order to stimulate credit demand and activity, but in vain. This is because demand for credit has now become flat to negative, inelastic to even zero nominal interest rates.

Demand for credit is inelastic because on net, the private sector is deleveraging, deeply engaged in balance sheet repair.

Deleveraging may be voluntary - corresponding to a reduced willingness to borrow, or involuntary - corresponding to a reduced ability to borrow, but their economic impact is the same. This is because involuntary deleveraging - whether through defaults, reduced credit lines or lacking fundamentals to borrow - shuts willing borrowers out of the credit system, which is the equivalent of reduced willingness to borrow due to increased propensities to save to pare debt and rebuild one's net worth.

Increased private sector savings and dormant borrowing lead to leakages in the economy's income stream, as one sector's spending - whether funded by incomes or financed by borrowings - is another's income. These leakages make aggregate demand consistently fall short of the economy's aggregate supply potential; dynamics of the paradox of thrift forcefully emerge.

If mismanaged, such episodes of deleveraging generate enduring economic slack - in the form of unemployment and underemployment – which, in turn, generate enduring deflationary pressures. These put an upward pressure on real interest rates even with nominal rates at the zero bound and raise the risk of depression

Based on the deleveraging -> slack -> deflation vortex of liquidity traps described above – which we base on a review of the two classic cases of liquidity traps in the U.S. and Japan - a more descriptive definition of a liquidity trap may read that:

(1) Liquidity traps typically occur after the burst of debt-financed asset price bubbles and subsequent collapses in private sector net worth, which…

(2) …typically lead to post-bubble deleveraging that renders demand for credit inelastic to even zero nominal interest rates and thus, conventional monetary policy ineffective. Deleveraging depresses private sector cash flows and demand, which…

(3) …typically leads to chronic and enduring shortfalls in aggregate demand and incomes, and lead to enduring slack in the form of stubbornly high unemployment. Such macroeconomic backdrops…

(4) …if mistreated, may lead to fat tails of deflation replacing fat tails of inflation, Fisherian debt-deflation and ultimately, economic depression.

Solutions to liquidity traps are subject to considerable debate as they do not occur frequently and are not widely experienced. Clues as to what **may** work are only available from the case of the U.S. from the 1930s and the case of Japan from the 1990s.

There are two views as to how to "solve" a liquidity trap: the classic, Keynesian view and the modern, "expectations" view.

The Keynesian view maintains that once the money supply has been increased to a level where the short-term interest rate is zero; there will be no effect on output or prices no matter how much money supply is increased. According to the Keynesian view, fiscal pump-priming – as opposed to increasing the money supply - is the right solution to increase output in a liquidity trap.

The modern view maintains that to the extent that central banks can credibly commit to higher nominal money growth and thus higher inflation in the future, they could increase inflation expectations and so reduce future expected real interest rates and hence stimulate new borrowing and growth today. In other words, the modern view argues that monetary policy is far from being ineffective in a liquidity trap and at the zero bound; it's just that it works through its impact on inflation expectations. Thus, the Keynesian liquidity trap is only a **true trap** if central banks cannot stir expectations (Eggertsson 2006)

Importantly, however, the literature that defines the modern view relies on models where all agents are alike and inflationary expectations lead to an increased willingness to borrow at negative real rates by everyone in every sector (see for example Krugman (1998) and Eggertsson and Woodford (2003)).

No assumptions are made for situations that we stress in our definition, namely, where some sectors are debt constrained relative to others which is the case in western economies today.

Koo (2009) identifies voluntary deleveraging as a factor that could hold back credit demand even at negative real rates, and McCulley (2010) reminds us of the arithmetic tyranny of the financial balances approach of Godley (2009) and its implications when the private sector is deleveraging. More recently, Krugman and Eggertsson (2010) model an economy in a liquidity trap with debt-constraints. All conclude that negative real rates may **not** be a sufficient solution to a liquidity trap, as a hangover of excess debt may inhibit new private borrowing.

Thus, to put a spin on the claim of the modern view that a liquidity trap is only a **true trap** if central banks cannot stir inflation expectations, the modern solution to a liquidity trap may only be a **true solution** in a world without debt constraints!

Consider, for example, the monetary authority's impotence to spur growth in a liquidity trap: a central bank can lower short-term rates to zero and reduce term premia and credit spreads through asset purchases, but if the private sector is deleveraging, lower rates are unlikely to help credit demand and growth. As noted by the Chairman and Governor King, there are limits to what monetary policy can be hoped to achieve. Central banks cannot spur growth by lower rates alone. **Someone has to borrow**.

Similarly, the fiscal authority may not decide to increase borrowing and spending out of orthodoxical concerns of dynamics of Ricardian equivalence, crowding out, and rising yields in case of a buyers' strike. Fiscal authorities will not borrow without such fears being allayed; **they need a license to borrow**.

If the private sector does not borrow even at zero interest rates due to deleveraging, and the public sector does not fill the void out of orthodoxical concerns of its own fiscal state, the paradox of thrift would forcefully emerge and the economy quickly succumb to the deleveraging -> slack -> deflation vortex that is typical of liquidity traps and that leads to depression.

Under such circumstances, "**cooperation between the monetary and fiscal authorities […] could help solve the problems that each [authority] faces on its own**"[10] which are (1) no willing borrowers in the case monetary authorities and (2) fear of the effects of bold borrowing in the case of fiscal authorities.

Consider, for example, the case of debt-financed fiscal stimulus that is explicitly coupled with incremental purchases by the monetary authority of government debt on secondary markets, so that

[10] Bernanke (2003)

the stimulus is in effect financed by printing money, as well as a long-rate pegging framework – similar to that which existed during WWII and until the Treasury-Fed Accord in 1951 – **anchored by an explicit forecast of short-rates out over years**.

In such a case, the government's concerns about the outstanding stock of debt are mitigated as the quantity of debt in the hands of the public would remain unchanged and debt-to-GDP ratios would not rise. Moreover, by replacing interest-bearing debt with money, central bank purchases of government debt would lower current deficits and interest burdens and thus expectations of future tax obligations. The fiscal authority's Concerns of Ricardian equivalence, crowding out and rising rates would be allayed, and the monetary authority's problem would also be solved in that the government would help repair the broken monetary transmission mechanism by becoming the willing borrower to take advantage of low rates and borrow and invest.

Thus, a debate on whether fiscal or monetary policy is effective in a liquidity trap misses the point, as both **may** face insurmountable hurdles when implemented in isolation. What is actually needed is a **cooperative leveraging of the fiscal and monetary authorities' balance sheets**, and for the authorities to essentially view their balance sheets in a **consolidated** way, and to explicitly make that clear to the public and act accordingly.

The problem with this prescription of course is that it goes against decades of deeply entrenched economic orthodoxies – that balanced budgets and central bank independence are always good and that monetary financing of deficits are always inflationary.

These orthodoxies do not apply in a liquidity trap, however, and adherence to them could end in deflation and depression. The following three sections offer a historical review of cases when policymakers acted responsibly, irresponsibly and half-heartedly irresponsibly relative to orthodoxy and their consequences which were depressions, recoveries and deep recessions, respectively.

Section III - When Acting Responsibly Relative to Orthodoxy Failed

The interwar gold standard offers two examples of adherence to central bank orthodoxies gone wrong. One was Britain's decision to return to the gold standard at an overvalued exchange rate, and the other one was central banks' dogged pursuit of maintaining fixed exchange rates and adherence to the gold standard's orthodoxies even in the face of growing economic adversity in a world where neither the rules of the game nor the adjustment mechanisms of the pre-WWI gold standard applied.

Building on the works of Eichengreen and Temin (2000), Bernanke (2004), and Ahamed (2009) this section recounts how central banks' adherence to the gold standard's orthodoxies became the cause

of world depression in the 1930s. The attuned reader will note parallels between this episode and the Eurozone's travails.

III.1 - The Classical Gold Standard: 1870-1914

Between 1870 and the onset of WWI in 1914, the global economy operated under the gold standard, a system of fixed exchange rates where central banks stood ready to buy and sell gold in exchange for their respective paper currencies at a fixed price. The pound and the Bank of England were the center of the system.

The "classical" gold standard – as the period came to be known - fostered an unprecedented expansion in global trade and capital flows and enjoyed remarkable stability. Commitment to the orthodoxies of the system was so strong that investors did not doubt central banks' ability or willingness to maintain the gold value of currencies; speculators had few incentives to attack.

Under the orthodoxies of the gold standard, government balances were limited to narrow bounds and credit booms had only a limited room to develop, as supplies of money and credit depended on the quantity of monetary gold held by central banks.

The policy mechanics of the standard were "automatic" and were aimed at maintaining fixed exchange rates and the international balance of gold payments; economic conditions were a "residual".

If a country lost gold to the rest of the world, orthodoxies would dictate that flows could only be reversed and fixed exchange rates maintained by contracting money supplies and credit. This would depress activity and prices - the largest component of which were wages - until balance was restored.

Thus, on the flipside of the classical gold standard's decades of stability and smooth functioning were the periodic cycles of deflation, wage cuts and recession engineered by central banks adhering to the standard's orthodoxies. The wage adjustments at the very core of the standard's stability typically happened smoothly as the laboring class could not make its opposition felt.

This was because voting rights were limited, unionism was restricted and socialist and labor parties were still in their infancy[11]. The laboring class simply did not have the organizing means to stand up en masse against the orthodoxies of the gold standard that ensured financial stability for the rentier class.

During WWI the orthodoxies of the "classical" gold standard – the maintenance of a balance between gold, money and credit – were suspended and central banks' independence was subordinated to the

[11] Eichengreen and Temin (2000)

war effort. Suspension was necessary so that countries had the monetary flexibility to finance the war: governments issued bonds to their central banks, which gave them money in return. Every major country was involved in inflationary war finance. As a result, over the six years between 1914 and 1920, consumer prices rose by 100 percent in the U.S., 150 percent in Britain, 250 percent in France, and by 900 percent in Germany.

III.2 - The Return to the Gold Standard: 1918-1928

After WWI, central banks won back their independence and were united in their efforts to restore the gold standard without delay and with the aim of restoring pre-war economic stability and prosperity. Return to gold was difficult, however, as war finance increased money supplies dramatically while the world supply of gold did not increase much. This left two choices.

One was to contract money supplies and deflate prices and wages to reestablish the pre-war exchange rate parities. This was painful for the laboring class but was in line with the gold standard's orthodoxies and the interests of the rentier class.

The other was to let go of orthodoxies and devalue, or raise the price of gold, at the stroke of a pen. this was relatively painless for the laboring class but "to a [rentier class] reared on the strictures of the gold standard, devaluation was viewed as a disguised form of expropriation, a way of cheating investors and creditors out of the value of their savings".[12]

A return to gold by all major countries was ultimately achieved by the mid-1920s, but the process of return was not uniform across countries. Some returned easily, some with foreign help, some by sticking to the gold standard's orthodoxies but amidst intense moral debates and terse protests by the laboring class, and some by leaving orthodoxies at the cost of the rentier class.

Thus, the U.S. returned to gold in June 1919 at the pre-war parity with relative ease, as gold flight from Europe during the war more than offset the increase in U.S. money supply and prices.[13] Following a short, but deep recession in 1921 the Fed raised rates to 7 percent to reverse the price increases of 1919 and 1920 when pent-up consumers went on a post-war buying spree. Afterwards, the U.S. enjoyed eight years of growth and moderate inflation.

[12] Ahamed (2009)

[13] Technically speaking, the U.S. never left the gold standard. It maintained its exchange rate in terms of gold during WWI, but it suspended gold convertibility during the war. Once the war was over, convertibility was restored. This is what is meant by the U.S.' "return" to the gold standard.

Germany returned to gold in September 1924, also at the pre-war parity, but only with the help of the Dawes Plan and after a policy of systemic inflation to protest against the debt load of reparations and the French occupation of the Ruhr in 1923 (see Appendix 1). The cornerstone of the Dawes Plan was a gold loan syndicated by banks in New York to provide sufficient gold reserves to the Reichsbank to kick-start the German economy. This marked the beginning of a five-year period of capital (that is, gold) exports by U.S. banks to Germany, which financed a lending boom, recovery and currency stability. Once the gold standard was re-established, Reichsbank President Hjalmar Schacht was fully committed to its orthodoxies and saw stable exchange rates as a prerequisite for a stable economy. However, due to Germany's reparations obligations - and the annual gold outflows these required - the economic and exchange rate stability of Germany was dependent on ongoing U.S. gold exports.

Britain was next to return to the gold standard in May 1925, also at the pre-war parity. However, unlike the U.S., where return to gold was effortless, and Germany, where return to gold was the only hope to monetary stability, Britain's return was the result of years of moral debate between the laboring and rentier classes.

Immediately after WWI ended in 1918, the Cunliffe Committee recommended that Britain, in order to restore economic stability, get back to the gold standard at the pre-war parity "without delay"[14]. However, this required reducing prices toward U.S. levels – where prices increased the least during the war –such that British exports could again compete in world markets.

This required wage deflation, but the government was unwilling to reduce wages on soldiers returning from the war and postponed the decision. That said, the Bank of England managed to deflate the economy in 1920 and 1921 with prices falling by some 50 percent from their postwar peak, but this was not enough. Prices were still too high relative to the U.S. for Britain to compete.

Despite an ongoing regime of high interest rates and mass unemployment, prices refused to fall further and remained about 10 percent too high relative to the U.S. through 1924. Growing unionism and newly introduced minimum wages limited how far deflationary policies could go. The gold standard's orthodoxies no longer worked as they used to as labor market flexibility was changing. The elite was split on the way forward.

One group, led by John Maynard Keynes, argued that the Bank of England should abandon its efforts to deflate in order to re-attain the pre-war exchange rate. They argued for a devaluation of the pound to help adjust for the loss of Britain's competitiveness. The other group, led by Montagu Norman, the Governor of the Bank of England, was pressing for a return to gold at the pre-war exchange rate, which they saw "as a moral commitment on the part of the British nation to [its rentier class] and those

[14] Eichengreen and Temin (2000)

around the world who had placed their assets, their confidence, and their trust in Britain and its currency."[15]

In November 1924 a Conservative government led by Stanley Baldwin – a close friend of Governor Norman – came to power, and Winston Churchill was appointed Chancellor of the Exchequer. Soon after, the pound rose toward its pre-war parity on speculation that the new government would soon re-peg to gold at the pre-war parity as Germany did just two months before.

This speculation occurred against a backdrop of increasingly terse labor protests against further wage cuts, to which Baldwin's response was that "all the workers […] have got to take reductions in wages to help put industry on its feet"[16]. Protests were getting especially terse in the coal industry where the recommendations of the Royal Commission on the Coal Industry that "the immediate reduction in working costs […] is essential to save [the industry]"[17] sparked a series of strikes.

Resistance to rejoin the gold standard was strong by early 1925 and Churchill himself was not convinced of the merits to re-join. He worried that "while the return to gold was in the interest of City financiers, it might not be equally in the interest of the rest of Britain, "the merchant, the manufacturer, the workman, and the consumer""[18] and remarked that "the Governor of the Bank of England shows himself perfectly happy with the spectacle of Britain possessing the finest credit in the world simultaneously with [millions] unemployed."[19] In the end however, and in no small part out of tactful respect for the friendship between Norman and the Prime Minister and pressure from orthodox economic opinion, Churchill decided to re-peg the pound to gold at the pre-war parity on April 28, 1925. He would later regard this decision as the greatest mistake of his life.

The decision shackled the economy with an overvalued pound and high interest rates for the rest of the decade, with Britain struggling with weak domestic demand and on world markets. This condemned the British balance of payments to a fragile state and ongoing demands for wage cuts led to the general strike in 1926. "In the Economic Consequences of Mr. Churchill, Keynes had railed against the social injustice of a policy where miners were […] "the victims of the economic Juggernaut" [and bore the brunt of the] fundamental adjustments engineered by the Treasury and the Bank of England to satisfy impatience of the City fathers to bridge the moderate gap between $4.40 and $4.86"".[20]

France was last to return to gold in June 1928. Similar to Germans, who refused to balance the budget and check inflation so they could convince the Allies that their reparation payments should be lowered,

[15] Ahamed (2009)
[16] Barnes (1969)
[17] Eichengreen and Temin (1995)
[18] Ahamed (2009)
[19] Ahamed (2009)
[20] Ahamed (2009)

the French also refused to reduce spending and balance their budgets to demonstrate that German reparations were indeed necessary for France to rebuild and get back on her feet economically. When Germans defaulted on reparations, Premier Poincare occupied the Ruhr in 1923 to extract reparations by force; this led the Germans to resort to passive resistance (see Appendix 1). As reparation payments stopped coming in, the Banque de France resorted to printing money to fund the deficit, which resulted in a traumatic bout of inflation in 1924-26. Inflation was checked and the franc was stabilized in August 1926 and was re-pegged to gold 80 percent below its pre-war parity in June 1928. A key consideration behind the lower rate was to "[set] French prices below world prices and thus facilitate the life of country"[21]. An undervalued franc and high real interest rates lead to strong exports and low unemployment and massive gold inflows on both the current and capital accounts of France.

France chose a path that was the opposite of that of Britain. It let inflationary bygones remain bygones and chose to devalue the franc at the cost of its rentier class, as opposed to Britain's path of deflation and re-pegging the pound at the pre-war exchange rate at the cost of its laboring class. The economic consequences of rejecting and adhering to orthodoxies, respectively were striking, with France growing firmly and becoming the world's gold sink and Britain limping along for the rest of the decade and struggling to maintain her gold reserves.

III.3 - Following Orthodoxies and its Consequences: 1928-1931

Maintaining the reconstructed gold standard between an overvalued pound, an undervalued franc and a mark dependent on ongoing U.S. capital exports was a tough balancing act since the reconstructed system lacked the flexibility and balancing mechanisms of its predecessor. Fragility had the following two main sources.

First, while the logics of the gold standard were still binding on deficit countries, there were no rules of the game that obligated gold surplus countries to monetize their surpluses. The sterilization (or lack of monetization) of gold inflows disarmed the inflationary leg of the standard's rebalancing mechanism (see Eichengreen, 1992, Bernanke and Mihov, 2000 and Irwin, 2010); sterilization was followed by France and the U.S.

Second, increasingly widespread unionization, extended voting rights and the improving stature of parties representing the laboring class inhibited the downward wage adjustments that were an essential requisite of rebalancing in deficit countries, disarming the deflationary leg of the standard's

[21] Moure (1996) and Eichengreen and Temin (2000)

rebalancing mechanism (see Eichengreen and Temin, 2000 and Bernanke, 2004). Wage adjustments were especially hindered by strikes in Britain.

This meant that the imbalances and dependencies present in the reinstated system were bound to persist and grow from the outset.

Yet, by committing central banks to the stubborn pursuit of maintaining fixed exchange rates in a world where the rules and the adjustment mechanisms of the pre-WWI gold standard no longer applied, the orthodoxies of the interwar gold standard ended up limiting central banks' ability to respond to adversity and became the key reason for the onset of the Great Depression.[22]

A destabilizing impulse was delivered to the system when the Fed hiked interest rates in 1927-28 in response to stock market speculation. Under the fixed exchange rates of the gold standard, higher rates in the U.S. also meant higher rates elsewhere. Had rates not gone up elsewhere, other central banks would have suffered gold outflows which they could not afford.

With higher interest rates at home, the United States' foreign lending declined, net gold exports reversed, and Germany's gold reserve position – ever dependent on ongoing U.S. gold exports - began to deteriorate. Germany raised rates in response but in vain. Britain also raised rates, but against increasingly intense political opposition and labor unrest, which speculators responded to by selling the pound and draining British gold reserves. Tight fiscal and monetary policies were continued in both Germany and Britain to maintain exchange rates and reserves even as the recession deepened and joblessness continued to rise.

France – with an undervalued exchange rate and high real interest rates – and the U.S. were the main recipients of the gold outflows from Germany and Britain, but without monetizing them. As such, they failed to offset to the intensifying recessionary trends and deflationary impulses in other countries.

1929 was a turning point as this was the first year when the U.S. and France absorbed the expansion in the world's new gold supply on net (see Irwin, 2010). By definition, this forced higher interest rates and monetary contraction in all other nations on the gold standard in the world, and marked the onset of a deflationary spiral that dragged the world into depression.

Paraphrasing Eichengreen and Temin[23]: "contemporary central bankers could not break out from the intellectual straitjacket of the [gold standard's orthodoxies] - for them, it was inconceivable that the source and solution to the deepening depression […] were adherence to and the abandonment of the gold standard, respectively. To them, maintaining fixed exchange rates were the cure to economic woes, and direct measures to help the economy – [via increased spending, lower interest rates or

[22] Eichengreen and Temin (2000)
[23] Eichengreen and Temin (2000)

lower exchange rates] – were expected to fail." As history would have it, however, it wasn't direct measures, but acting in line with the standard's orthodoxies that ultimately failed.

Section IV - When Acting Irresponsibly Relative to Orthodoxy Worked

As long as the gold convertibility of a currency remained the main policy objective of governments and their central banks, stimulative fiscal and monetary policies were off the table as they would have led to balance of payment deficits, reductions in gold reserves and a rapid loss of confidence in currencies.

Expansionary policies could not be implemented anywhere without the abandonment of the gold standard and its orthodoxies. In fact, as history would have it, the earlier a country departed from the standard the faster it ended its depression (see Bernanke, 2004)

Countries broke with the orthodoxies of the standard for different reasons. Some were forced by markets and political upheaval, some had bold leaders that chose to, and some had no choice but to let go and adapt to a changed world around them.

Once orthodoxies were broken with, fiscal and monetary policies were free to be applied more aggressively. This section reviews the circumstances that led major economies to leave the gold standard in the 1930s and the unorthodox fiscal-monetary policy mixes they applied to end a depression that was ultimately a result of adhering to fiscal-monetary orthodoxies of the times.

We find that monetary and fiscal stimulus were both important in the recovery of all major economies (Britain, the home of Keynes was the only country not to apply fiscal stimulus during the 1930s) and that in no case were orthodoxies abandoned by central banks voluntarily. When orthodoxies were in conflict with democracy, orthodoxies were overruled by political decisions!

IV.1 - Germany

Under the grip of the orthodoxies of the gold standard, economic conditions in Germany were desperate by early 1931. As the economy collapsed into depression, tax receipts fell and expenditures were rising. Deficits rose and chancellor Bruning continued to administer, by decree, the customary gold standard orthodoxies of tax increases and spending cuts. These included: tightening eligibility for unemployment compensation and reducing payments for the unemployed, increases in workers'

contribution to the unemployment insurance fund, and cuts in government spending, salaries and inter-governmental transfers.

While these orthodoxies were helpful to secure loans to finance the deficit, they failed to improve economic conditions and the budget balance in subsequent quarters. By May 1931, fights within the Reichstag and within the government on how to close the deficit were becoming increasingly terse. Civil unrest and public protests against further budget cuts intensified by the day and the Minister of the Interior warned that "he could no longer guarantee the maintenance of order [on the streets]".[24]

Still, with the international loan market closed to Germany since March due to a politically sensitive proposal of a customs union with Austria, Bruhning had no other option but to announce still more budget cuts on June 5th. However, to make the new austerity measures politically sellable at home, he tore up reparations agreements and announced that "the limit of privations that we can impose on the nation have been reached" and that Germany had to be "relieved of its intolerable reparations obligations". Reparations payments were officially suspended on June 6th.[25]

Only weeks after the May 11th default of Creditanstalt in Austria, the suspension of reparations unnerved investors and was interpreted as a precursor to Germany's general inability to pay all its debts. A run on the reichsmark ensued. It did not help sentiment that despite the "sweetener" of a moratorium on reparations, all parties vehemently opposed the freshly announced budget cuts. Nazi and Communist agitation continued to intensify and the Defense Minister "claimed to see revolution around the corner." Ultimately, the budget went through, but this was of little help to stem the run on the mark, which depleted the Reichsbank's gold reserves from $700 million in May to $350 million in June and threatened a breach of the currency's legally mandated gold backing. To stop the hemorrhaging, controls were imposed on the mark on July 13th.

Although Germany never officially left the gold standard, it technically did, as the cross-border purchase and sale of the reichsmark was no longer allowed. Leaving the gold standard was not feasible for political reasons. With the trauma of hyperinflation from a decade ago still fresh, abandoning the gold standard would have unleashed further public angst. Therefore, the government continued on with policies that further compressed spending in adherence to deflationary orthodoxies. For example, Bruning famously issued a decree reducing all prices in December, despite exchange controls already in place.

These orthodoxies ultimately cost Bruning his office in May 1932 and paved the way for the Nazis – who ran an election platform that decried every tenet of the gold standard's orthodoxies – to become

[24] Ferguson and Temin (2001)

[25] France and Britain agreed to forgive all reparations in May 1932. Of the original $32 billion demanded, later reduced to $12 billion, France and Britain ultimately managed to collect a mere $4 billion (see Ahamed, 2009).

the largest party in the Reichstag with 230 seats, and for Adolf Hitler to become chancellor in January 1933.

Hitler's objectives of higher employment and rearmament were left to the President of the Reichsbank, Hjalmar Schacht, to achieve, who violated all economic orthodoxies of the time to meet those ends. Schacht turned Germany into a closed economy with strict import controls and deficit spending by the government was financed by printing money. To anchor fears of inflation Schacht continued with the policy of keeping the mark officially on the gold standard. Although, technically, the mark remained off the standard during the 1930s as exchange controls remained in place and there was no gold left to back reichsmarks.

Fiscal stimulus worked (see Cohn, 1992). Unemployment fell from 6 million in 1932 to less than 500,000 by 1938, real GDP and industrial production doubled, and prices stopped falling. "It was a [skillful] experiment in what would come to be known as Keynesian economics before Keynes had elaborated his ideas."[26] In the words of another observer "Hitler had found a cure against unemployment well before Keynes finished explaining it".[27]

Breaking with the orthodoxies of the gold standard was instrumental in Germany's recovery from depression, but this was ultimately forced by markets and desperate circumstances. The decisions to abandon orthodoxies were made on political grounds. To justify his actions under Hitler's command Schacht declared:

> *"The whole modern world is crazy. The system of closed national boundaries is suicidal […] everybody here is crazy. And so am I. Five years ago I would have said it would be impossible to make me so crazy. But I am compelled to be crazy."*[28]

IV.2 - Great Britain

Breaking with the orthodoxies of the gold standard in Great Britain was also forced by a mix of currency and political crises and was by no means a result of a bold, enlightened action on the part of policymakers. The pound was taken off gold unbeknownst to the governor of the Bank of England and the decision was made by the prime minister not the Bank of England.

[26] Ahamed (2009); Keynes's "General Theory" was finished by late 1935 and was published in February 1936. By that time, Germany was on its way to recovery.
[27] Robinson (1973)
[28] Ahamed (2009)

Crucial in the chain of events that ultimately led to taking the pound off gold was the publication in the Macmillan Report on July 13th, 1931 regarding the extent of the City's reliance on short-term financing. Since the pound's return to gold in 1925, Britain has been struggling with an overvalued exchange rate and balance of payment deficits. Unable to fully finance foreign lending with gold inflows from British exports, the City, still the leading financial center of the world, has been relying on short-term borrowing from abroad. Investors knew this, but not the extent.

The Macmillan Report revealed "that [Britain's] short-term external liabilities were much larger than its short-term external assets. Estimates of short-term external liabilities as of March 31st, 1931 were £407 million in deposits, bills and advances, plus £153 million in acceptances" (BIS, 2011). The new estimates were closer to £620 (Ahamed, 2009). The new estimates came as a shock to the City, as the Bank of England's gold reserves averaged only £100 million at the time. This news came on top of exchange controls introduced in Germany earlier in the month, affecting some £100 million in assets of the City's banks.

International investors started a run on the pound, which, during the second half of July led the Bank of England to lose a half, or $250 million of its gold reserves. The responses, following the orthodoxies of the gold standard, were rate hikes and budget cuts. When these measures and a $250 million gold loan from the New York Fed and the Banque de France failed in August, the British government turned to the U.S. and French governments for another loan. Gold loans to the tune of $400 million were secured, but in exchange for further budget cuts.

Like in Germany, planned budget cuts led to social unrest and the collapse of Ramsay MacDonald's government; a new government, still led by MacDonald, ultimately imposed drastic budget cuts including even the military. In response, "on September 14, a group of sailors of the Atlantic Fleet at Invergordon refused to muster and put to sea. [Although a minor incident,] it was reported in the foreign press as a mutiny, conjuring up the image that Britain was on the verge of revolution and that the last bastion of empire, the Royal Navy, was falling apart."[29]

The loans secured in exchange for budget cuts were not helpful either in stemming the run on the pound and on September 20, 1931, the prime minister was ultimately forced to suspend gold payments, taking the pound off gold. Governor Montagu Norman was not involved at all; he was seaborne on his way back from Canada. He heard the news upon his return on Wednesday, September 23. "As his friend [and former Prime Minister Stanley] Baldwin put it: "Going off the gold standard was for him as though a daughter should lose her virginity.""[30]

[29] Ahamed (2009)
[30] Ahamed (2009)

While the pound was now unfettered from the gold standard, Norman's mindset was still fettered to its orthodoxies.

Out of fear of uncontrollable inflation – at a time when prices in Britain were still **falling** – were the pound to fall too far, Norman raised the discount rate from 4½ percent in late 1931 to 6 percent by early 1932 leaving it there until the second half of 1932! A fiscal consolidation was also engineered to address Norman's concerns about rising inflation from a weaker pound. Norman ultimately came to his senses and cut interest rates to 2 percent in late 1932 and left it there for the rest of the decade.

Abandoning monetary orthodoxies was the key and only driver of Britain's recovery from the depression. The pound helped net exports and low rates helped investment in the residential, commercial and industrial sectors (Moggridge (1972), Howson (1975), Sayers (1976), and Dimsdale (1981)).

However, fiscal orthodoxies remained in place long after monetary ones were abandoned. Well into the second half of the 1930s, the modus operandi of fiscal policy was one where "authorities sought an *ex post* budget balance and, if *ex ante* this was threatened by a macroeconomic shock, they were prepared to override the automatic stabilizers to [balance the budget]. On this view, fiscal orthodoxy [during the recovery] equated to mere macroeconomic policy **destabilization**" (Middleton, 2010).

Unlike Germany, and as we later show for France and the US, Great Britain was the only major country that did not rely deficit spending to promote recovery from the depression. British fiscal policy was contractionary and beholden to orthodoxies until rearmament for WWII began in the late 1930s. Keynesian solutions were not applied in the birthplace of Keynes.

IV.3 - United States

Following German exchange controls in July and the collapse of the pound in September, market sentiment turned against the U.S. dollar, which many viewed as next in line for devaluation. A run on the dollar ensued, which later swelled into a run on banks. Following the orthodoxies of the gold standard, however, the Federal Reserve chose to ignore the plight of the banking system and raised interest rates in October 1931 to defend the dollar.

The dollar was successfully defended, but the economy fell deeper into depression. At the same time, following the balanced budget orthodoxies de jure, President Hoover was committed to eliminating deficits – which was a product of falling tax revenues, not spending increases - by raising taxes. He sponsored a bill that included massive tax increases (targeting primarily the rich) in late 1931 that

included an increase in personal income taxes from 25 to 63 percent, a doubling of estate taxes, increases in corporate income taxes and a reintroduction of gift taxes (see Temin and Wigmore, 1990).

Under considerable pressure from Congress, the Federal Reserve eased in June 1932. However, out of concerns that easy policy would renew pressure on the dollar - as a result of the easing, the outflow of gold reserves resumed - the Fed doubled up on orthodoxies and stopped easing once Congress adjourned in July.

The U.S. fell into a liquidity trap, with interest rates falling to zero in late 1932. No other major economy had seen its interest rates reach the zero bound during the Great Depression.

However, adherence to budget orthodoxies continued unabatedly. As Eggertson (2007) recounts "in June 1932 Treasury Secretary Mills reported to the House of Representatives a $2.5 billion deficit which was projected to decline in the next two years. Despite the projected decline, the Secretary was perturbed and recommended radical spending cuts [saying] there was "no course for the government to follow but to live within its income.""

By now, social conditions in the U.S. were similarly terse to those in Germany and Britain. "Farmworkers in California and car workers in Michigan clashed with police; the 1932 Bonus Army of veterans who camped out in Washington to get their bonus had their tents in "Hooverville" set on fire by the army. Hunger and despair […] led workers to organise and voice their objections".[31]

Adherence to the orthodoxies of the gold standard cost Hoover his presidency. In the November 1932 elections, he was unseated by Franklin Delano Roosevelt, but even after his defeat, Hoover kept urging President Roosevelt to maintain the gold standard, arguing in February 1933 that taking the dollar off gold would lead to "a world economic war, with the certainty that it leads to complete destruction, both at home and abroad"[32].

Soon after taking office, President Roosevelt eliminated the gold standard and balanced budget orthodoxies and committed to a policy of "reflation" by which he meant both raising commodity prices and increasing government spending. However, unlike policymakers in Germany or Britain, he **chose** to take the dollar off gold and was not forced to, and he did this against the counsel of most of his advisors. Roosevelt was of the view that the root cause of the Depression was falling prices and to turn things around, prices had to be raised. "His advisers tried to explain that he had the causality backward—that prices would be the result of recovery, not its cause,"[33] but he stood his ground.

[31] Eichengreen and Temin, 2009
[32] Herbert Hoover, Lincoln Day Address, February 33, 1933
[33] Ahamed (2009)

According to Ahamed (2009), the President found a way to raise prices through George Warren, professor at agriculture at Cornell, whom he first met when he needed help with one of his trees on his estate on Hyde Park. In 1932, Warren authored an influential paper entitled, *Wholesale Prices for 213 Years: 1720-1932*, which documented the relationship between commodity prices and the supply of gold. It explained that if the supply of gold rose, prices tended to rise and if the supply of gold fell, prices tended to fall. The policy recommendations that followed from this evidence was that if prices fell due to a shortage of gold, one way to raise them was to "simulate" an increase in the supply of gold by raising its price — in other words to devalue the dollar.

To get his way, Roosevelt supported the Thomas Amendment of the Agricultural Adjustment Act, which permitted the president to devalue the dollar against gold by up to 50 percent of its value.[34] On April 18th, he announced his support for the Amendment to his advisors and said "Congratulate me. We are off the gold standard"[35] at which moment "hell broke loose"[36] in the room.

The Amendment, by making the gold standard subservient to Roosevelt's reflationary goals, effectively took away the Federal Reserve's independence.[37] The next day the President launched a communication strategy to broadcast his goal of raising prices and the logics of how devaluing the gold will achieve that. At his April 19th press briefing, he explained:

> *"Cotton is sold on a gold basis and with the dollar […] it works out to a certain number of cents. Therefore, if the dollar were to sell off l0 percent [against gold], the price of cotton in terms of dollars would [also] go up 10 percent. […] We have a perfectly definite objective, which is to make a touchdown, so far as commodity prices go. […] And, this is entirely off the record, the general thought is that we have got to bring commodity prices back to a recent level; […] we have to raise the price level but keep it from going too high."*

[34] According to Meltzer (2003), the Amendment also "permitted the Federal Reserve to monetize up to $3 billion in Treasuries upon authorization by the president; and gave the president discretionary authority to issue the same amount of currency—or roughly 1/3rd of base money, including reserves and currency in circulation, at the time—if the Federal Reserve refused to monetize Treasuries. According to its author, the goal of the amendment was a stabilized, honest dollar that would be fair to both debtor and creditor.

[35] Smith (2007)

[36] Hitzik (2011)

[37] The new reality sank in with the Fed when at the World Economic Conference in London later that year New York Fed President Harrison together with his counterparts from the Bank of England and the Banque de France attempted to stabilize their currencies by re-establishing the gold standard at new exchange rates. When word got out about their efforts, the White House "disavowed any knowledge of Harrison's activities, pointedly reminding reporters that he was not a representative of the government but of the New York Fed, and independent entity; that international considerations will not stand in the way of recovery; and that devaluation was key to revival" see Ahamed (2009). That put to rest speculation about an impending re-establishment of the gold standard, which calmed markets across the world.

In a May 1st op-ed in The Wall Street Journal, Roosevelt wrote that "our primary need is to insure an increase in the general level of commodity prices. To this end simultaneous actions must be taken both in the economic and the monetary fields" and during his second fireside chat on May 7th, 1933 he explained:

> *"The Administration has the definite objective of raising commodity prices to such an extent that those who have borrowed money will, on the average, be able to repay that money in the same kind of dollar which they borrowed. We do not seek to let them get such a cheap dollar that they will be able to pay back a great deal less than they borrowed. In other words, we seek to correct a wrong and not to create another wrong in the opposite direction."*

The strategy worked as immediately after the devaluation of gold and the President's committed communications strategy, commodity and consumer and wholesale prices started to rise. However he still wanted more. During his October 22nd, 1933 Fireside Chat he went on:

> *"I do not hesitate to say in the simplest, clearest language of which I am capable, that although the prices of many products of the farm have gone up and although many farm families are better off than they were last year, I am not satisfied either with the amount or the extent of the rise, and that it is definitely a part of our policy to increase the rise and to extend it to those products which have as yet felt no benefit. If we cannot do this one way we will do it another. Do it, we will."*

A turning point in 1933 was also evident in other metrics: investment, industrial production and stock prices rebounded. Conditions turned in an environment where interest rates could not fall any further as they were already at zero and the money supply did not increase meaningfully until the next year.

Besides breaking with the monetary orthodoxies of the gold standard, Roosevelt also broke with its fiscal orthodoxies.

According to Eggertsson (2007), this was evident in the way fiscal policy was decided. Whereas growing deficits in the last years of Hoover were the consequence of trying to eliminate them with tax increases, under Roosevelt they were the consequence of ambitious spending programs. One convincing piece of evidence of this shift was Treasury Secretary Woodin's report to Congress in 1933, in which he expected the deficit to grow to $3 billion, or 6 percent of GDP, higher than the $2.5 billion expected by Secretary Mills a year before. Instead of following Mills' example of tax increases and spending cuts, he proposed one of the biggest spending campaigns in U.S. history. The government's consumption and investment nearly doubled between Roosevelt's first year in office and Hoover's last. To rationalize these policies, FDR explained at the April 7, 1933 press briefing:

> *"So much of the legislation we have had this spring is of a deflationary character, in the sense that it locks up money or prevents the flow of money, that we […] [have to be] offsetting [it] in some way. […] Cutting […] a billion dollars off the Government payroll, including the veterans' cuts, cutting down of departments and cutting off 15 percent of employees' pay […] means that much loss in the flow of money.* ***That is deflationary****. Now, on the other side of the picture, we [are] giving employment to about 250,000 people in the forests and on works of various kinds. That is only $250,000,000 as an offset. Then there is $500,000,000 as an offset on direct relief to the States. […] That means we have not yet caught up with the deflation that we have already caused. […] To [get to] the point of* ***equalizing*** *[…] we probably must do some more.*"

As for whether monetary or fiscal policies were responsible for ending the Great Depression in the U.S., the debate is ongoing. The academic community's conclusion is that monetary policy worked by raising inflation expectations, lowering real interest rates and thereby raising borrowing for interest rate sensitive goods[38]. On the other hand, fiscal policy, based on studies using data on the administrative budget as a basis, was seen as ineffective because it was not deployed forcefully enough (see Brown (1956), Temin and Wigmore (1990) and Romer (1992)). However, r**ecent works on the depression weakened these arguments.**

On the monetary policy side, Koo (2009) shows that the private sector was deleveraging in the 1930s with no net demand for new credit despite negative real interest rates. Signs of increased borrowing, as a result of negative real interest rates, are nowhere to be found in banking statistics over the relevant period. His arguments that the private sector was deleveraging are also supported by work by Eichengreen and Mitchener (2003) who document a massive pre-depression credit boom in the U.S. spanning mortgages, consumer installment credit and margin loans.

On the fiscal policy side, Koo (2009) – reinterpreting the fiscal dimensions of the Great Depression based on Japan's recent experiences – argues that using the size of the budget deficit as a guidepost for fiscal policy's contribution to growth – the method of Brown (1956) and Romer (1992) - is inappropriate in a depression as large increases in expenditure can jump-start an economy and produce large gains in tax revenues, resulting in smaller than expected deficits *ex post*.

[38] Romer (1992) notes that "one piece of evidence that suggests a more causal link between the fall in interest rates and the recovery is the lag in the rebound of consumer expenditures on services compared with those on durables. Expenditures on durables increased between 1933 and 1934, but real consumer expenditures on services did not turn around until 1935. This suggests that it was not a surge of optimism that was pulling up all types of consumer expenditures in 1934, but rather some force, such as a fall in [real] interest rates [and hence increased borrowing], that was operating primarily on durable goods."

Furthermore, Eggertsson (2007) reminds us that using the relatively narrow measure of the administrative budget – the difference between government revenues and expenditures - to gauge fiscal policy's contribution to GDP is flawed. It does not take into account the increased spending power of the government from the devaluation of gold[39] nor the stimulative impact of newly established government agencies, such as the Reconstruction and Finance Corporation that was only partly funded by Treasury and could issue its own debt. Incorporating these yields a deficit almost twice the size of that used in previous studies that concluded that fiscal policy was not effective because it was not tried hard enough.[40]

Thus, a plausible conclusion here is that both monetary and fiscal policy worked in the recovery of the 1930s. Fiscal policy generated growth directly, while on the monetary side, inflation expectations and negative real interest rates reduced the opportunity cost of spending and made the financing of fiscal deficits cheap in real terms as the private sector was deleveraging. Following a relapse into a deep recession in 1937 – **after a series of mistakes of premature fiscal and monetary policy tightening** (see Eggertsson and Pugsley, 2006) and also some tax measures that year (see Romer, 1992) – FDR's inflationary monetary policy and expansionary fiscal policy ended the depression by 1940, before rearmament began for WWII, with the level of GDP back on its pre-depression trend and unemployment down to 10 percent from a high of 25 percent in 1933 (although full employment was not reached again until 1942).

IV.4 - France

France was the last of the major economies to break with the orthodoxies of the gold standard and the last to recover from depression. Similar to Germany, Britain and the U.S., breaking with orthodoxies was a political decision that took the removal of the head of the Banque de France and a change of government.

[39] The Treasury chose to monetize its devaluation gains by issuing nominal gold certificates and depositing them at the Federal Reserve. As the Treasury needed money to spend, the certificates would be converted to money, increasing supply of base money. Gold also flowed into the U.S. due to political developments in Europe - mainly the increased belligerence of the Nazis - which led to capital flight that lasted throughout the decade. Similar to its devaluation gains, the Treasury also chose to monetize these gold inflows, increasing the supply of base money further. Between 1933 and 1937, base money supply rose by over 50 percent.

[40] Note, however, that Eggertsson (2007) does not use the larger deficit measures to show their stimulative impact on fiscal policy, but to argue that large increases in government debt increased the inflation incentive of the government – noting that it was well understood at the time that deficit financing could lead to future inflation; in fact, this was one of the foundation of the balanced budget orthodoxies of the time – which was instrumental in cementing expectations of future inflation and hence were a means to increase the efficacy of FDR's inflationary monetary measures.

After Britain and the U.S. left the gold standard, tables were turned on France. Stranded as the highest cost producer in the world, the trade surpluses that benefited France since it re-joined the gold standard at an undervalued exchange rate suddenly turned into deficits. The country whose foreign exchange policies and voracious accumulation of gold led to monetary contraction and depression in the rest of the world now had to apply the medicine of deflation to regain competitiveness! In the interim, France imposed surcharges on imports to offset currency depreciation elsewhere and began to apply stringent import quotas (see Eichengreen and Irwin (2009).

Banque de France Governor Clement Moret refused to let go of orthodoxies and devalue and expand credit. Similar to Germany, memories of government deficits and the socially divisive post-war bout of inflation they caused when the gold standard was in abeyance were still fresh in minds. Still, as it became apparent that abandoning the gold standard's orthodoxies led to improvement in Britain and the U.S. and that the application of deflationary orthodoxies – in an effort to regain France's competitiveness – repeatedly failed to lead to improvements at home, support for the standard waned and Moret was **fired** in 1935.

It was not until the 1936 elections, which brought Leon Blum's Popular Front government to power, that orthodoxies were fully abandoned. Deflationary orthodoxies were ruled out by Blum and France devalued in October 1936. Deficits started to rise and growth picked up immediately afterwards. Deficits continued to expand and growth accelerated in following years as interest rates were mildly restrictive. The deficit then exploded in 1939 and the economy grew by over 7 percent, but this marked the beginning of a new era of truly Keynesian stimulus of wartime spending.

V - When Acting Irresponsibly Relative to Orthodoxy Was Not Tried Hard Enough

As memory of the U.S.'s liquidity trap in the Great Depression faded, the episode became regarded as a mistake of policy errors and theoretical curiosity. The liquidity trap faded as a subject of economic research (see Krugman (1998) and Eggertsson (2006)).

It was not until the mid-1990s that the liquidity trap returned "baaack"[41] with a vengeance after the burst of Japan's twin stock market and commercial real estate bubbles in 1989.

The Japanese equity market fell by nearly 50 percent by 1995 and was stuck around these lower levels throughout the mid-2000s. Commercial real estate prices fell by some 90 percent before hitting

[41] See Paul Krugman's "It's Baaack!" (1998)

bottom in 2005. The loss of national wealth over this fifteen year period was ¥1,500 trillion or three times Japan's 1989 GDP, compared to a loss only one times 1929 GDP in the U.S. during the Great Depression (see Koo, 2009 and Goldsmith, 1962).

Japan's asset price boom was driven by speculative borrowing by corporations. When the bubble burst and asset prices collapsed debt still remained and left corporate balance sheets underwater. To repair its balance sheets the corporate sector embarked on a fifteen year period of deleveraging ending in 2005

Corporate deleveraging broke Japan's trend real GDP growth from over 4 percent between 1970-90 to just over 1 percent between 1990 and 2000 (and from … percent to an even more meager … percent in nominal terms). A mild but nagging deflation also befell the economy. However, unlike the U.S. during the Great Depression – and despite a national wealth loss that was three times as high - Japan's level of GDP or prices did **not** collapse.

Collapse was averted because both fiscal and (to a lesser extent) monetary policies turned stimulative relatively soon after the burst of the twin bubbles. This was in sharp contrast to the policy orthodoxies of the gold standard that advocated high interest rates and balanced budgets to preserve fixed exchange rates – the policies (adhered to on a global level) that were ultimately responsible for depression in the 1930s.

Unlike policymakers sixty years before the world over, Japanese policymakers did not stand idle. They implemented stimulatory policies right away, including the aggressive deployment of fiscal policy in the aftermath of the bubble's burst.

Interest rates at zero notwithstanding, monetary easing proved ineffective during the first five years of the post-bubble era as corporate deleveraging pushed Japan into a liquidity trap. The corporate sector's demand for funds became inelastic to the price of funds even with nominal interest rates at zero.

However, simultaneous fiscal expansion over this period ensured that leakages from the economy's income stream in the form of rising corporate savings continued to be recycled back into the economy via increased government borrowing and spending.[42] As a result, while GDP growth fell from 6 percent at the peak in 1990 to slightly below zero by 1993, a post-bubble collapse in the level of Japanese GDP

[42] The government balance moved from a surplus of 3 percent of GDP in 1990 to a deficit of 5 percent by 1995. This was a swing from saving to borrowing of 8 percentage points, which offset nearly all of the 10 point decline in corporate borrowing (and correspondingly, increase in corporate savings) over the period; the remainder was offset by declines in household savings.

never occurred, compared to an estimated 50 percent decline in the level of U.S. GDP during the depression.[43]

Japan remained in a liquidity trap until 2005, when the corporate sector completed the deleveraging process. While short-term interest rates consistently remained at zero over this period, fiscal policy did not consistently stay stimulative.

In 1997, the Hashimoto Administration was the first to attempt fiscal consolidation since the twin bubbles' burst, heeding to domestic and international pressures to reign in the deficit as fiscal expansion had not produced a marked improvement in growth.

What qualified as a "marked" improvement was in the eye of the beholder, however, as modestly positive growth may have looked disappointing relative to the size of fiscal stimulus and the pre-bubble growth trend, but it impressed in the context of averting depression and a collapse in the level of nominal GDP.

Nevertheless, the Hashimoto Administration implemented a plan to reduce the deficit by ¥15 trillion by raising income and consumption taxes, increasing employees' share of social security contributions and canceling a large supplementary budget. However, far from improving the budget, the measures instead resulted in a ¥16 trillion increase in the budget deficit and Japan's worst post-war recession (Koo, 2009).[44]

This mistake of premature fiscal tightening of 1997 was reminiscent of President Roosevelt's mistake of premature tightening sixty years before in 1937, which also caused an economic relapse. In both cases, the mistake was to tighten while the private sector was still deleveraging, leaving the deflationary forces of rising private sector savings unattended.

Following the relapse of 1996-97, large supplementary budgets were introduced by both the Hashimoto and successive Obuchi-Mori administrations. These had positive contributions to growth between 1998 and 2000 and improved tax revenues and the budget.

However, in 2001 the Koizumi Administration implemented fiscal consolidation once again and imposed a ¥30 trillion cap on government bond issuance. Like before, austerity did not work as corporate deleveraging was still running its course and premature fiscal tightening simply short-circuited the recycling of leaked incomes – via increased corporate savings – back into the economy. The economy relapsed again. Tax receipts fell from 2001-03, and the deficit, instead of improving, actually grew.

[43] This was the case despite the fact that the loss of national wealth in Japan was nearly three times the loss of that of the U.S. during the Great Depression. Importantly, deposits were fully insured in Japan during the crisis, which averted a bank-run like that in the U.S. during the 1930s.

[44] Koo (2009)

The Japanese experience of off-again-on-again fiscal stimulus during the 1990s left a mixed record of fiscal policy's efficacy in a liquidity trap. However, as Posen (1998) remarks, the conclusion here should **not** be that fiscal policy did not work. It did, but it needs to be recognized that "when the Japanese government paid for fiscal stimulus […] it got economic growth, and that when it mistakenly pursued fiscal austerity […] it got economic contraction." Similarly, Bernanke (2003) notes that "the problem is less that fiscal policy is ineffective than that it has not been used to the [fullest possible] extent."

Yet another lesson, drawn by Koo (2009), was that while fiscal policy is absolutely necessary during a period of private sector deleveraging "it is extremely difficult [politically] to maintain fiscal stimulus in a democracy during peacetime […] and that only during wartime, when it is obvious where the money should be spent, can democracies implement and sustain the kind of fiscal stimulus needed to overcome a balance sheet recession in the shortest possible time; […] those who implement fiscal stimulus and avert deflationary cycles never became heroes as elections are not decided based on counterfactual scenarios."

The fiscal legacy of Japan's corporate deleveraging was a 100 percentage point increase in the government's debt to GDP ratio from 50 percent in 1990 when the bubble burst to 150 percent in 2005 when deleveraging ended. Throughout this period, long-term interest rates steadily declined and stabilized around 2 percent. No crowding out occurred as private demand for funds was moribund - the private sector did not compete for funds with the government.

Fiscal expansion and conventional monetary policies could only achieve that much, however. While they kept GDP and prices from collapsing, they could not (1) produce a more vigorous upturn in activity; (2) break deflationary trends and reflate the economy; or (3) depreciate the yen to the necessary extent. Moreover, aggressive fiscal expansion when modest but nagging deflation kept nominal GDP growth weak ultimately hit the wall of fiscal austerism as Japan's debt/GDP got on an unsustainable trend.

Consequently, starting with Koizumi Administration, the government started to put increasing pressure on the Bank of Japan to do more to boost growth and break deflationary trends.

These pressures also coincided with a period of growing academic interest in unorthodox monetary policy strategies in a liquidity trap. Defining contributions included Krugman (1998) advocating an inflation target, Eggertsson and Woodford (2003) advocating a price level target, and Bernanke (2003) advocating a price level target coupled with cooperation between fiscal and monetary authorities to effectively fight deflation and a liquidity trap.

The conclusion of all these prescriptions was that liquidity traps are **true traps** only if central banks cannot stir inflation expectations. From an operational perspective, all of these solutions involved quantitative easing, or, simply put, printing money.

According to Krugman's advice, in the midst of deflation and in the context of a liquidity trap, with the central bank's policy rate pinned at zero, it was not enough for a central bank to print money, accommodating massive fiscal stimulus. Not that this was not necessary. It was. However, it was not sufficient if the public believed that the central bank would, in the future, unprint the money – or in today's jargon implement an exit strategy.

In those circumstances, printed money would simply be hoarded, rather than spent, because deflationary expectations would remain entrenched. In order to break deflation and fight a liquidity trap to spur growth, the Bank of Japan should have printed money and made clear that printed money will remain printed so as to turn the public's deflationary expectations into inflationary expectations. In Krugman's own words:

> *"The way to make monetary policy effective is for the [Bank of Japan] to **credibly promise to be irresponsible** – to make a persuasive case that it will permit inflation to occur, thereby producing the negative real interest rates the economy needs."*

In a follow up paper in 1999, Krugman refined his argument stressing that the core of his thesis cold be implemented through a credible inflation target that was appreciably higher than Japan's prevailing negative inflation rate. Thus, he was not so much arguing that the Bank of Japan should act irresponsibly, but rather that it should act irresponsibly **relative to orthodox, conventional thinking. At the time, his idea was just as unorthodox as abandoning the gold standard sixty years ago**.

In March 2001, Bank of Japan Governor Masaru Hayami adopted these recommendations and embarked on a policy of quantitative easing (QE) with an explicit, open-ended target for a massive creation of excess reserves and commitment to retain that policy until core inflation moved above zero on a stable basis. Once this hurdle was met, QE was ended in March 2006, and with it the money that was printed while QE was in place also got unprinted. The Bank of Japan did not fully take Krugman's advice; similar to how the Bank of England did not take Keynes's advice during the debate on what exchange rate to return to gold at in the 1920s and whether to leave the gold standard in the 1930s. Like sixty years before, central bank orthodoxy was as orthodoxy did.

Although QE weakened the yen which helped exports,[45] inflation did not turn around and borrowing did not pick up. Ongoing relative weakness in growth and deflation despite unconventional monetary policy measures sat uncomfortably with the modern academic views that monetary policy was effective in a liquidity trap. However, "this was largely dismissed as reflecting the inability or unwillingness of the Japanese central bank to commit to future money growth and to future inflation" (see Blanchard, Dell'Ariccia and Mauro (2010). Following Krugman's prescription verbatim, the missing

[45] Growth and exports over this era were also helped by robust global growth.

ingredient was commitment to not only not end QE until inflation turned positive but to keep on with it even after inflation has already started to move up.

The money printed under QE should never have been unprinted. For inflation targeting to have succeeded, the Bank of Japan should have made the public believe that the increase in the money stock that was printed under the inflation targeting regime was permanent – similar to the permanent increases in money supplies implemented by President Roosevelt in the 1930s and Finance Minister Takahashi, who as Bernanke (2003) remarked "brilliantly rescued Japan from the Great Depression through reflationary [foreign exchange, fiscal and monetary] policies"[46] (also see Shizume, 2009). This however has never been tried. In terms of the damage to the Bank of Japan's credibility to reflate, the costs have been rather high (McCulley and Masano, 2010).

After the unorthodox monetary policy of inflation targeting and associated money printing "failed", the even more ambitious and unorthodox proposals of price level targeting and fiscal-monetary cooperation advocated by Eggertsson and Woodford (2003) and Bernanke (2003) respectively were also not tried in Japan.

Stopping at inflation targeting and unprinting the monies created in the process merely amounted to tiptoeing the reflationary walk. Unlike the bold policy actions taken by the U.S. and Japan in the Great Depression, Japan's modern day encounter with deflation was **not** countered with policies that were **irresponsible enough relative to prevailing orthodoxies**.

While Japan has indeed been a "lonely forerunner [who] had to feel its way forward, making decisions in the uncharted territory of unorthodox policy"[47] one might add that it has been a rather timid forerunner relative to the bold actions taken by its own policymakers and the U.S. during the Great Depression.

The full depth of the solution that would have been required to break Japan's deflationary trends were perhaps best summarized by Bernanke (2003) whose conclusions were shaped by the U.S.'s policy experience during the Great Depression and WWII. Thus:

> *"The Bank of Japan became fully independent only in 1998, and it has guarded its independence carefully, as is appropriate. Economically, however, it is important to recognize that the role of an independent central bank is different in inflationary and deflationary environments. In the face of inflation, which is often associated with excessive monetization of government debt, the virtue of an independent central*

[46] Bernanke (2003)
[47] Shirakawa (2012)

bank is its ability to say "no" to the government. With protracted deflation, however, excessive money creation is unlikely to be the problem, and a more cooperative stance on the part of the central bank may be called for. Under the current circumstances, greater cooperation for a time between the Bank of Japan and the fiscal authorities is in no way inconsistent with the independence of the central bank, any more than cooperation between two independent nations in pursuit of a common objective is inconsistent with the principle of national sovereignty."

And while talk of cooperation between fiscal and monetary authorities may make an inappropriate table conversation in polite circles who have been reared on the merits of fiercely independent central banks based on the inflation experience of recent decades, such talk does not seem all that unorthodox under an extensive historical review that stretches back to the world wars and the Great Depression. We next turn to the historical review of the U.S. Federal Reserve's independence.

Part VI – Cycles of Independence and Cooperation

Since the creation of the Federal Reserve nearly 100 years ago, the U.S. faced a rather broad spectrum of economic objectives: (1) defeating deflation and unemployment during the Great Depression; (2) facilitating war finance during WWII; (3) dealing with war debts and attaining full employment after WWII; (4) defeating inflation in the early 1980s and maintaining disinflation in subsequent decades; and once again (5) defeating the threat of deflation in the aftermath of the Great Recession.

To achieve these objectives, economic theories rose to and faded from prominence and the Federal Reserve had varying degrees of freedom from the U.S. Treasury and the Office of the President.

The Federal Reserve spent most of its first four decades (from 1913 to 1951) struggling for independence from the U.S. Treasury; the next 30 years (from 1951 to 1978) rebuilding its modus operandi and regaining its credibility; the following 20 years (from 1978 to 2000) capitalizing on its credibility and winning dominance over the U.S. Treasury; and more recently – in the midst of another episode of a liquidity trap - struggling with the ineffectiveness of its monetary toolkit, and, in a dramatic change of roles, encouraging the U.S. Treasury to borrow and spend for as long as the private sector deleverages. In the following sections we provide highlights from each epoch.

VI.1 - The Era of Fiscal Activism and Fed Cooperation: 1913-1951

Barely was the Federal Reserve created in 1913 with a mandate to rediscount short-term commercial loans only on real bills principles, in preparation of the U.S.'s entry into World War I in 1917, the Federal Reserve Act was amended in 1916 to allow the Fed to rediscount Treasury bonds at a preferential rate. The change effectively made the Fed subservient to the U.S. Treasury's needs to keep the cost of wartime debt financing low.

During the Great Depression, the Agricultural Adjustment Act of 1933 gave President Roosevelt the authority to devalue the dollar against gold, which effectively meant the end of the Federal Reserve's independence. The New York Fed — headed by a president who believed "that nothing was more sacrosanct than the [gold] value of the currency"[48] – was made to execute the purchases of gold for currency at a price set by the President. This was also coupled with the monetary financing of deficits - fiscal-monetary cooperation with the aim to reflate the economy.

The failure of central banks' dogged adherence to the gold standard and the resulting slide of the world into depression discredited monetary theories across the advanced world and policy attention turned to fiscal theories. In 1936, John Maynard Keynes published his *General Theory of Employment, Interest and Money*, arguing that government spending should be utilized aggressively to bring about full employment and recovery from world depression. Finally, it was World War II that generated full employment and a recovery worldwide.

During WWII, the Fed was once again made to fix the price of government debt with an interest rate peg on Treasury bills of 3/8 percent and of between 2 and 2½ percent on long-term bonds. To maintain the interest rate peg and Treasury's cost of war financing low, the Fed gave up control of the size of its balance sheet and the money supply, at the expense of inflation.

After WWII, the Fed continued to fix prices at the insistence of the U.S. Treasury.[49] The Employment Act of 1946 left the responsibility to attain "maximum employment, production and purchasing power" with the federal government (**not** the Federal Reserve). The success of wartime spending along with wage and price controls, led to an appreciation of fiscal policy and direct government measures to steer the economy. The Act marked a nadir for the relevance of monetary policy and the Federal Reserve.

[48] Ahamed (2009)

[49] "The Fed was able to achieve these low interest rates despite a level of outstanding government debt (relative to GDP) significantly greater than we have today, as well as inflation rates substantially more variable. […] Interestingly, […] the Fed enforced the 2-1/2 percent ceiling on long-term bond yields for nearly a decade without ever holding a substantial share of long-maturity bonds outstanding." (Bernanke, 2002)

Conflict between the U.S. Treasury and the Fed intensified when the Treasury directed the Fed to maintain the interest rate peg after the start of the Korean War in 1950. Both vied for the control of interest rates, the Treasury to keep the cost of war finance low and the Fed to keep inflation low. Ultimately, the Treasury-Fed Accord of 1951 eliminated the WWII vestige of the Fed having to monetize Treasury debt at a fixed rate. **The Accord marked the birth of an independent Fed as we know it today**.

VI.2 - The Era of Fed Independence and Fiscal Activism: 1951-1978

The period from the 1950s to the early 1980s was one of fiscal dominance and activism and a period of monetary reconstruction and resurgence. Debates in academic and policy circles were along Keynesian and monetarist lines, and during the 1960s and 1970s – when fiscal and monetary policies had equal statures - about the right fiscal-monetary policy mix.

At the time, however, Keynesians did not realize that their policies were increasingly overstaying their welcome as the post-Depression deleveraging of the private sector came to an end by the early 1950s, and a post-WWII re-leveraging had begun.

"Not recognizing that their policy recommendations were valid only during a [period of private sector deleveraging], they tried to fine-tune the economy using fiscal policy. But their efforts only resulted in more inflation and higher interest rates, because the economies were already in a phase of [post-WWII private re-leveraging, which, in competition with the government for funds, led to crowding out and overheating]. [By the 1970s] the results were rather disastrous: inflation accelerated, interest rates rose and growth often stagnated. Keynesian policy - so highly touted after the Great Depression - lost credibility and fiscal policy came to be shunned broadly".[50]

In a remarkable reversal of fortune since the Employment Act of 1946, the Humphrey-Hawkins Act of 1978 marked a low point for the stature of fiscal policy and a rehabilitation of monetary policy. Concerned with high inflation and unemployment, as well as the vague wording of the Employment Act of 1946, which tasked the federal government and not the Federal Reserve to "promote maximum employment, production, and purchasing power", the authors of the Act elevated the Fed to be the main steward of the economy, giving its present mandate:

> *"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*

[50] Koo (2009)

to promote effectively the goals of maximum employment, stable prices and moderate long-term interest rates."[51]

It was against this backdrop of a "change of the guards" when in a paper titled "Some Unpleasant Monetarist Arithmetic" Tom Sargent and Neil Wallace argued in 1981 that the sustainability of any fiscal-monetary policy mix ultimately came down to the relationship between three real variables. These were: real short-term interest rates, fiscal deficits and economic growth.

The authors demonstrated that it is not possible for (1) the monetary authority to sustainably peg real short-term interest rates above the real growth rate of the economy if (2) the fiscal authority keeps on running a fiscal deficit that is also above the growth rate of real GDP. Such a combination implies exponentially rising growth for real fiscal interest costs as a share of real GDP, which is axiomatically unsustainable.

However, at the time when Sargent and Wallace wrote their essay, that is exactly what the fiscal and monetary authorities were doing. The U.S. Treasury (reluctant to get its hands off the steering wheel) was running real deficits and the Fed (eager to take control of the wheel) was maintaining real interest rates well above the growth of real GDP. Following the logic of Sargent-Wallace, over time, either the Federal Reserve would have to loosen up or the U.S. Treasury would have to tighten up.

Put differently, there were limits to the ability of the monetary authority to enduringly fight inflation if the fiscal authority's deficit trajectory implied unsustainability due to the high real interest rates associated with the monetary authority's restraint. At some juncture, either the monetary or the fiscal authority would have to blink, settling the game of chicken – a far cry from the wartime and interwar dynamics between a domineering Treasury and a "captive" Federal Reserve.

VI.3 - The Era of Fed Independence and Fiscal Passivism: 1978-2000

As time unfolded over the 1980s and 1990s, Sargent and Wallace's question was answered: the Federal Reserve sustained its course of disinflation, while the U.S. Treasury blinked, with presidents Reagan, Bush and Clinton all raising taxes. The Act provided political cover for Chairman Volcker to turn the monetary screws tightly to reverse double digit inflation, and for Chairman Greenspan to continue Chairman Volcker's fight against too high inflation until that war was won decisively.

And won it was with the Federal Open Market Committee (FOMC) embracing de facto official victory on May 6, 2003, declaring:

[51] http://www.federalreserve.gov/aboutthefed/section2a.htm

> *"Although the timing and extent of [the] improvement remain uncertain, the Committee perceives that over the next few quarters the upside and downside risks to the attainment of sustainable growth are roughly equal. In contrast, over the same period, the probability of an unwelcome substantial fall in inflation, though minor, exceeds that of a pickup in inflation from its already low level. The Committee believes that, taken together, the balance of risks to achieving its goals is weighted toward weakness over the foreseeable future."*[52]

To counter the probability of unwelcome disinflation (or deflation) in the aftermath of the burst of the tech bubble and consequent 2001 recession, the FOMC took the Fed funds rate to 1 percent - not at, but very close to the zero lower bound. In August of 2003, it broke with conventional monetary tactics and pre-committed to holding it there for a "considerable period."

The key reason that the FOMC was successful in aborting the risk of deflation in 2003-2004 was that the U.S. economy was **not** in a liquidity trap. Quite to the contrary, a reasonably leveraged household sector's demand for credit, notably mortgage credit collateralized by housing, was highly elastic to low interest rates and the systemic degradation of underwriting standards.

And so the U.S. economy embarked on a Forward Minsky Journey followed by its Minsky Moment and the Reverse Minsky Journey (McCulley, 2009).

While the secular, multi-decade campaign against too-high inflation had been won, it was a pyrrhic victory (McCulley, 2005) as price stability promoted bubbles in real estate prices and mortgage debt which in turn became prescriptions for debt-deflation (Fisher, 1933) and a subsequent liquidity trap as Minsky (1992) has so presciently warned (also Minsky, 1986).

VI.4 – A New Era of Fiscal Activism and Fed Cooperation?

Ever since, a more cooperative and collaborative relationship between monetary and fiscal authorities has been typical, so as to cut off the fat tail risk of deflation, notably in recessions. Witness the Fed's open encouragement of fiscal stimulus by Fed Chairmen Greenspan and Bernanke during the recession of 2001 and the Great Recession of 2007-2009; and the Federal Reserve's unconventional asset purchases of late and three-year interest rate forecast, turning entirely on its head the logic of Sargent and Wallace on who should discipline whom.

[52] http://www.federalreserve.gov/boarddocs/speeches/2003/20030723/

Some bemoan this development as an erosion of central bank independence and in some sense it is. However, central bank independence, by definition, is all about cutting off the fat tail of inflation risk. When the fat tail becomes deflation, a stubbornly independent central bank becomes much less of a virtue and potentially a deflation-abetting vice. In Chairman Bernanke's words – as addressed to the Bank of Japan in 2003:

> *"[I]t is important to recognize that the role of an independent central bank is different in inflationary and deflationary environments. In the face of inflation, which is often associated with excessive monetization of government debt, the virtue of an independent central bank is its ability to say "no" to the government. With protracted deflation, however, excessive money creation is unlikely to be the problem, and a more cooperative stance on the part of the central bank may be called for. Under the current circumstances [of a liquidity trap], greater* ***cooperation*** *for a time between the [monetary and] fiscal authorities is in no way inconsistent with the independence of the central bank, any more than cooperation between two independent nations in pursuit of a common objective [or, for that matter, cooperation between central banks and fiscal authorities to facilitate war finance during world wars] is inconsistent with the principle of national sovereignty."*[53]

In light of the Federal Reserve's historical cycle of independence and changing "relationship" with the U.S. Treasury and the Office of the President, **the concept of fiscal-monetary cooperation should not sound too unusual**. After all, the U.S. has seen episodes of cooperation before in the pursuit of national interest during WWI and WWII to finance war cheaply, and during the depression to kill deflation and achieve recovery.

And now, when deflation risks dominate inflation risks again - and particularly in the context of a liquidity trap borne of underwater mortgages - with the federal funds rate target at the zero nominal bound and monetary policy effectively ineffective, the time for fiscal-monetary cooperation is ripe once again.

What is now needed is a cooperative leveraging of the fiscal and monetary authorities' balance sheets, and for the authorities to essentially view their balance sheets in a **consolidated** way, and to explicitly make that clear to the public and act accordingly.

And such cooperation may take the form of the monetary authority openly encouraging and facilitating fiscal expansion by the government for as long as the private sector is deleveraging, and by advocating for principal forgiveness on mortgages.

[53] Bernanke (2003)

Such cooperation between fiscal and monetary authorities would be "in no way inconsistent with the independence of central bank[s], any more than cooperation between two independent nations in pursuit of a common objective [or, for that matter, cooperation between central banks and fiscal authorities to fund war] is inconsistent with the principle of national sovereignty" – **with today's objective being winning the war on mortgage debt**!

The U.S. has gone from liquidity trap to liquidity trap in 80-years and just as fiscal-monetary cooperation helped the U.S. to recover from the Great Depression, fiscal-monetary cooperation is an essential ingredient of the recovery today.

Conclusions:

Monetary policy is ineffective in a liquidity trap and fiscal policy is effective. However, at a time of elevated public debt levels, attempts to increase public borrowing often meet fierce opposition based on the orthodoxies that increased public borrowing will be counterproductive on Ricardian grounds and will hurt confidence; that it will raise interest rates and crowd out investment; and that it will lead to a buyers' strike.

Cooperation between fiscal and monetary authorities for a period of time can fix these problems. By the monetary authority breaking with orthodoxies and openly encouraging and monetizing fiscal expansion, the government's concerns over elevated debt levels, Ricardian equivalence and rising rates would be allayed, and the transmission mechanism of monetary policy would be restored by the presence of a willing borrower – the government.

Unless fiscal stimulus is deployed with force to offset the loss of demand from private deleveraging in a liquidity trap, enduring economic slack, deflationary pressures and the risk of depression may arise. In the topsy-turvy world of liquidity traps, adherence to fiscal and monetary orthodoxies can be costly, and acting irresponsibly relative to orthodoxy can work.

Three historical cases are exemplary in this regard:

First, during the inter-war period, fiscal and monetary authorities adhered to the orthodoxies of the gold standard religiously. Government budgets were balanced and gold outflows were controlled by interest rate hikes and internal devaluation.

The inter-war gold standard lacked the flexibility of the classical gold standard, however. Labor markets were not as flexible as they once were, making deflation increasingly difficult to engineer, and the governance of the global interwar gold standard had no rules for surplus countries to inflate.

The net result was a deflationary bias to the system that snowballed into a bout of worldwide deflation when the Federal Reserve raised interest in 1927 to slow stock market speculation in the U.S. Rate hikes followed in every country on the gold standard, budgets remained balanced in the face of growing adversity and a deflationary spiral befell the global economy beginning in 1929 that dragged the world into depression. During this period, **acting responsibly relative to orthodoxy failed**.

Second, as long as adherence to the gold standard's orthodoxies remained the main policy objectives, stimulative fiscal and monetary policies were off the table, deepening the depression.

Once orthodoxies were abandoned, however, fiscal and monetary policies were free to be applied more aggressively. The sooner a country abandoned gold's orthodoxies, the faster it recovered.

Different countries broke with orthodoxies for different reasons. Some were forced by markets, some chose to, and some had no option but to adapt to a world unfettered from gold.

However, we find that in no case were orthodoxies abandoned voluntarily. When orthodoxies were in conflict with democracy, orthodoxies were overruled by political considerations!

Perhaps the most aggressive effort to break the depression was the fiscal-monetary cooperation applied via President Roosevelt's reflationary policies, which aimed at reflating the price level as well as incomes via increased deficit spending financed by central bank purchases of government obligations.

During this period, **acting irresponsibly relative to orthodoxy worked**, apart from the mistake of fiscal and monetary tightening in the U.S. in 1937, which set the recovery back by years.

Third, following the burst of Japan's twin stock market and commercial real estate bubbles in 1989, stimulative fiscal and monetary policies helped avoid a collapse in GDP and prices.

Interest rates fell to zero by 1995, the economy fell into a liquidity trap and monetary policy become ineffective amidst a corporate deleveraging that lasted fifteen years, until 2005.

However, several episodes of premature fiscal tightening over this period - similar to that of the U.S. in 1937 – caused the economy to relapse into recession, delaying the recovery.

Although fiscal orthodoxies were suspended periodically despite rising debt levels, the lesson of history is that politics make it hard to maintain fiscal stimulus in democracies during peacetime.

Monetary orthodoxies were also abandoned when the Bank of Japan embarked on quantitative easing between 2001 and 2006, however, QE was not deployed aggressively enough to have had profound, demonstrable, reflationary effects.

In Japan, **acting irresponsibly relative to orthodoxy simply was not tried hard enough**. Fiscal-monetary cooperation akin to that implemented by Finance Minister Takahashi during the 1930s and advocated by Governor Bernanke in 2003 were not applied.

These historical cases of acting responsibly, irresponsibly and half-heartedly irresponsibly relative to orthodoxy carry telling lessons for the outlooks of the Eurozone, U.K. and U.S. today.

First, acting responsibly relative to orthodoxy in the Eurozone and following the German "dictat" of sado-fiscalism[54] and internal devaluation are reminiscent of several defining economic episodes and frictions of the interwar gold standard.

The unsustainable debt load of peripheral economies and Germany's insistence to putatively attack them via austerity is no different from France's insistence that the "boche" should pay war reparations in full and without delay. Both involve the foreign-directed imposition of austerity domestically that would be more likely to end in social unrest and political instability – and even worse, the rise of extremism - than stronger growth.

While repeated failure to pay will likely not lead to military occupation, Germany's insistence on appointing a budget overlord in Athens is not unlike Poincare invading the Ruhr in 1923. Whether Greece will adopt passive resistance is yet to be seen.

On a more systemic level, Germany's refusal to inflate at the core while insisting on internal devaluation in the periphery is eerily similar to the frictions caused by the imbalance between gold surplus countries refusing to inflate and deficit countries unable to sufficiently deflate during the 1920s and early 1930s.

Just as laboring classes could not bear the pain of adjustments required by the gold standard's orthodoxies, laboring classes in peripheral Eurozone economies may not be able to bear the pain of adjustments required by the single currency's orthodoxies.

If history is our guide, painful adjustments will ultimately lead to some countries abandoning the euro, or politics overruling monetary orthodoxies: (1) legal restrictions against monetizing debt today versus the fixed exchange rate mentality of the gold standard, and (2) the independence of the ECB.

[54] The word "sado-fiscalism" was coined by James Aitken.

Just as it did during the gold standard, **acting responsibly relatively to orthodoxy will fail** in Europe, and like Chancellor Churchill, Chancellor Merkel will likely come to regret insisting on Procrustean austerity and will ultimately come around to see it as the greatest mistake of her political life.[55]

Second, **acting responsibly relative to orthodoxy on the fiscal front,** but **acting irresponsibly relative to orthodoxy on the monetary front**, policies in the U.K. are also **unlikely to work**.

With the private sector in deleveraging mode, quantitative easing (QE) can only ease the pain of deleveraging, but absent willing borrowers, it cannot offset the shortfall of demand; as Governor King said "the ability of monetary policy to bring forward spending from the future to the present is limited."

Fiscal austerity measures are unlikely to improve growth and increase demand and while a weaker pound, via QE, will help with the economic outlook of Europe – the U.K.'s main export market – moribund exports will not bring salvation. Just like in the 1930s, Keynesian solutions are not being applied in the birthplace of Keynes. This will hurt relative growth and employment in the U.K., just as it did back during the 1930s.

Third, to date, the U.S. **has acted irresponsibly relative to orthodoxy on both the fiscal and monetary front**. This is good.

However, risks are rising that while the monetary authority will remain committed to acting irresponsibly, the government will choose to act responsibly relative to fiscal orthodoxy and adopt austerity. For evidence, look no further than the recent renewal of the legally binding limit on federal borrowing – reminiscent of the Koizumi Administration capping bond issuance in Japan a decade ago with an aim of restraining the deficit, but then having to abandon the cap as it had the opposite effect via a collapse in economic activity and falling revenues – and the start of a Congressionally mandated sequester, a mechanism that will automatically cut domestic spending from 2013 onwards.

Full blown fiscal-monetary cooperation and reflationary policies similar to that pursued by President Roosevelt and Finance Minister Takahashi during the 1930s, as recommended to Japan by Governor Bernanke in 2003, are not yet on the horizon.

[55] Germany does not realize what it is doing at the Eurozone level. All it wants to do is remain competitive and not pay up, and is advocating its own policies of wage cuts and austerity from the past for others to regain competitiveness. What makes sense for one does not make sense for everyone, however, as in the aggregate, austerity begets the paradox of thrift. George Soros compares Germany's economic policies to the "policies" of Procrustes. A rogue smith in Greek mythology, Procrustes physically attacked people by stretching them or cutting off their legs so as to force them to fit his bed. As Mr. Soros notes, the Procrustes bed being inflicted on the Eurozone is called deflation. We would add that Theseus killed Procrustes in a similar manner. The lesson for Germany should be that by insisting on continent-wide austerity, it is effectively undermining its own economic growth via exports. Policies insisted on out of fear of inflation will ultimately lead to deflation and depression not only in the periphery but also the German core.

The missing partner is a fiscal authority with a willingness to spend and respond to the Federal Reserve's unprecedented stance to willingly encourage and accommodate fiscal expansion to facilitate the private sector's deleveraging without depression.

Private sector deleveraging in the U.S. may be protracted or rapid, depending on the solutions policymakers choose to apply. And here, too, fiscal authorities are unwilling partners.

The fiscal authority has been rejecting the idea of principal forgiveness on moral grounds: it would be not fair to all those who made their payments faithfully and let those off the hook who purchased larger homes than they could afford. But policy paralysis due to concerns of moral hazard will only prolong the liquidity trap and delay recovery. And that is not fair, either.

Moral debates like these are not new – we saw them between the rentier and laboring classes during the gold standard in many countries – and their swift resolution is key to a recovery.

While the U.S. monetary authority has learned its lessons from the Depression, Congress seemingly has not. In the political arena, it is not pragmatism that applies, but Keynes' maxim that "worldly wisdom teaches it is better for reputation to fail conventionally rather than to succeed unconventionally".

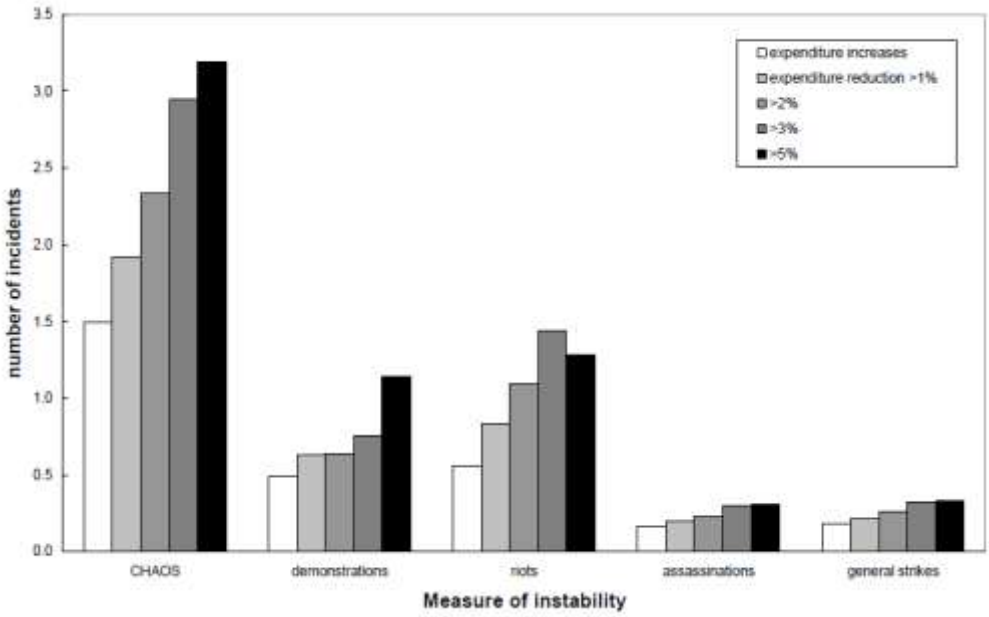
The costs of austerity can be enormous, however, not only economically but also socially (see Figure 2), and we believe there must be a path of enlightenment other than the bitter experience of folly.

Figure 1:

Source: U.S. Treasury

Figure 2:

An index of social unrest in response to fiscal austerity between 1919 and 2011; **unrests ultimately overrule orthodoxies**.



Source: Ponticelli and Voth (2011)

Appendix 1:

Reparations to be paid by Germany were set at $12.5 billion in May 1921 or roughly 100 percent of Germany's pre-war GDP, to which Germany formally agreed but was never fully committed to.

Reparations only worsened Germany's budget deficit which has been rising since the end of the war due to residual war expenses and progressively more generous social programs offered by a series of failed governments for a demoralized laboring class unable to find jobs immediately after coming back from war

To finance the deficit, the government turned to the Reichsbank which financed it by printing money. Inflationary policies worked initially and stimulated demand until late 1922.[56] However, they started to turn increasingly disruptive starting in January 1923,[57] when repeated failures by Germany to meet reparation payments led French Premier Poincare to occupy the Ruhr – Germany's center of coal, iron and steel production.

In response, German Chancellor Cuno launched a campaign of passive resistance, which effectively meant the government asking the population of the occupied areas to stage a general strike which in the end lasted a full nine months until September 1923. As Germany's industrial heartland was idled, workers were supported with federal cash grants-in-aid printed by the Reichsbank. Over the first nine months of 1923, inflation got out of hand, and Germany – then the world's third largest economy – "launched itself on that infamous voyage of fantasy into the outer realms of the monetary universe".[58] The reichsmark collapsed and hyperinflation became a diplomatic weapon of choice in Germany's fight over reparations payments with France.

The position of Rudolf Havenstein, the Reichsbank's President at the time was difficult. Had he leaned against the government and refused to inflate the deficit, budget cuts or inflation would have brought about recession and more social and political unrest in an already flammable environment. Moreover, austerity forced by the central bank onto the government would have made the public perceive Havenstein as a "collection agent"[59] of the allies. This would also have gone against the government's interests given the foreign policy imperative of demonstrating with ongoing deficits and inflation that Germany was unable to pay reparations and needed concessions from the Allies. As Max Warburg – banking scion and Reichsbank board member - noted in 1923, the essence of the Reichsbank's policy debate was "whether [it] wished to stop the inflation and trigger the revolution".[60]

[56] See Eichengreen and Temin (2000)
[57] See Eichengreen and Temin (2000)
[58] Ahamed (2009)
[59] Ahamed (2009)
[60] Ferguson (1995)

References:

Ahamed, Liaquat, 2009, "Lords of Finance: The Bankers Who Broke the World," Penguin Press.

Almunia, Miguel, Benetrix, Agustin, Eichengreen, Barry, O'Rourke Kevin, Rua, Gisela, 2009, "From Great Depression to Great Credit Crisis: Similarities, Differences and Lessons" WP.

Ball, Laurence, 2012, "Ben Bernanke and the Zero Bound," Working Paper, Johns Hopkins University.

Bernanke, Ben, 2000, "Essays on the Great Depression," Princeton University Press.

_____, 2002, "Deflation: Making Sure It Does Not Happen Here," Federal Reserve Board of Governors.

_____, 2003, "Some Thoughts on Monetary Policy in Japan," Federal Reserve Board of Governors.

_____, 2004, "Money, Gold and the Great Depression," Federal Reserve Board of Governors.

_____, 2010, "The Economic Outlook and Monetary Policy," at the 2010 Jackson Hole Symposium, Federal Reserve Board.

Blanchard, Olivier, Dell'Ariccia, Giovanni and Mauro, Paolo, "Rethinking Macroeconomic Policy," IMF SPN No. 10-03.

Buiter, Willem, 2007, "Seigniorage," Economics Discussion Papers, Discussion Paper 2007-08.

Cha, Myung Soo, 2003, "Did Takahashi Korekiyo Rescue Japan from the Great Depression?," The Journal of Economic History.

Cohn, Raymond, 1992, "Fiscal Policy in Germany During the Great Depression," Working Paper.

Dudley, William, 2011, "Securing the Recovery and Building for the Future," Federal Reserve Bank of New York.

_____, 2012, "Housing and the Economic Recovery,"Federal Reserve Bank of New York.

Federal Reserve, 2012, "The U.S. Housing Market: Current Conditions and Policy Considerations," FRB.

Ferguson, Tomas and Temin, Peter, 2001, "Made in Germany: The German Currency Crisis of July 1931," MIT WP 01-07.

Eggertsson, Gauti, 2003, “Liquidity Trap,” Palgrave Dictionary of Economics.

_____ and Woodford, Michael, 2003, “The Zero Bound on Interest Rates and Optimal Monetary Policy,” Working Paper.

_____ and Pugsley, Benjamin, 2006, “The Mistake of 1937: A General Equilibrium Analysis,” […].

_____, 2007, “Great Expectations and the End of the Depression,” American Economic Review.

Eichengreen, Barry and Temin, Peter, 1997, “The Gold Standard and the Great Depression,” NBER Working Paper No. 6060.

_____, 2002, “Still Fettered After All These Years,” NBER Working Paper No. 9276.

_____ and Mitchener, Kris, 2003, “The Great Depression as a Credit Boom Gone Wrong,” BIS Working Paper No. 137.

_____, 2004, “Understanding the Great Depression,” Canadian Journal of Economics, Vol. 37, No. 1.

_____ and Irwin, Douglas, 2009, “The Slide to Protectionism in the Great Depression: Who Succumbed and Why?,” NBER 15142.

Irwin, Douglas, 2010, “Did France Cause the Great Depression,” Working Paper.

Keynes, John Maynard, 1936, “The General Theory of Employment, Interest and Money”.

Koo, Richard, 2009, “The Holy Grail of Macroeconomics: Lessons from Japan’s Great Recession,” Wiley.

_____, 2011, “The World in Balance Sheet Recession: Causes, Cure and Politics,” Real-World Economics Review No. 58.

Krugman, Paul, 1998, “It’s Baaack: Japan’s Slump and the Return Of the Liquidity Trap,” Working Paper.

_____, 1998, “Japan’s Trap,” Working Paper.

_____, 2000, “Thinking About the Liquidity Trap,” Working Paper.

Makinen, Gail and Woodward, Thomas, […], "Some Neglected Monetary Aspects of the Poincare Stabilization of 1926".

Mehrling, Perry, 2010, "The New Lombard Street: How the Fed Became the Dealer of Last Resort," Princeton Univ. Press.

McCulley, Paul, 2009, "What If?," PIMCO: Global Central Bank Focus (GCBF).

_____, 2009, "The Shadow Banking System and Hyman Minsky's Economic Journey," PIMCO: GCBF.

_____ and Masanao, Tomoya, 2010, "Where Exit Should Be an Oxymoron: The Bank of Japan," PIMCO: GCBF.

_____, 2010, "Some Unpleasant Keynesian-Minsky Logic," PIMCO: GCBF.

_____, 2010, "Facts on the Ground," PIMCO: GCBF.

_____, 2010, "When Unconventional Becomes Convetional," PIMCO: GCBF.

_____, 2010, "A Kind Word for Ben," PIMCO: GCBF.

Middleton, Roger, 2010, "Lessons from the Great Depression for the Making of Economic Policy," Working Paper.

_____, 2010, "British Monetary and Fiscal Policy in the 1930s," Oxford Review of Economic Policy, Volume 26, No. 3.

Minsky, Hyman, 1986, "Stabilizing an Unstable Economy," Yale University Press.

_____, 1992, "The Financial Instability Hypothesis," Jerome Levy Institute of Economics, Working Paper No. 74.

Moure, Kenneth, 1991, "Managing the Franc Poincare," Cambridge University Press.

Ponticelli Jacopo and Voth, Hans-Joachim, 2011, "Austerity and Anarchy Budget Cuts and Social Unrest in Europe, 1919-2009" Center for Economic Policy Research, CEPR WP No. 8513.

Posen, Adam, 1998, “Restoring Japan’s Economic Growth,” Chapter 2, Institute for International Economics.

Roetheli, Tobias, 2009, “Banking Principles, Bank Competition and the Credit Boom of the 1920s,” Working Paper.

Romer, Christina, 1992, “What Ended the Great Depression?,” The Journal of Economic History, Volume 52, Number 4.

_____, 1993, “The Nation in Depression,” Journal of Economic Perspectives, Volume 7, Number 2, Pages 19-39.

_____, 2003, “Great Depression,” Encyclopedia Britannica.

Romer, David, 2011, “What Have We Learned about Fiscal Policy from the Crisis?,” IMF.

Sargent, Thomas and Wallace, Neil, 1981, “Some Unpleasant Monetarist Arithmetic,” Fed. Reserve Bank of Minneapolis.

Shirakawa, Masaaki, 2009, “Way Out of Economic and Financial Crisis – Lessons and Policy Actions,” Bank of Japan.

_____, 2010, “Uniqueness or Similarity? – Japan’s Post-Bubble Experience in Monetary Policy Studies,” Bank of Japan.

_____, 2012, “Deleveraging and Growth: Is the Developed World Following Japan’s Long and Winding Road?,” Bank of Japan.

Shizume, Masato, 2009, “The Japanese Economy During the Interwar Period,” Bank of Japan Review.