

The institutional intertemporal budget constraint of governments: Whence it came, why it is unsafe, and how the Eurozone should reform it

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Abstract

The one policy tool missing from the counter-cyclical toolbox employed in the long aftermath of the Great Recession was fiscal policy. To a lesser degree, this was justified by the belief that fiscal expansion may have limited effects on output and jobs. The major motivation, however, was that most countries did not have enough ‘fiscal space’ and fiscal expansion was not sustainable. This belief not only prevented fiscal expansion. It also led to fiscal contraction and, consequently, to pro-cyclical effects.

According to a principle that has prevailed in the last three decades, public debt sustainability imposes restrictions to fiscal policy when the outstanding stock of public debt exceeds the projected present value of the primary fiscal balance, a condition that is said to threaten ‘government solvency’.

The analysis developed in this paper offers three arguments challenging such belief: a) budget restrictions are ultimately based on the hypothesis that debt monetization is inflationary; b) theory, as well as the ‘grand natural experiment’ of quantitative easing, demonstrate such hypothesis being unfounded; c) theory indicates that small public deficits are likely to make private debt unsustainable.

1. Aim of the paper

This paper builds on the hypothesis that massive policy failure explains the depth and the length of the Great Recession in the U.S. and Europe, and claims that current conventional wisdom about the limits of public debt explains such failure.

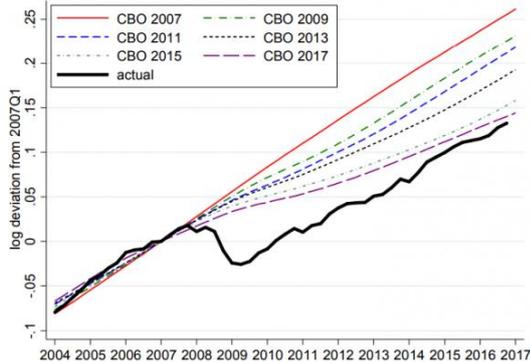
Following a concise assessment of counter-cyclical policies during the Great Recession (sections 2-6), the paper reviews the theoretical foundations underpinning the belief that fiscal policy ought to be subject to an institutional rule that checks annual government deficits depending not only on macroeconomic policy targets, but on the overriding goal of public debt sustainability (sections 7-12). While conventional wisdom of some 50 years ago fervently refuted this belief, the notion that the value of public debt must be consistent with a credible intertemporal budget constraint condition has powerfully reemerged in the economics literature since then, and chief policy advisors embrace it today. This comeback,

the paper argues, is consistent with the Post Monetarist character of today’s established macroeconomics.¹

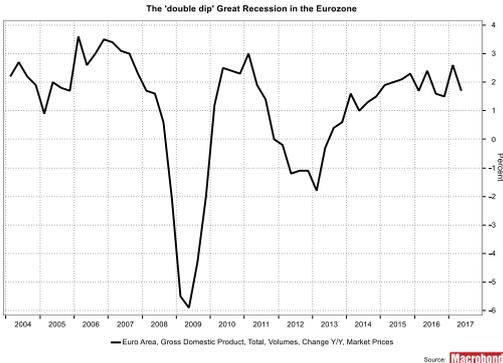
The analysis undertaken in this paper supports three statements. The first is that today’s mainstream theory of sustainable public debt is based on a hypothesis that is logically and empirically flawed (sections 13-14). The second is that a better theory of public (and private) debt can be developed by drawing from a tradition of macroeconomic models where money is an essential element (sections 15-16). Finally, the paper claims that fiscal policies that aim at being consistent with an intertemporal budget constraint are likely to destabilize the economy (section 17). In the concluding remarks, possible reforms are briefly discussed (section 18).

2. The Great Recession and its long aftermath

A well-known theme in the long aftermath of the Great Recession has been the slow pace of economic recovery in the two largest advanced economies, notably the United States and the Eurozone. One decade after the beginning of the Great Financial Crisis, U.S. GDP has barely reached its potential path, albeit the latter has been revised downwards considerably, and the Eurozone has suffered a double dip recession when the crisis eventually disclosed some fundamental vulnerabilities in its architecture.



Source: Coibion et al., (2017)



Source: Eurostat

While the extent of the damage inflicted to the real economy had caught most economists and policy-makers by surprise, research has primarily focused upon the conditions that led to the accumulation of financial vulnerability and eventually to the burst of the crisis. But while a number of conventional beliefs in the theory of finance and banking have been the subject of criticism, much less progress has been made on the issue of how counter-cyclical policy could have prevented the spillover of financial crises to the real economy or, at any rate, how to effectively restore output and jobs after a financial crisis.

Specifically, there has been an unprecedented onus on monetary policy to support aggregate demand. Largely missing in the policy framework, instead, was fiscal policy, both because of the belief in its limited effectiveness, and because of limited ‘fiscal space’. Not

¹ A Post Monetarist model is intended here as a Monetarist model with rational expectations and general equilibrium.

only fiscal expansion was limited, but a number of countries (including the Eurozone currency union) implemented fiscal contraction, thus triggering pro-cyclical effects.

3. The presently established counter-cyclical policy toolbox

There has been a big divide in the development of macroeconomics in the 20th century. In the 1960s, ‘neoclassical synthesis’ macroeconomists believed that fine-tuning based on IS-LM models and quantitative forecasting could defeat the business cycle for good and deliver stability. By the 1970s, however, this view succumbed to stagflation, and a new theory, the Monetarist paradigm, quickly came into prominence. By the 1990s, Post-Monetarists believed they could stabilize the economy for good and that major counter-cyclical policies were no longer necessary, except for the action of an independent central bank pursuing price stability through interest-rate adjustments. By the 2000s, convergence of views in macroeconomics and monetary policy was largely acknowledged.²

Correspondingly, a wide consensus of views on the effectiveness of macroeconomic policies emerged among leading policy advisors and leading policy-advising organizations. The following, I believe, is a fair summary of today’s conventional wisdom in policy-making:

- a) Counter-cyclical policy should normally be the exclusive matter of an independent central bank that should primarily target price stability using a policy rule;
- b) Growth potential depends on the structural characteristics of the economy, such as competition, flexibility, incentives;
- c) The responsibility of fiscal policy is distributional (who gets taxed, where spending goes) and structural (in the design of the relations between private initiative and the public sector);
- d) Fiscal policy should only be used counter-cyclically in the exceptional circumstance of a large output gap, and on condition that public debt sustainability is not impaired.

This toolbox largely draws from the Post-Monetarist “new neoclassical synthesis” of the 1990s, whose models combine Keynesian and Monetarist features within a methodology that involves intertemporal optimization, rational expectations, and market imperfections (sticky prices).

When compared with the toolbox offered by the “neoclassical ISLM synthesis” of the 1960s, the new toolbox assigns a bigger role to monetary policy in its function of managing inflation expectations. It also assigns a weaker role to fiscal policy that is confined to special cases of monetary policy ineffectiveness (such as the case of ‘zero lower bound’), and in any event subject to an intertemporal budget constraint.

A decade after the burst of the crisis, and not entirely surprisingly³, this counter-cyclical policy toolbox has remained virtually unchanged, and has remained insensitive to a number of advances and revisions in the theory of monetary policy operations.

² See, among others, Goodfriend (2007) and Woodford (2009).

³ Terzi (2010).

4. Testing the hypothesis of a massive policy failure

The slow and disappointing pace of recovery in the U.S. and Europe leaves three possible explanations. One is that economic collapse was the inevitable outcome of prior bubbles and excessive financial ease and cannot be effectively repaired with more financial ease. Another possible account is that the Global Financial Crisis and the ensuing Great Recession have triggered secular stagnation by causing large, persistent belief revisions, raising saving propensities and reducing investment propensities. Policy implications of the view that we now live in an age of persistent low growth include finding ways to further reduce real interest rates, increasing investment, reducing saving, or downgrading our policy targets for output growth and job creation.

A third possibility is that we regard the length and the depth of the Great Recession as the evidence of a massive failure of counter-cyclical policy, thus calling for a candid reflection on its underlying principles. To assess the validity of this proposition one needs to explore the soundness of the theoretical principles supporting the mainstream policy toolbox in two specific areas: the transmission channel of monetary policy and the soundness of the limits to fiscal expansion.

5. Unconventional monetary policy gives bigger doses of the same medicine

Before and during the Great Recession, monetary policy was, and remains, the main macro-policy tool. In the midst of the 2008 collapse, central banks turned to unprecedented crisis-intervention measures, generally defined as ‘aggressive’, implementing new policy instruments and a zero-interest strategy. Nevertheless, and although it is labeled ‘unconventional’, such policy remains consistent with the established set of beliefs. Far from being the application of a new approach, non-standard measures are warranted in the belief that the unusual depths of the crisis calls for bigger doses of the same medicine.

This means that if real interest rates are not low enough, nominal rates should be set to zero, or even below zero; if policy rates are not low enough, central banks should buy financial assets and trigger private portfolio adjustments; and if inflation is too low, central banks may even consider raising their inflation targets to shape expectations. In this view, central banks’ power in countering a recession consists of directly increasing the quantity of central bank money, lowering nominal and real interest rates to encourage more borrowing and prompting an acceleration of monetary aggregates.

The impact on inflation of the increasing balances of central bank money in banks’ balance sheets has been the object of controversy. According to John Taylor (2012) “this large expansion of reserve balances creates risks. If it is not undone, then the bank reserves will eventually pour out into the economy, causing inflation. If it is undone too quickly, banks may find it hard to adjust and pull back on loans.” Of a very different opinion was Bernanke (2012), then Chair of the Fed, who argued that “increased bank reserves held at the Fed don't necessarily translate into more money or cash in circulation, and, indeed, broad measures of the supply of money have not grown especially quickly, on balance, over the past few years”. And yet, Bernanke’s view was not fully shared within the Fed. For example, Hoenig (2011), then President of the Federal Reserve Bank of Kansas City stated, in 2011, that “Yes, we are monetizing debt. You buy bonds and you monetize debt. Right now, a lot

of that is going into excess reserves so it is not having an immediate effect on inflation. It will initiate inflationary impulses. It takes time.”

As a matter of fact, the policy of the Fed, just like that of other central banks based on a quantitative expansion of their balance sheet, was primarily aimed at lowering interest rates at different maturities and so encourage more private borrowing and demand. The acceleration of the money supply would be the evidence of the success of the policy, not the tool itself. Monetary policy during the Great Recession thus had the primary scope to prompt the private sector (business and households) to increase its spending, financed by an increase in private debt, and thus private leverage.

The degree of success in generating a faster growth of the money stock was, in general, limited. And even less successful this policy has been in generating a higher rate of inflation consistent with central banks’ targets.

6. Fiscal policy turned pro-cyclical in order to maintain, or restore, debt sustainability

Fiscal policy went through three phases during the Great Recession. At the early stage of the crisis, policy-makers let negative fiscal balances grow, thus partially compensating the downfall in demand. As the slowdown of the economy resulted in a surge in the public debt / GDP ratio, fiscal policy was subsequently tightened in most OECD countries. This was done with the fiercest determination in the Eurozone, where statutory limits to public deficits and debt exist.

This course of action was justified by the belief that fiscal consolidation would have only limited negative effects on growth and jobs, and that bringing debt below some “tolerance threshold” would make it manageable when facing the next recession. Moving to consolidation in countries where the economy had not yet fully recovered, or was still in the midst of the recession, was labeled ‘austerity’.

Evidence of a deeply negative impact of pro-cyclical fiscal policy resulted in some relaxing of ‘austerity’ policies in OECD countries, including in the Eurozone. In 2013, IMF economists Blanchard and Leigh (2013) acknowledged that fiscal multipliers were substantially higher than implicitly assumed by forecasters. In this third “softening” phase, the EU Commission even recommended a timid greater expansionary stance of fiscal policy.

Few would now agree that the harsh ‘austerity’ response was worth its economic and social costs. The question remains, however, if it was only a question of magnitude and speed of adjustment, or if the overall theoretical justification of austerity was flawed. The notion that public debt may become too large for comfort well before the economy has fully recovered has not been challenged within the mainstream, and the belief endures that a high public debt precludes fiscal expansion. Consequently, the policy advisors who are most open to fiscal expansion recommend it only to countries with a lower debt / GDP ratio (in Europe, for example, Germany and a few others), and limiting expansion to a size that is small enough not to threaten the financial position of fiscally healthy states.

7. Public debt as a constraint to deficit spending in policy advisers' views

According to a principle that has prevailed in the last three decades, public debt sustainability imposes restrictions to fiscal policy when the outstanding stock of public debt exceeds the projected present value of the primary fiscal balance, a condition that is said to threaten 'government solvency'. This means that a precondition for fiscal expansion must be the capacity of a government to finance its desired expenditure programs, to service any debt obligations and to ensure its solvency.

Accordingly, even when policy advisers see macroeconomic value in fiscal expansion, they nonetheless condition its viability to "fiscal space", or the amount of room available for additional government borrowing. This concern is dependent on the belief that governments should use this tool cautiously when the outstanding stock of securities issued is approaching a level considered unsafe when compared to the size of annual GDP.

This view has become one of the least controversial among policy advisers today. At its core, lies the concern that all the spending in excess to tax revenue must eventually be offset by a rise in taxes. Government deficit spending when the stock of debt is relatively small is possible because raising taxes to 'pay off' the outstanding debt is considered practically feasible. However, when the stock of debt is getting large and spending becomes increasingly compelled by interest payments, fiscal space dissolves, because there is a limit as to how much more tax can a government extract in the future.⁴

This theoretical approach prompts great caution regarding fiscal expansion. Forecasting the future capacity to raise taxes, forecasting the future level of interest rates, and forecasting when investors would no longer be willing to financing government borrowing is subject to great uncertainty, and it is difficult to estimate when fiscal space will run out. This concept is often summarized with a simple catchphrase such as Weidmann (2013): "Looking ahead, public debt cannot be accumulated forever."

For these reasons, a policy adviser like the Bank for International Settlements, in consideration of the currently expected future changes in interest rates, has recently warned that "interest rate normalization could further reduce fiscal space" (BIS, 2017, p.56). For the BIS (2016, p.97), "debt limits should not be interpreted as boundaries that can be safely tested. Prudent policymakers should try to keep debt levels well away from them."

8. A macroeconomics (or just a macroeconomic) earthquake?

Given the disappointing pace of recovery under a regime that strictly limits fiscal policy, it is legitimate to ask whether the problem should instead be found in some fundamental flaw of contemporary macroeconomic models. In the immediate aftermath of the Lehman collapse and its consequences, The Economist (2009) had hoped for a new 'creative destruction' in economics along the lines of the one that effectively established macroeconomics in the aftermath of the Great Depression, or of the one following the 1970s stagflation that quickly transformed the theoretical framework and offered a new policy approach. Nearly a decade after such call for new insights, no new consensus has yet emerged. While on one side of the

⁴ A common reference to measure this limit is the 'Laffer curve'.

token, one can argue that the macroeconomic scenario has deeply changed, the policy toolbox discussed above still rules.

If a mainstream macroeconomist named Rip Van Winkle had gone to sleep in 2000 and awoken today, he would hardly recognize what he sees. In 2000, popular topics in macroeconomics included the end of business cycles, the celebrated 'Clinton surplus', the coming end of public debt, and the outlandish question of how the Fed would conduct open-market operations when government debt has been fully paid off. In that context, the belief that money-printing power should be constitutionally severed from governments supported the case for balanced-budget fiscal policy. This also strengthened the case for Europe moving to the single currency with a rigidly constrained fiscal stance that was supposed to suit all seasons and cycles.

Today, Rip Van Winkle would hardly have a clue as to how to decode the unfolding of events when he fathoms that following those ostensibly remarkable achievements the world economy has lived through a near repetition of the Great Depression, public debt is now much bigger than it was when he went to sleep, central banks now own massive quantities of it, a number of beliefs that he had held, such as the money multiplier, have been declared dead,⁵ world economic growth remains subdued despite an unprecedented massive increase in banks' liquidity, and proposals that central banks use 'helicopter money' are no longer considered preposterous.⁶ Yet, Rip would not discover a newly established 'consensus opinion' and he would recognize that views are now split among a defense of the pre-crisis 'consensus', attempts to enhance the pre-crisis approach with ad-hoc extensions, and an array of alternative views pulling macroeconomics in different directions.

Christiano (2017) acknowledged the impact of the crisis on macroeconomics and argued that this time policy must deal with a lack of aggregate demand and poor sales, not with a mismatch between firms and the workforce. For him, this means that the pendulum is now going to swing towards Keynesian economics. Nevertheless, although it is true that the Great Recession struck like an earthquake, there has been no earthquake in the way leading advisors model the macro-economy and formulate policy prescriptions. Buitert (2014) also sees the flaws of mainstream economics but takes a less optimistic view when he concludes that in its place we only have "an intellectual potpourri of factoids, partial theories, empirical regularities without firm theoretical foundations, hunches, intuitions and half-developed insights." In a more constructive fashion, Bofinger and Reis (2017) contend that there is a "theoretical gulf between the real analysis and the monetary analysis paradigms" in economics.⁷ By pointing their fingers at monetary economics as the fragile wheel in the

⁵ The money-multiplier hypothesis that bank lending is reserve-constrained has been largely acknowledged to be inapplicable to contemporary banking systems. Carpenter and Demiralp (2012), for example, show that institutional facts and empirical evidence provide compelling support for the view that "the narrow, textbook money multiplier does not appear to be a useful means of assessing the implications of monetary policy for future money growth or bank lending." See also Disyatat (2009), ECB (2011), and McLeay, Radia, and Thomas (2014).

⁶ Turner (2017).

⁷ In the last pages of their volume, Solow-Hahn (1997) describe the limits of their analysis as being that "none of the models analyzed in the text has a government capable of taxing, borrowing, and spending (a

mainstream theoretical apparatus, they imply that the understanding of fiscal and monetary policies, i.e., the two policies responsible for the government of money, is likely to be flawed.

The thesis in what follows is that the now dominant theoretical approach in macroeconomics is responsible for one big flaw in counter-cyclical policy implementation. By describing a real-exchange economy where money is neutral and can only become a source of disturbance if it is badly managed, macroeconomic models miss the broader monetary dimension of our economies.

9. The “New Economics” and fiscal policy

In the modern era of macroeconomics, conventional wisdom did not begin to assert that public debt is a burden on our children until the 1980s. In the 1960 State of the Union address, U.S. President Eisenhower committed to present to the Congress a balanced budget for 1961, by which he meant a surplus gap with the surplus to be applied against national debt. “I do not feel—he said—that any amount can be properly called a “Surplus” as long as the nation is in debt. I prefer to think of such an item as ‘reduction on our children's inherited mortgage’.” Eisenhower’s statement was running counter to the conventional wisdom of the time, and notably to the views of the economics profession.

If we take Paul Samuelson’s then popular economics textbook as a measure of conventional wisdom of the time (1950s-1970s), we find a specific appendix where the author considers the “false and genuine burdens of the public debt”. In this section, and elsewhere in the book, Samuelson (1976) explains that the limits to deficit spending are not financial: “the barrier would have to be political and self-imposed, and the effects [...] would depend crucially upon whether it impinges on an economy that is already inflationary or deflationary.” (p.371).

He also makes the case for considering government bonds as near-money. As he put it, “True, you do not pay your monthly expenses directly with government bonds, and so we hesitate to call such an item ‘money’”, but “current spending habits are probably affected in much the same way as they would be if you owned a larger bank deposit instead of the government bonds” (p.281). He then considers government bonds serving the purpose of secondary bank reserves “admirably”, and thus not much different from accounts at the Fed (p.297). Also, he points out that people feeling uncomfortable at the prospect of public debt growing forever display a psychological attitude, not a real concern (p.371). The “principal way one generation puts a burden on itself later or on a later generation is by bequeathing it less real capital than would otherwise have been the case.” (p.377) But, “it would be a tragedy if people, in giving up their irrational fears of deficit spending, were thereby led to call the sky the limit. Unlimited spending can produce inflation, chaos, and waste.” (p.378)

The view of the time, encapsulated in the “neoclassical synthesis”, was that fiscal deficits are needed to ensure an adequate level of aggregate demand when savings are not being

circumstance we now rather regret). Even monetary policy takes the form of exogenous, uniform changes in the stock of outside cash.”

sufficiently “absorbed” by, or “channeled” into, private investment. Compensatory deficit spending was primarily viewed as the way to compensate for the lack of investment and counter business cycles and thus deliver a healthier economy to the next generation. This was considered a natural role of the public sector. Rather than about the size of public debt, concerns were about other difficulties, such as quality control of public spending in a democracy, the aggregate nature of fiscal policy, or the prospect that “tight money markets” would raise interest rates thus calling for accommodative monetary policy to complement with fiscal expansions.

10. Whence the institutional intertemporal budget constraint (IIBC) to governments came?

The assault to the consensus view of the 1960s regarding fiscal policy came from two directions. One is the theoretically weaker, yet politically influential, view of James M. Buchanan. The other, theoretically more sophisticated, was that of Milton Friedman. It so happens that both critics had strong libertarian views, supporting the belief that the market economy can grow and prosper without much government involvement.⁸ However, it is not their political philosophy that interest us here, but the logical and empirical validity of their claims.

For Buchanan, there are moral and political reasons for ‘fiscal responsibility’ (this being understood as a balanced budget attitude). He takes for granted that a debt is a debt, and sooner or later it must be repaid. He does not seem to consider that public debt is a liability of the government that can only be ‘repaid’ by delivering to the holder of the maturing debt another liability, notably a liability of an agency of the same government called the central bank. Nor he seems to notice that the difference between these two liabilities is fundamentally one of duration and yield. Buchanan admits that a balanced budget limits the choices of the community but he deems desirable not to leave such liberty to politicians. Taking his criticism to a political level, he claims that politicians are very different from the wise and benevolent government that Keynes had in mind, and they are not dependable when they promise to promote the commonly desired objectives of full employment and economic growth, (Buchanan, 1997, p.120).

What’s more, “government borrowing offers a means through which burdens of paying for current public spending can be transferred forward through time and placed on the shoulders of those ‘future generations’ who will be subjected to the taxes required to service and amortize public debt” (Buchanan, 1997, p.120). Because governments and voters are deficit biased, the democratic process fails to effectively monitor that the government does not threaten macroeconomic stability, and a constitutional rule is desired to limit governments’ power to spend in excess of tax receipts (Buchanan and Wagner, 1977).

Emblematic of the state of the art and its critics in the early 1960s is the publication of Bowen et al. (1960) where the authors defend Eisenhower’s view and criticize the consensus

⁸ Note that muddling the question of the degree of government involvement with the size of the fiscal deficit shows terminological confusion.

opinion, with the manifest intention of providing theoretical support to Buchanan's view. Their model, though structured in a two generations fashion, does not go very far except showing that if the government taxes a group of people who hold no government securities and pays interest to another group of people who holds securities and pays no tax, the former is impoverished to the benefit of the latter. The two groups of people are two different generations in a model assuming full employment and a singular behavior of consumers who increase their desired savings to absorb government debt when this is originally issued.

The logic of the article was harshly rejected by Vickrey (1961) and Lerner (1961). For the latter, the barrier to deficit spending is not financial but real: "we can impoverish the future by cutting down on our investment in capital resources (or by using up or destroying natural resources) that would have enabled future generations to produce and enjoy higher standards of living".

11. The Monetarist assault and Fisher's systematization of the issue

A final blow on the mainstream view came from a different direction and it was, initially, not even aimed at the question of public debt. The story begins with the Monetarist critique of the Keynesian counter-cyclical policies of the time. Friedman acknowledged the relevance of aggregate demand but he explained it exclusively on the basis of the expansion of the money supply. The money supply is the driver of demand and the spending-saving choice turned back to the old-fashioned loanable funds theory where a real rate of interest is the equilibrating factor between saving desires and investment desires. The key was the general acceptance of Friedman's (1968) point that monetary aggregates expanding faster than the demand for money create inflation in the long run. A few logical steps later, the government budget must be constrained to prevent inflation.

In this regard, Fischer (1989) provides a systematization of the matter. The fact that governments finance their deficits by issuing bonds and not money leaves central banks the task of regulating the money supply at a rate that is consistent with price stability. However, should government debt exceed some threshold where there are no buyers of bonds, the government would be forced to choose between 'monetize', i.e., issue money supply directly, or default. In the Monetarist framework, and contrary to Samuelson's observations, substituting central bank money for public debt inevitably feeds inflation.

Because the choice to monetize any sizable accumulated debt is understood to be inevitably inflationary, and default would cause an equivalent loss on public debt holders, as well as hamper the government ability to borrow in the future, a rising debt/GDP ratio sends a warning, and calls for fiscal discipline. Thus, fiscal discipline is needed to defuse the debt bomb, i.e., the inflationary potential of a growing debt without buyers.

12. Modeling the economy with an IIBC

It is clear that the notion of an intertemporal government budget constraint and the consequent call for fiscal rules to prevent an inflation overhang are not dictated by a financial constraint. A financial constraint on the budget is, instead, an institutional creation dictated by fear of the consequence of 'forced monetization' in case there are no buyers of

government securities so that government resorts to its sovereign power to ‘print money’. It is thus not binding in the same way it is binding to a private entity. Once in place, however, it somehow restores the constraint that was binding under the gold standard, when a country willing to be on the gold standard had to balance the budget inter-temporally. As Sargent (2010) put it, fiscal rules are “intended to protect monetary policy from the need to monetize government debt.”

In this view, when fiscal rules are not complied, we fall in a regime of ‘fiscal dominance’. As Jens Weidmann (2013) put it, when high public debt puts pressure upon monetary policy to ensure the solvency of the government (via rates too low and/or direct purchases of public debt), “monetary policy is no longer able to control the inflation rate, and therefore welfare losses will occur.”

Once the need for an institutional constraint is acknowledged, it becomes part of macroeconomic models in the same way as the budget constraint faced by a private entity. DSGE models include the transversality (or no Ponzi game) condition assuming binding budget constraints of all agents, including government. As Leijonhufvud (2014) put it, to do general equilibrium models “without binding budget constraints is not easy”. He also argues: “remove the transversality condition from DSGE models and everything unravels.” So it seems that a budget constraint is also needed to run general equilibrium models, an application of the notion that reality should adapt to models rather than the opposite!

In addition, agents are assumed to believe that the budget constraint is a state of nature and thus conform their behavior to it, undermining the power of fiscal policy. Rational expectations⁹ models describe rational agents as those agents who behave in their best interest on the basis of a view of the world that coincides with that of the model. Thus, rational agents in a model with IIBC will view government borrowing as the anticipation of future taxes, and will not consider public debt as net financial wealth.¹⁰

Ultimately, the IIBC is intended to protect the economy from two undesired scenarios: an uncontrolled expansion of the money supply, if the government monetize its unsustainable debt; or an abrupt loss of financial assets, equivalent to a huge taxation, if the government defaults on its debt.

13. The truth, please, about monetization

If the reason for setting limits to fiscal deficits (and thus tolerate the potentially serious economic, social, and political consequences of pro-cyclical policy) is based on the notion of monetization, one would think that the nature and consequences of monetization are well understood in mainstream models. This, however, is not true, and monetization is one of a few topics where mainstream is split, not only with regard to its consequences but to its definition, as well.

A simple definition of monetization in the context of public debt is that the central bank will monetize public debt when it trades central bank money for public debt. A common, more

⁹ Rational expectations are model consistent expectations.

¹⁰ Barro (1974).

narrow definition is that the central bank will monetize public debt when it credits central bank money to the Treasury in exchange for Treasury securities so the government can finance fiscal spending in excess to tax revenue without borrowing from the market. In this sense, monetization is understood to be a synonym for ‘printing money’ as a source of government deficit financing.¹¹ This also means that because the central bank is the monopolist issuer of central bank money, ‘monetization’ is a way to outdo, or violate, the budget constraint.

It is precisely when the central bank offers the Treasury such funding channel that Monetarist models predict inflation, irrespective whether this happens as a means to finance the annual deficit, or as a means to paying off the outstanding maturing debt without issuing new debt to roll over. Dealing with the theory of the government budget constraint, Fischer (1989) argues that “it is straightforward to relate the creation of base money to inflation in the usual monetarist way. The printing of money at a rate that exceeds the demand for it at the current price level creates excess cash balances in the hands of public. The public's attempts to reduce excess cash holdings eventually drive up the overall price level, until equilibrium is restored.”

This view contrasts the debt monetization channel to government deficit spending by borrowing from the private sector as two very different operations with different consequences. This, however, dismisses the fact that in either case the source of money is the same: the central bank.¹² And that the only difference between deficit spending financed via monetization and deficit spending financed via market financing (i.e., selling securities in the primary market) is that with the former banks acquire new overnight deposits at the central bank, while with the latter banks acquire new term deposits with the Treasury (i.e., the government securities issued).¹³

Government spending funded by “monetized” deficit:

| <u>CB</u> | | <u>Banks</u> | |
|-----------|-------------|--------------|-------------|
| ASSETS | LIABILITIES | ASSETS | LIABILITIES |
| + Bonds | + CBM | + CBM | + Deposits |

Government spending funded by floating bonds:

| <u>CB</u> | | <u>Banks</u> | |
|-----------|-------------|--------------|-------------|
| ASSETS | LIABILITIES | ASSETS | LIABILITIES |
| | | + Bonds | + Deposits |

¹¹ If this is what monetization is, we should probably also have a term for the reverse operation: when the Treasury, or the central bank, trades securities for central bank money, one could describe this as a case of ‘securitization’ of the national currency.

¹² This is a point stressed in the MMT literature: the money to pay taxes and buy securities comes from government spending and central bank lending.

¹³ With the increasing attention for monetary operations among economists in the past decade, the closeness of such two assets has been again widely acknowledged. See, for example, Borio-Disyatat (2009).

In addition, in both cases, the central bank may want to modify the consolidated banking sector's balance sheet through 'open market operations', in which case the 'excess reserve' balance in the former may change into a 'securities balance', and the 'securities balance' may change into an 'excess reserve' balance. Neither of two cases, in other words, is a money market equilibrium, and each can be modified into the other by monetary policy operations, to the point that the two options are interchangeable.

Why should the former financing solution be inflationary? This is explained with reference to two hypotheses. The first is the obsolete view that an expansion of bank reserves provide more means to banks to supply credit to the non-bank private sector (households and firms).¹⁴ The second hypothesis is that with monetization any agent who happens to hold money instead of securities for the same face value will feel richer. This hypothesis requires another assumption, and that is that private agents consider money net wealth and do not consider government debt net wealth. The logical problem here is that agents are assumed to behave consistently with the hypothesis that must be proved, so one must assume the conclusion to prove the conclusion, an evident contradiction.

Nicholas Kaldor (1985) provides here a piece of wisdom: "the basic error, which has widespread long before Friedman and the new Monetarism, lies in the assumption that regards the money supply as the *source* of the demand for goods and services."

14. The "grand natural experiment": Excess supply of real money balances and inflation

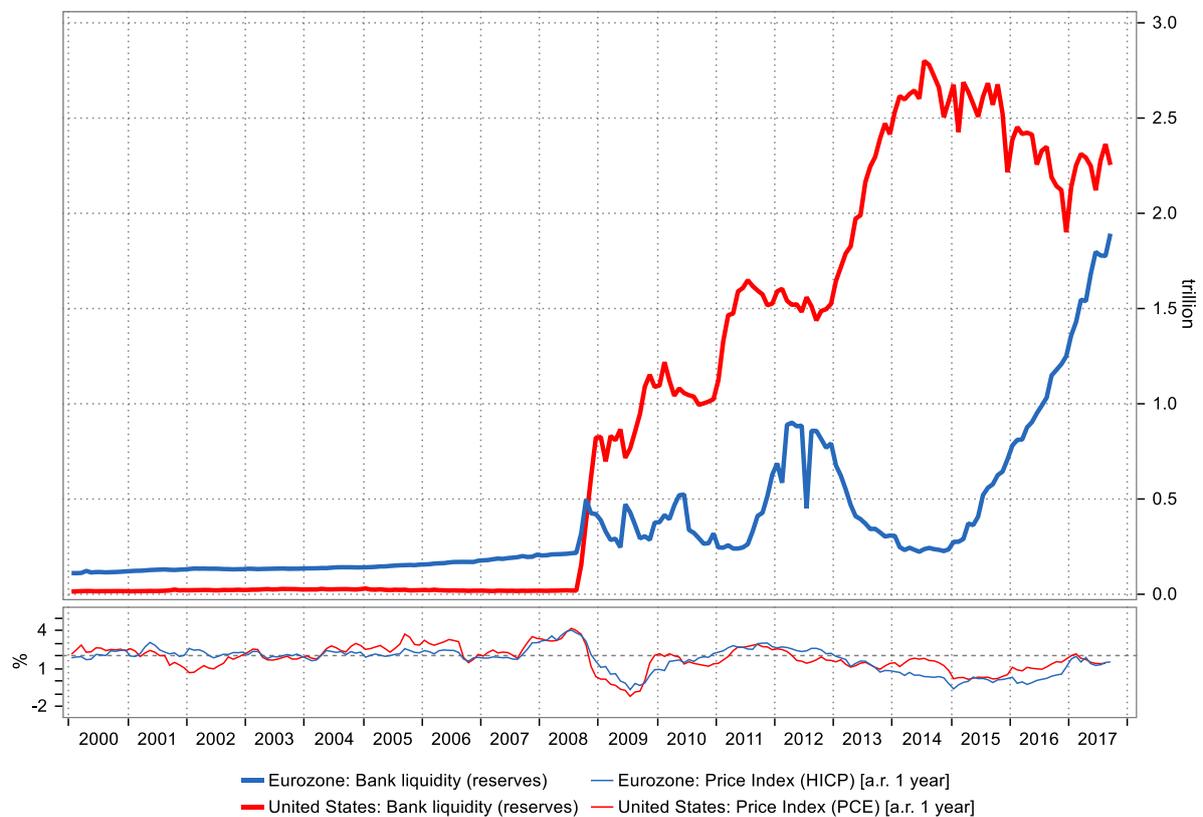
The 'grand natural experiment' of Quantitative Easing undermines the major pillar of the theory of the government budget constraint. Since the Monetarist counter-revolution, the quantity theoretic view of policy implementation has shaped counter-cyclical policies. In this view, private nominal spending decisions depend on money holdings: when economic entities have more 'real money balances' than desired, they spend more. Accordingly, once the government has been prohibited to 'monetize' its net spending (i.e., its spending in excess of tax revenue), only monetary policy can control money balances, and thus spending.

Notice that money balances are meant to include currency in circulation and bank deposits (the 'money supply'), thus providing a very partial measure of the stock of financial assets owned by the private sector. It does not include Samuelson's "near-money". And yet, it is much more reasonable to explain private spending as being triggered by the total of financial assets owned by the private sector (i.e., its stock of financial savings) rather than only by the most liquid component on the asset side of balance sheets. Narrowing the basis of private-spending decisions to one single type of asset (i.e., money balances) seems conceptually unsound and empirically untenable.

The Monetarist notion that monetization is inflationary has been largely discredited in the aftermath of the Great Recession, when central banks have "flooded" the economy with

¹⁴ The money multiplier has been a victim of the progress in monetary economics of the past decade. See, for example, McLeay et al. (2014). See also footnote 5.

central bank money in substitution of private and public debt securities they have purchased. The ‘natural experiment’ offered by the massive increase of bank liquidity shows that substitution of public (and private) debt with central bank money does not increase inflation.¹⁵ In fact, central banks have been missing their inflation targets consistently, as the inflation rate has undershot the policy target for most of the period.



Source: **Macrobond**

15. Reviving the lost monetary essence of macroeconomics

Although macroeconomics was born monetary, its transformation into general equilibrium models with microfoundations has removed money from the picture. In Hahn’s (1983) words, Walrasian theory’s “agents care only about “real” things, such as goods [...], leisure and effort.” And it is indeed a pity that in his subsequent work with Solow¹⁶ the authors admit in the very last chapter that “none of the models analyzed in the text has a government capable of taxing, borrowing, and spending (a circumstance we now regret). Even monetary policy takes the form of exogenous, uniform changes in the stock of outside cash”. In Minsky’s words, “to a general equilibrium theorist prices and wages state the terms on which alternatives are available, but to an operator in a capitalist economy prices and wages are ways to recover costs and obtain funds to meet payment commitments.”

Fortunately, and contrary to Buiter’s pessimism, there exists a tradition of monetary macroeconomics that offers an alternative view to the problem discussed in this paper. For

¹⁵ See also Marcuzzo (2017).

¹⁶ Hahn - Solow (1995).

Keynes, financial savings never do nor can fund investment spending. Kaldor challenged the notion that the money supply is under central bank's control. In the 1980s, Steindl used sectoral balances to show that a greater willingness to save does not fund investment but generates undesired indebtedness, and austerity fiscal policies trim wages, investment and productivity. Following a similar methodology, in the different context of twenty years later, Wynne Godley warned that growth that is led by private debt had become unsustainable. And Warren Mosler has awakened the dormant Chartalist tradition by describing money as the monopoly of the state. It is from these and other related contributions that one should begin a new journey to redesign the limits of fiscal policy and a coherent framework for fiscal policy.

16. The savings-debt constraint

A simple model can be used to condense the main ideas, drawing from the above tradition, regarding macroeconomic savings, debt, and spending, with an important implication for public debt.¹⁷

It is well known that a monetary economy is driven by spending and that businesses are willing to produce the amount of output that they can sell. It has also been long understood that if income recipients save part of their incomes in the form of financial assets instead of spending them in goods and services, this will not allow all output to be sold, unless some other economic unit is willing to spend more than its income and thus offset the effect of these savings. This is often described as the equilibrium between savings and investment. However, this manner of framing the dilemma is misleading for two reasons: any private deficit spending (not just investment) can act as the offsetting factor to savings; and financial savings must equal debt, not investment.

Excluding, for simplicity's sake, the option of drawing from past savings, any spending in excess of one's income entails some form of borrowing. Thus, given people's legitimate preference for saving a part of their income, the economy can only be stable if there is an equivalent amount of (private or public) deficit spending. Because spending in excess of income is made possible by issuing IOUs, and because savers store IOUs for future spending, it can be said that 1) by generating additional demand, any deficit spending offsets savings, and 2) by generating additional IOUs, any deficit spending offers savers the means to save.

Hence, the stock of financial assets available (FA) to meet desired private savings (FA^d) must be equal to the existing outstanding stock of liabilities. In other words, any increase in financial savings must be validated by the creation of an equivalent amount of new outstanding liabilities. These include a) liabilities issued by private residents (private debt, D_P), b) liabilities issued by various levels of government (public debt, D_G), and c) liabilities issued by foreign (private or public) entities, i.e., claims on foreigners that residents acquire when the country's current account is positive (D_F):

$$FA = D_P + D_G + D_F = FA^d$$

¹⁷ Following Steindl's seminal ideas, Terzi (2016) offers a concise model based on the notion of the saving-debt constraint.

This saving-debt constraint has a corollary. If private spending depends on the saving target of the private sector, then private spending depends on the stock of debt that validates savings. In other words, private spending is a function of the relationship between desired savings and desired indebtedness. The “Great Recession” is an example of a slump triggered by the mismatch between desired indebtedness and desired savings.

If some private entities seek larger savings to repay debt and/or restore the desired stock of savings that they lost, while credit growth drops because other private entities have reached their target level of indebtedness or because of rising credit risk perception, then private spending falls. That is unless public debt is allowed to quickly increase to compensate for the gap between desired borrowing and desired saving. Consequently, an increasingly large stock of public debt is needed during a time of deleveraging. An increase in public debt may also be needed to prevent a downward spiral in income when private credit growth stops supporting income growth. Thus, the most important function of public debt is to supply the economy with the stock of currency and government securities that supports the structure of private debt.

The notion that private spending hinges on the relationship between desired savings and sustainable indebtedness can be associated with both the leakages-injections (Keynesian) model and the quantity (Monetarist) theory. Like the Keynesian model, financial savings are considered leakages from the flow of spending. Unlike the traditional Keynesian model, however, savings are offset by debt, not by investment, and the dynamics of debt matter in determining demand conditions and the sustainability of growth. Because the theory of spending based on the savings-debt constraint is a quantity theory where spending decisions depend on the difference between an aggregate stock of financial assets and the desired level of that stock, it also resembles the Monetarist model. However, unlike the Monetarist model the stocks that matter are the stock of private financial savings and the stock of public debt, not the ‘money supply.’

In contrast to central bank policy, net government spending always provides a direct flow of financial assets to the private sector. This is because the difference between what the public sector spends on the private sector and what the public sector collects from the private sector (taxes) is a net addition to the stock of financial assets (currency and other liabilities of the public sector) that the private sector owns. This becomes the best option in times of deleveraging, on condition that the central bank faces no constraints in keeping public debt fully liquid by letting the currency float, and by standing ready to be an unlimited buyer of public debt if need be.

There are two major flaws in the theory of government budget constraints. First, the feared consequence of forced monetization is unfounded, and limiting policy option on the ground of the discredited hypothesis of debt inflation overhang has become unacceptable. Second, a “black zero” approach to fiscal budgets raises serious concerns regarding financial and economic stability.

This conclusion calls not for a complete removal of a government spending constraint, but for a deep reformulation of such constraint. Failure to do so is equivalent to accept an otherwise groundless rule that growth should primarily be funded by private debt. This has

been tried in the two decades preceding the global financial crisis and has ended in a massive failure.

17. Why setting unjustified limits to debt is unsafe

Luigi Pasinetti has noted that “the difference between high publicly indebted and low publicly indebted industrialised countries boils down to different proportions between public and private debts, while total indebtedness appears to be roughly at the same level.” The question of fiscal consolidation thus becomes the question of the proportion between public and private indebtedness.

In the simple savings-debt constraint model above, any arbitrary limit set on public debt constrains the options to validate the desired savings of the private sector. Once public debt is capped, demand can only grow via higher private debt and/or non-residents’ net spending (i.e., net exports). Increasing private debt, however, paves the ground to pro-cyclical private debt booms and busts, and the current account surplus solution entails dependence on foreign buyers of output, lowers real output per capita, and it also comes at the cost of increasing risk to residents who accumulate claims on foreigners.

This makes a powerful case for reclaiming the fiscal instrument as an essential element of counter-cyclical policies. In the Eurozone, the question is notoriously more critical, because fiscal policy rules are built into the current institutional and political architecture of the single currency. On one hand, common rules that limit local government debt of member countries are reasonable and typical of any nation with local levels of government. What is not reasonable, however, is the absence of an alternative plan that is consistent with the savings-debt constraint discussed above.

Such plan does not necessarily require fiscal union. A common initiative that allow each member country to spend on certain items, or cut specific taxes, with the approval and the supervision of the European Union, compensated by the issue of national debt fully guaranteed by the European central Bank would have the effect of providing the means to fund more private financial assets.

Correspondingly, a common fiscal budget and a Euro Ministry of Finance is not a sufficient condition for releasing the savings-debt constraint. A common fiscal authority would help narrowing country divergence, but could hardly release the savings-debt constraint if the common budget were subject to a strict balanced budget constraint.

18. Concluding remarks

How should government power to spend in excess of tax revenue be limited? No serious economist on either side of this debate can honestly describe the reason for limiting public debt with a risk of default by inability to pay, in the same fashion as this statement would apply to a private agent. While this account has been popularized as the risk that a government will default on its debt when debt becomes unsustainable, it is clear that the reason for imposing an institutional constraint on government spending has never been seriously justified by the risk of a sovereign (not local!) government ‘running out of money’.

It is well-known and recognized that the government budget constraint is, technically, fundamentally different from the one faced by any private unit. To the extent that government can fully dispose of the constitutional right to print the national currency, and to the extent that the national currency continues to be demanded by the private sector, there are no technical limits to government spending. This has long been recognized, since the demise of the gold standard.¹⁸

The limits to public debt that have been invoked since the 1980s have a different motivation, and are found to critically depend on the validity of the hypothesis that aggregate demand is driven by the money supply as commonly defined, a hypothesis that is theoretically unsound and that the recent QE experience has discredited. When aggregate demand is explained, instead, as being driven primarily by income and financial wealth, and when the savings-debt constraint is considered, a fundamentally different framework emerges, calling for a reform of the fiscal constraints commonly adopted today.

The main challenge is how to devise new rules that meet the savings-debt constraint and target full employment and price stability. The option of doing away with any rule and leave the decision in the hands of government only is one that most people would reject. The determination of the size of 'fiscal space' under the new understanding that this means how much fiscal expansion is needed for stable, sustainable and inclusive prosperity should be the prerogative of an independent institution subject to public monitoring. This is not a simple route, given the high skepticism regarding forecasters' capacity to quantify policy needs.¹⁹ The transition job proposal, when deficit financed, offers a partial solution at providing an automatic fiscal stabilization mechanism.²⁰

In any event, the current consensus, although apparently solid, is becoming increasingly fragile, given that a number of increasingly accepted insights regarding monetary and fiscal operations conflict with the principles underlying the intertemporal budget constraint to government. If the profession does not want to be caught by surprise again, it should invest more research efforts in this direction.

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¹⁸ See Ruml (1946).

¹⁹ See Caballero (2010).

²⁰ See Tcherneva (2012).

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