

Covid-19: Has the Time Come for Mainstream Macroeconomics to Rehabilitate Money Printing?

Axelle Arquié, Jérôme Héricourt & Fabien Tripier

Summary

The scale of public expenditure to be incurred in the Covid-19 health crisis is raising heated debates about the appropriate funding. Long rejected by mainstream macroeconomics due to its possible inflationary consequences, monetization is currently undergoing a surprising rehabilitation. Defined as the financing of public expenditure by money issuance -without the government ever reimbursing the central bank-, monetization appears as an attractive solution in a context where the burden of public debt could become particularly problematic due both to the persistent threat of secular stagnation and the massive Covid-19 shock. This policy brief offers some theoretical insights into this debate opposing monetization and issuance of additional public debt. We first clarify what is happening to current debt and how its sustainability can be assessed, before examining how current mainstream macroeconomics can be used to rehabilitate the use of monetization of public spending. In conclusion, we draw attention to the particular democratic challenges implied by such a policy in the Euro area context, in terms of balance of powers between European institutions.



“Under certain extreme circumstances – sharply deficient aggregate demand, exhausted monetary policy, and unwillingness of the legislature to use debt-financed fiscal policies – [Money-financed fiscal programs] may be the best available alternative. It would be premature to rule them out.” Ben Bernanke (2016)

Introduction

For a long time, monetization has been rejected by the core of mainstream macroeconomics, as the financing of public expenditure by money issuance, without the government ever reimbursing the central bank, was considered incompatible with inflation control.¹ Even before the Covid-19 crisis, however, the persistence of a context of low interest rates, deflationary pressures and high public debt led economists from the very heart of this mainstream macroeconomics to question the relevance of this rejection. This is the case, in particular, of Jordi Galí, one of the main architects of the New Keynesian economics.² Given the scale of the public expenditure to be incurred in the health crisis linked to Covid-19 (health, support for households and businesses), the question of the merits of financing by money issuance, rather than by emitting debt securities that can be traded on financial markets, is becoming more acute than ever. Before examining how this key building block of mainstream macroeconomics can rehabilitate the monetization of public spending, we will begin by clarifying what is happening to current debt and how its sustainability can be assessed. We conclude by suggesting that policymakers consider financing the enormous Covid-19 related spending – necessary to avoid a deep recession – through money creation as an emergency time-limited policy to deal with this specific crisis. However, we draw attention to the particular democratic challenges implied by such a policy in the Euro area context while preserving the balance of powers.

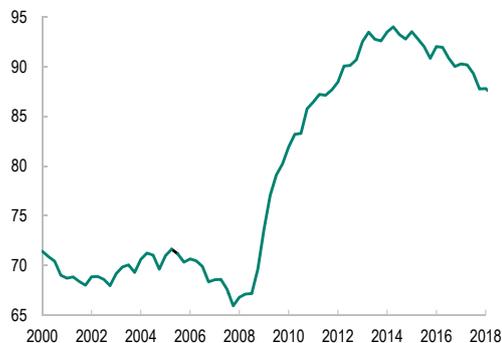
A public debt that is sustainable in principle...

There are a number of arguments supporting the sustainability of the currently observed levels of public debt in the major developed economies, even well above 100% of GDP in many countries, or in the process of exceeding them, as in France (see Figures 1 and 2). As established in the accounting identity below, at a given primary balance, the stock of debt does not experience explosive dynamics as long as the GDP growth rate is higher than the real interest rate paid on this debt.

(1) Ben Bernanke’s experience is enlightening in this regard. He was advised to delete the helicopter-drop metaphor from his 2002’s speech on deflation. (Bernanke, B. S. (2016). What tools does the Fed have left? Part 3: Helicopter money. Brookings Institution).

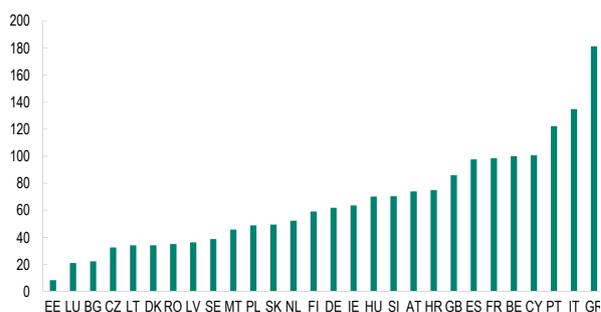
(2) Jordi Galí’s work on this issue largely preceded the Covid-19 crisis: his article “The effects of a money-financed fiscal stimulus” was published online in the Journal of Monetary Economics in August 2019. On 17 March 2020, he published an op-ed entitled “Helicopter money: The time is now” (at <https://voxeu.org/>) in which he states that “the time has come for ‘helicopter money’ - direct, unrepayable funding by the central bank of the additional fiscal transfers deemed necessary” to deal with the Covid-19 crisis. See also his previous op-ed entitled “Thinking the unthinkable: The effects of a money-financed fiscal stimulus” (October 2014, at <https://voxeu.org/>) accompanying a previous version of the working paper of Galí (2019).

Figure 1 – Euro area: consolidated government debt, as % of GDP



Source: ECB, Government Finance Statistics.

Figure 2 – Consolidated government debt, as % of GDP, 2018



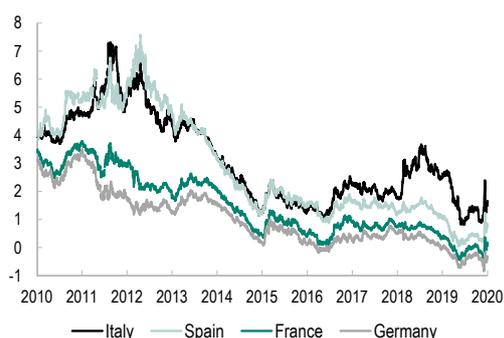
Source: ECB, Government Finance Statistics.

$$\left(\frac{Debt}{GDP}\right)_t - \left(\frac{Debt}{GDP}\right)_{t-1} = (real\ interest\ rate - GDP\ growth\ rate) * \left(\frac{Debt}{GDP}\right)_{t-1} + \left(\frac{primary\ balance}{GDP}\right)_t$$

The mechanism is simple: for a given level of the primary balance (i.e. the budget balance excluding interest paid on debt), if the wealth generated is growing faster than the interest paid on the debt, then the stock of debt is growing less rapidly than GDP. The debt-to-GDP ratio declines. Also, in a context where the sovereign rates up to 10 years (and sometimes over a longer run) of many countries are zero or negative (even more so in real terms, once inflation is deducted, see Figures 3 and 4), and where potential (long-term) growth rates are between 1% and 2% (see Figure 5), there is theoretically no issue about debt sustainability. It is this point of view that Olivier Blanchard (2019) recently defended, stressing that, for the United States at least, sovereign rates below the GDP growth rate are more the rule than the exception from a historical point of view. Increasing

there are a number of arguments supporting the sustainability of the currently observed levels of public debt in the major developed economies

Figure 3 – Sovereign debt yields (10 years)



Sources: Thomson Reuters Eikon and Datastream.

Figure 4 – Euro area: inflation rate, in %

Note: Harmonized Index Consumer Prices - Overall index, Annual rate of change.
Source: ECB.

Figure 5 – Euro area: GDP volume growth over 1 year, in %



Source: ECB.

public debt is also supposed to constrain capital accumulation in the private sector, *i.e.*, impairing private investment, with costs for long-term growth. However, Blanchard (2019) points out that these costs are likely to be very limited, since the marginal return on private capital has been declining for several years (probably partly because of the accumulation of rents in less competitive markets)³, which has already limited productive investment, and consequently, potential growth.

(3) This phenomenon was recently solidly documented by Thomas Philippon in his book "The Great Reversal: How America Gave Up on Free Markets", Harvard University Press, 2019.

... but a risk of self-fulfilling crisis in times of depression

In practice, however, there are two issues with this analysis. First, rates on sovereign bonds are set by the interplay of supply and demand on the securities markets, reflecting investor confidence in a government's signature, that is, its ability to repay. While 10-year rates in France, for example, are around zero on April 15, those in Italy stood at around 1.6% the same day, after having reached 2.5% in mid-March, when it became clear that the coronavirus crisis was going to have a substantial impact on public finances, and when the ECB did not then seem prepared to take any major action to reduce sovereign spreads between euro area member countries. For Italy, the equation became even more complicated, as the country's growth rate had been very low for more than a decade, probably around 0.5% over the long term. This raises the question of explosive debt dynamics, fueled by new debt flows in excess of the increase in the country's productive capacity.

Moreover, even in the absence of explosive debt dynamics, the size of the stock of public debt may in itself be problematic for its sustainability. Financial markets may lose confidence in the capacity of the public authorities to repay it. It is important to understand that, for the same stock of debt relative to GDP, several situations may arise in which the debt will be considered sustainable or not. These situations are referred to as multiple equilibria. This type of situation has been investigated in various analyses, one of the best known being that of Diamond and Dybvig (1983) on bank panics, during which expectations of bank failures lead economic agents to run to their banks to withdraw their funds, ultimately leading to the dreaded bankruptcies, even though without these massive withdrawals these bankruptcies would not have occurred.

In a recent article, Lorenzoni and Werning (2019) produce a similar analysis in the case of government debt. At given fiscal policies and prices of government securities, investors form expectations about the probability of a future government default on its debt. These expectations lead investors to predict a future path for government debt, and thus affect future default probabilities, which are reflected in the prices of the securities (and therefore in the interest rates paid on them). It is this latter, circular mechanism between interest rates and debt accumulation that makes the existence of several equilibria possible. To keep things simple, we restrain here to two situations: a good equilibrium, in which the debt is sustainable, and a bad equilibrium, in which increased interest rates due to fears of future defaults lead to a gradual but faster accumulation of debt, resulting in a default validating investors' fears. Although he acknowledges the relevance of this type of analysis, Blanchard (2019) points out that one cannot

this raises the question of explosive debt dynamics, fueled by new debt flows in excess of the increase in the country's productive capacity

directly infer from it the appropriate level of debt to avoid multiple equilibria, *i.e.*, the possibility of slipping onto the bad path.

Lorenzoni and Werning's (2019) approach also emphasizes two particularly relevant aspects. First, when a crisis occurs, interest

thus, although initially triggered by self-fulfilling pessimism, the crisis eventually damages the fundamentals of the economy

rates rise as a result of future default probabilities, but the crisis process may take some time before the actual default occurs. Moreover, the self-fulfilling nature of crises is purely transitory. If the economy remains on the path leading to a crisis for too long, the debt eventually reaches such a level

that a return to the good path is no longer possible. Thus, although initially triggered by self-fulfilling pessimism, the crisis eventually damages the fundamentals of the economy.

This type of analysis highlights the risk faced by a large number of countries that were already burdened with substantial debt stocks before the crisis, and which will see these stocks increase significantly. To take Italy as an example, Cofindustria estimated at the end of March that Italian GDP would fall by 6% in 2020, while public debt would reach 147% of GDP. In the case of France, on 14 April 2020, the government reported a projected 8% fall in GDP, with public debt expected to reach 115% of GDP. Economic history teaches us in this respect that public debts tend to increase very rapidly after economic crises. Reinhart and Rogoff (2009) report an increase of 86% on average in the three years following a banking crisis.

Thus, financing the increase in public debt linked to the health crisis cannot be achieved by simply issuing

although long considered dangerous, monetization has recently made a surprising return to the very heart of mainstream macroeconomics

securities on the financial markets without risking exposing a number of developed countries to a new sovereign debt crisis. In the special case of the euro area, issuing debt common to the European States, in the form of "Coronabonds", would make it possible to limit the exposure of the most fragile European economies to this risk, but it will still result in a further increase in public debt in the European economy. It is in this context that interest in monetizing public debt has reappeared.

■ Standard macroeconomics now offers some arguments in favor of monetization

Although long considered dangerous, monetization has recently made a surprising return to the very heart of mainstream macroeconomics, through a recent article by one of the founders of the New Keynesian, or neo-Keynesian, economics, Jordi Galí. His recent article (Galí, 2019) shows that financing public expenditure through monetization can be more favorable for activity than debt

financing under certain conditions. Monetization corresponds to a financing through pure money creation: the central bank emits the amount of money needed by the government to pay for its spending. The government never reimburses this sum, there is no loan. Although this type of model takes up a largely questionable neoclassical result, that of Ricardian equivalence, which is by nature unfavorable to debt financing and thus biases the comparison, it is interesting to examine the theoretical arguments stemming from this current building block of macroeconomics leading to a rehabilitation of the old idea of monetization.

Let us first consider, in the theoretical framework of Galí (2019), the extent to which the financing of public spending funded, either by debt or monetization, has a different effect on output in "normal times", *i.e.* when the natural interest rate, the rate that equates structural savings and investment compatible with full employment, is positive.

monetization is defined here as the financing through pure money creation, without creating any debt

Galí (2019) shows that in normal times, the effect of an increase in debt-financed public spending on output is

very small for two reasons. First, as households are assumed to anticipate that the government will have to raise taxes in the future in order to pay its debt and return to a balanced budget, they do not increase their consumption: the Ricardian equivalence prevails. The only indirect channel through which debt-financed government spending has a real effect on the economy is through the increase in the money supply and the resulting decline in the price of money, the nominal interest rate, leading to a decline in the real interest rate due to price rigidity – which does not adjust initially. Since the real interest rate determines

the intertemporal choice of households between saving and consumption, its fall leads households to increase their consumption, since saving becomes relatively less remunerated. However, the monetary policy that allows for a unique equilibrium in this type of model requires a relatively strong response to the

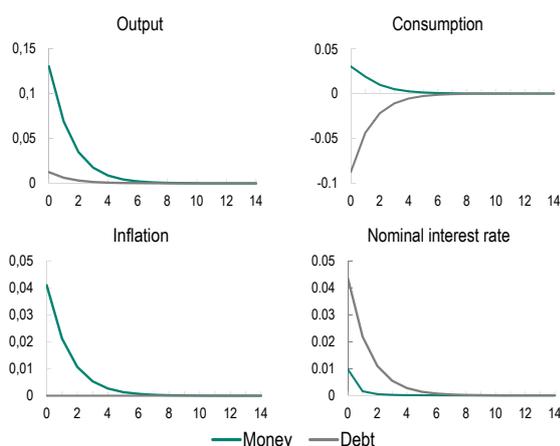
inflation resulting from the increase in the money supply in a second stage: the central bank thus raises the interest rate, shutting down the above indirect transmission channel.

Under normal circumstances, an increase in public spending financed by monetization has a greater impact on the economy than when public expenditures are funded through debt. Ricardian

equivalence does not apply in this case because the government debt does not increase as public spending is financed by money issuance. Households do not anticipate an equivalent increase in taxes in the future. They are therefore richer even taking into

the ricardian equivalence does not apply in the case of monetization as the government debt does not increase

Figure 6 – Dynamic Effects of Government Spending in Galí (2019)'s model: Debt vs. Money Financing



Source: Replication of Galí (2019)'s impulse response functions by the authors.

account the future, and can thus spend more: they increase their consumption, and therefore output in the short-run. Moreover, in the case of financing by monetization, the central bank does not pursue a policy of strict inflation targeting by definition, since it is committed to issuing the amount of money needed by the government. Indeed, by construction, there is no longer inflation targeting in Galí (2019)'s model when public spending are financed by money creation. The interest rate therefore falls in the absence of any opposite action by the central bank, stimulating consumption and production.

To sum up, these two combined effects, Ricardian equivalence and strict inflation targeting play in the case of debt financing, but are absent in the case of financing by monetization (see Figure 6 for a comparison of the paths of output, consumption, inflation and nominal interest rate in the two cases). These underlying debatable assumptions explain the greater effect of public spending on activity in the case of monetization financing, with a multiplier greater than 1.

Let us now examine the mechanisms at work when the zero lower bound on the nominal interest rate is reached, *i.e.* in the liquidity trap situation: the natural interest rate is negative and the central bank cannot align because its key (nominal) interest rate

cannot, in principle, be negative (actually, the deposit facility is slightly negative since 2015 in the euro area, see Figure 7). This is, for example, the case in a situation of secular stagnation as described by Summers (2013). Savings are structurally high and consumption and investment structurally low, for example because of high inequalities: too large a share of income is allocated to the richest households, who have a lower marginal propensity to consume, hence the savings surplus. The structural interest rate thus declines, even to the point of becoming negative.

In this situation of liquidity trap, the effect on output of financing through debt is greater than it is under normal circumstances. The indirect channel through the interest rate is not shut down by central bank intervention in the liquidity trap as it is in normal times. In fact, the central bank does not raise the interest rate because – this is the definition of the liquidity trap – the central bank would like to lower its key rate to the negative level of the natural rate. Thus, the increase in demand is not hindered by an increase in the interest rate decided by the central bank in order to contain inflation, as is the case in normal times.

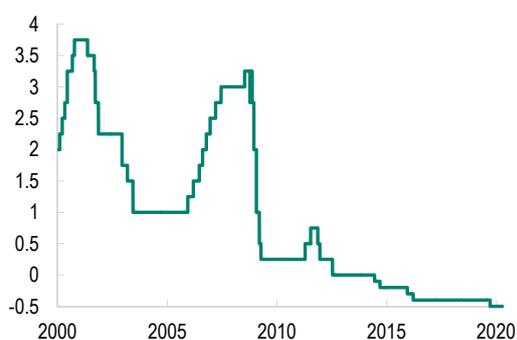
In the case of a liquidity trap, financing by monetization offers an interesting additional mechanism that may justify its use in the current situation. At the zero lower bound (ZLB), as explained above, the central bank would wish to lower its nominal interest rate to follow the natural -negative- rate, but cannot do so. One way to have an effect today despite this constraint is to commit to a lower policy rate in the future, over a longer period, in order to compensate for the fact that it cannot lower it as much as necessary today. When the central bank is credible, it can thus guide agents' expectations and have a real effect today, despite the impossibility of lowering the key rate below zero in the immediate future. But this forward guidance policy requires agents to trust that

while not particularly convincing in normal times, arguments from standard macro justify recurring to monetization at the ZLB where it acts as forward guidance through the inflation generated

the central bank will keep its word once the economy is out of the liquidity trap. Interestingly, in cases where the central bank is not credible, financing public spending through monetization still makes some form of forward guidance possible by creating inflation over several periods, mechanically lowering future expected interest rate. Monetization, via the inflation it generates in the future, thus acts as a form of mechanical, and therefore credible, commitment by the central bank to maintain lower interest rates in the future.

While not particularly convincing in normal times, some theoretical arguments derived from mainstream macroeconomics exist to justify recourse to monetization of public spending when the zero lower bound is reached, essentially because the inflation it creates reinforces the transmission of monetary policy. But is this risk-free?

Figure 7 – ECB Deposit facility



Source: ECB.

... but is the risk of inflation under control?

The choice of financing through money creation is obviously not without risks, the main one being the fall in the value of money in the considered economy.

The quantitative theory of money is the main theoretical source for explaining such a risk. Present in economic analysis since the 16th century, renewed by the monetarist analysis in the 1970s, this approach was formalized as follows by John Hicks in the late 1930s:

$$\text{Money supply} * \text{Velocity of money} = \text{GDP in volume} * \text{General price level}$$

Within this framework, both the velocity of money and real GDP are determined by long-term structural factors independent of monetary policy. In other words, they are regarded as fixed, and

economic history is replete with episodes of hyperinflation caused by uncontrolled money creation to bail out public finances

any increase in the money supply can only lead to a proportional increase in the general price level, leaving real GDP unchanged. Economic history is replete with episodes of hyperinflation caused by uncontrolled money creation to bail out public finances, one of the most famous being Germany in the first half of the 1920s. It must be noted, however, that over the recent period, unconventional monetary policies, known as quantitative easing, have not generated such apocalyptic effects, even though they have involved (and still involve) massive money creation. The nature of the latter explains to a large extent the absence of hyperinflation: directed mainly towards financial markets, it is reflected in purchases of sovereign securities, but also of corporate securities, and in some cases even asset-backed securities such as mortgage-based securities. If there has been inflation, it has affected the prices of financial assets, but relatively little the markets for goods and services. Even if current monetary policies are aimed more specifically at financing public spending, it is hard to see, at least over a foreseeable horizon, how they could have a significantly more substantial impact on inflation (Figure 4 shows the recent dynamic of inflation in the euro area). Indeed, both ECB's record for maintaining low inflation and inertia of structural forces underlying secular stagnation (as inequality, demography and productivity slowdown) make any resurgence in inflation highly unlikely in the medium term. Moreover, targeting higher inflation (e.g. 4% per annum, as suggested by Blanchard *et al.*, 2010) would also have the advantage of reducing the real weight of existing debt and moving economies away from the zero lower bound constraint for monetary policy.

firstly, the Treaty on the Functioning of the European Union prohibits direct financing of governments by the ECB

Nevertheless, the Covid-19 crisis presents specificities that should not be ignored, precisely because of the consequences they could have on inflation. Indeed, this crisis presents a characteristic that is unprecedented in contemporary history, that of a rapid and massive contraction of supply, not as a result of a contraction in effective demand or a cost shock (such as oil shocks), but as a result of a decision by the public authorities to contain the pandemic. In a context of lasting disruption of value chains, and where it will take several months or more for the productive structures to return to their full potential, it cannot be ruled out that aggregate demand will return more rapidly to its previous level. This would then lead to the classic demand-driven inflation dynamics, *i.e.* price increases induced by demand which is structurally higher than supply.

... and how could money-financing be implementable within a monetary union?

Is the euro area ready for money-financing of public expenditures? Some implementation issues, mainly political economy related ones, might well arise.

Firstly, the Treaty on the Functioning of the European Union prohibits direct financing of governments by the ECB.⁴ From this point of view, quite ironically, it seems easier to create money to give it directly to households or businesses without any counterpart (*i.e.* helicopter money in the original sense) rather than to governments.⁵ Reforming the European treaties might be challenging in the current

context. Thus, some legal creativity of European institutions would be required for the ECB to be quickly able to create money to finance Covid-19-related expenditures by governments.

Secondly, in the Euro area, monetary policy is led at the Union level by the ECB, while fiscal policies remain national. This dichotomy might be problematic as financing public expenditure through monetary creation requires some amount of coordination between monetary and fiscal policies – if only to define the amounts of money to create, and the duration of this policy. Research on monetary union characterized by centralized monetary policy and decentralized fiscal policy have already

secondly, in the Euro area, monetary policy is led at the Union level by the ECB, while fiscal policies remain national

(4) The article 123 writes: "Overdraft facilities or any other type of credit facility with the European Central Bank or with the central banks of the Member States (hereinafter referred to as "national central banks") in favour of Union institutions, bodies, offices or agencies, central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of Member States shall be prohibited, as shall the purchase directly from them by the European Central Bank or national central banks of debt instruments."

(5) "If monetary financing of public authorities is prohibited by the European treaties, it would, for example, be possible, according to these theories, to imagine that the central bank would create money on a lasting basis to finance businesses directly" said François Villeroy de Galhau, head of the French central and member of the ECB's government council. Source: Financial Times (April 8 2020) <https://www.ft.com/content/c60a3bab-9229-48d7-8da5-574f8b0b9df6>.

highlighted the challenges and welfare costs of coordination in this context (e.g. Dixit and Lambertini (2003ab); Aguiar *et al.* (2015)). Several policy rules, such as monetary policy independence or debt ceiling, have been proposed to limit the inefficiencies induced by coordination failures and externalities. However, mainstream economics has not yet considered how monetization could play out within a monetary union and therefore little is known on how coordination issues might affect the effectiveness of monetization in such a context.

thirdly, financing public expenditures through monetary printing amounts to granting some fiscal power to the ECB

Thirdly, financing public expenditures through monetary printing amounts to granting some fiscal power to the ECB. Therefore, any political framework designed to organize monetization by the ECB would need to consider how much fiscal policy to grant the central bank, and how much independence it would lose if some other political body were to jointly decide on this policy in order to ensure at least some democratic control. The ECB was created as an institution independent of governments and parliament, *i.e.* independent from political bodies which are traditionally in charge of the tax system and public spending decisions. The rationale for this independence was to make its mandate of price stability (Kydland and Prescott (1977); Barro and Gordon (1983)) more credible. Yashiv (2020) suggests a two-stage framework, designed to manage the delicate balance between preserving ECB independence and maintaining a control by democratically-elected bodies over fiscal policy. During the first stage, the central bank conducts monetization for 90 days without intervention of governments: this stage is intended to guarantee central bank independence. In the second stage, “a COVID policy committee

would be set up with equal representation for the central bank (including its governor), the treasury (including the minister), and outside economic experts” in order to ensure some democratic control. However, such proposal would clearly extend the power of monetary authority to the fiscal sphere, without reciprocity for governments concerning monetary policy.

Conclusion

Mainstream macroeconomics has long rejected the very idea of monetization, and consequently did not provide until very recently a useful reading grid to think about monetization. It is therefore all the more intriguing that the leading framework among central banks and policymakers now offers some arguments supporting monetization in the current macroeconomic situation, combining low interest rates and low inflationary tendencies. According to recent macroeconomic models, inflation generated by monetization could facilitate the transmission of monetary policy at the zero bound, and would likely remain moderate in a context of secular stagnation. It therefore seems a good time for policymakers to consider using money creation to finance the enormous spending linked to the Covid-19 health crisis in most countries. However, in the specific context of the Euro area, implementation within a monetary union raises new political challenges to ensure the right balance of powers between European institutions.

the leading framework among central banks and policymakers now offers some arguments supporting monetization in the current macroeconomic situation

References

- Mark Aguiar, Manuel Amador, Emmanuel Farhi, and Gita Gopinath, 2015, “Coordination and crisis in monetary unions”, *The Quarterly Journal of Economics*, 130(4), 1727-1779.
- Robert J. Barro and David B. Gordon, 1983, “Rules, discretion and reputation in a model of monetary policy”, *Journal of monetary economics*, 12(1), 101-121.
- Olivier Blanchard, 2019, “Public Debt and Low Interest Rates.” *American Economic Review*, 109 (4), 1197-1229.
- Anne-Laure Delatte, Julien Fouquau and Richard Portes, 2017, “Regime-dependent sovereign risk pricing during the euro crisis”, *Review of Finance*, 21(1), 363-385.
- Douglas W. Diamond and Philip H. Dybvig, 1983, “Bank Runs, Deposit Insurance, and Liquidity”, *Journal of Political Economy*, 91 (3), 401-419.
- Avinash Dixit and Luisa Lambertini, 2003, “Interactions of commitment and discretion in monetary and fiscal policies”, *American economic review*, 93(5), 1522-1542
- Avinash Dixit and Luisa Lambertini, 2003, “Symbiosis of monetary and fiscal policies in a monetary union”, *Journal of International Economics*, 60(2), 235-247.
- Jordi Galí, 2019, “The effects of a money-financed fiscal stimulus”, *Journal of Monetary Economics*, <https://doi.org/10.1016/j.jmoneco.2019.08.002>.
- Finn E. Kydland and Edward C. Prescott, 1977, “Rules rather than discretion: The inconsistency of optimal plans”, *Journal of political economy*, 85(3), 473-491.
- Guido Lorenzoni and Iván Werning, 2019, “Slow Moving Debt Crises”, *American Economic Review*, 109(9), 3229–3263.
- Carlen Reinhart and Kenneth Rogoff, 2009, *This time is different: Eight centuries of financial folly*, Princeton University Press.
- Lawrence Summers, 2015, “Have we Entered an Age of Secular Stagnation? IMF Fourteenth Annual Research Conference in Honor of Stanley Fischer, Washington, DC”, *IMF Economic Review*, Palgrave Macmillan; International Monetary Fund, vol. 63(1), pages 277-280, May.
- Eran Yashiv, 26 March 2020, “Breaking the taboo: The political economy of COVID-motivated helicopter drops”, <https://voxeu.org/article/political-economy-covid-motivated-helicopter-drops>.

About the authors

Axelle Arquié is economist at CEPII.

Jérôme Héricourt is scientific advisor at CEPII and Professor at Université de Lille, LEM-CNRS.

Fabien Tripier is scientific advisor at CEPII and Professor at Université d'Evry – Université Paris-Saclay, EPEE.

Contacts: axelle.arquie@cepii.fr – jerome.hericult@univ-lille.fr



CEPII (Centre d'Etudes Prospectives et d'Informations Internationales) is a French institute dedicated to producing independent, policy-oriented economic research helpful to understand the international economic environment and challenges in the areas of trade policy, competitiveness, macroeconomics, international finance and growth.

CEPII Policy Brief
CEPII's insights on international economic policy
CEPII – Paris – 2020 – Published on 14.05.20
No ISSN: 2270-258X

All rights reserved. Opinions expressed in this publication are those of the author(s) alone.

Managing Editor: Christophe Destais
Production: Laure Boivin

Editorial Director: Sébastien Jean
CEPII's Publications Manager: Isabelle Bensidoun

CEPII
20, avenue de Ségur
TSA 10726
75334 Paris Cedex 07

+33 1 53 68 55 00

www.cepii.fr

Press contact: presse@cepii.fr
