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4 January 2023

Online at <https://mpra.ub.uni-muenchen.de/115857/>  
MPRA Paper No. 115857, posted 04 Jan 2023 14:31 UTC

# A scientific note on the Italian Mini BOTs and the proposal of the CCCFs

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January 4, 2023

## Abstract

This note shows that the Italian Mini BOTs proposed in 2019 bore the potential neither to become Italian legal tender nor to practically increase Italian government debt, but to practically cause a mere reduction in taxation and thence in government spending or transfers. Since the Eurozone practically excluded an increase in government debt or a monetisation of that which the Italian treasury owed certain firms the Italian Mini BOTs, precisely because of the probable uncertainty associated with them, would have (i) stimulated expenditure more than a taxation rebate to the said firms and (ii) facilitated Italy's hypothetical abandonment of the Eurozone and return to sustained and consistent growth thereby, seemingly being the one and only reason for which all of their critics opposed them. This note in fact proposes the direct emission of Italian taxation credit certificates endowed with a further reduction in taxation conditional on their use for consumption, termed "*Certificati a Consumo di Compensazione Fiscale*", thereby attaining to the said two ends as well as to that of alleviating the liquidity shortage on the part of firms and the private sector at large without recourse to monetary policy.

*JEL classification codes:* E19; E42; E44; E51; E52; E58; E61; E62; E63; E65; G21; G23; G28; H20; H30; H50; H60.

*MSC codes:* 91B64.

*Keywords:* CCCFs; government budget constraint; government debt; government spending; Italian Mini BOTs; miniature treasury bills; money supply; public finance; taxation; taxation credit certificates; transfers.

## 1. INTRODUCTION

By the mechanics of public finance, what exactly were the Italian Mini BOTs to be? Retroactive government deficit spending and thereby supplementary government debt? Supplementary transfers? A para-money supply, perhaps sunk? A mere reduction in taxation and thereby in government spending or transfers?

Despite the subsided attention in their regards on the part of the general public the topic is still one of relevance, perhaps more than ever, the secular stagnation of Southern Europe and of Italy in particular perduring, nay, being exasperated, as it is: what were the Italian Mini BOTs and what were their effects to be?

This note shows that the Italian Mini BOTs proposed in 2019, contrarily to that which their critics<sup>1</sup> had declared, bore the potential neither to become Italian legal tender nor to practically increase Italian government debt; its analysis is primarily scientific and only secondarily concerned with the broader political repercussions of their introduction (sanctions, central bank liquidity breaks etc.).

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<sup>1</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>, <https://osservatoriocpi.unicatt.it/cpi-archivio-studi-e-analisi-mini-bot-inutili-e-dannosi>, <https://www.lavoce.info/archives/59546/la-favola-dei-minibot>

In detail, their convertibility into taxation revenue would have been insufficient for their consideration as legal tender. At first, then, the mechanics of public finance allowed one to exteriorly construe them as either supplementary present transfers or supplementary past government debt.

However, in real terms, such an exterior augmentation in present transfers or even past government debt would have had to be financed neither through an increase in (i-a) present government debt or (i-b) present taxation, nor through a *prima facie* decrease in (ii-a) present government spending or (ii-b) present transfers, nor through an increase in (iii-a) the present money supply, out of Italian control, but merely through an increase in (iii-b) the present para-money supply satisfying the condition of convertibility into taxation revenue.

The condition of convertibility into taxation revenue would have nevertheless signified a reduction in (i-b) present taxation, exteriorly construing them as taxation credit certificates after all, and would have thereby required a corresponding decrease in (ii-a) present government spending or (ii-b) present transfers or a corresponding increase in (i-a) present government debt or (iii-a) the present money supply.

The possible exclusion of the corresponding increase in (i-a) present government debt or (iii-a) the present money supply, both forsooth practically prescribed by the Eurozone, would have consequently confined the burden of the introduction of the Italian Mini BOTs to the corresponding decrease in (ii-a) present government spending or (ii-b) present transfers.

At zero transfers, in the probable presence of uncertainty associated with the Italian Mini BOTs, particularly predicted by their critics<sup>2</sup>, such a reduction in taxation would have no less than offset the loss in the income multiplier and in the money velocity potential of the corresponding reduction in government spending, for the private sector would have probably tried to employ them more than it would have tried to employ Euros, either through consumption or investment; such an uncertainty would not have albeit altered their correspondence with Euros, on account of their convertibility into taxation revenue.

Crucially, the Italian Mini BOTs would have been none other than a means of the obligatory repayment of Italian public trade debt, which the Eurozone practically forbade to be executed by means of an increase in government debt or a monetisation, as suggested.

A reduction in taxation was therefore inexorable, as was that of government spending or transfers. The superiority of the introduction of Italian Mini BOTs over a taxation rebate in the regards of the firms to which the Italian treasury owed money, on account of their greater money velocity potential, itself due to the probable uncertainty associated with them, which their critics<sup>3</sup> were first in predicting, could not ultimately fail to emerge.

In fact, one hereby proposes the direct emission of Italian taxation credit certificates endowed with a further reduction in taxation conditional on their use for consumption, by the name of “*Certificati a Consumo di Compensazione Fiscale (CCCF)*”, fiscal compensation consumption certificates, that is to say.

CCCFs would (i) stimulate expenditure more than a taxation rebate to the firms to which the treasury owes money, (ii) legally alleviate a liquidity shortage on the part of firms and the private sector at large without recourse to monetary policy and (iii) facilitate Italy’s hypothetical abandonment of the Eurozone and return to sustained and consistent growth thereby.

## 2. DOUBLE INTERNAL CURRENCY

Let one consider an economy with two internal currencies,  $M_{SI1}$  and  $M_{SI2}$ , conjointly delineating its internal nominal money supply:  $\forall M_{SI1}, M_{SI2} \in \mathbb{R}_{++}, M_{SI1} + M_{SI2} = M_{SI}$ . Now, two internal currencies not functioning as precisely one would eventually fail, for one would end up being demanded less than the other to the point of complete rejection; if two internal currencies by contrast functioned as precisely one then either one would be nominally redundant.

Two internal currencies function as one internal currency by means of equivalence in taxation revenue and consumption convertibility, namely, at given prices, both internal currencies should be convertible into taxation revenue and consumption at the same nominal value.

<sup>2</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>, <https://www.lavoce.info/archives/59546/la-favola-dei-minibot>

<sup>3</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>, <https://www.lavoce.info/archives/59546/la-favola-dei-minibot>

If either of the two internal currencies exhibited taxation revenue non-convertibility then such a one would be neither legal tender nor money. If either of the two internal currencies exhibited consumption non-convertibility then such a one would be rejected outright, failing taxation revenue convertibility and similarly being neither legal tender nor money. Must a second internal currency equivalent to the first be therefore both money and legal tender?

### 3. MONEY AND LEGAL TENDER

Money is canonically defined as a medium of exchange, a unit of account and a store of value. Normally, in order to become legal tender money would have to be decreed as a legal form of (debt re)payment across all national (debt) transactions. Money is consequently necessary, but insufficient for legal tender; alternatively, legal tender is sufficient, but unnecessary for money:  $LT \rightarrow M$ , but  $M \not\rightarrow LT$ .

Legal tender has historically fallen under the following monetary classifications: non-representative or *fiat* money; representative money, of an underlying commodity or asset, sufficiently liquid, demand inelastic and supply inelastic; commodity or asset money.

Taxation revenue convertibility is thus a necessary condition in order for a currency to be considered legal tender, inductively fulfilling its normal understanding; a sufficient condition in order for a currency to be considered legal tender is the decretal declaration of such a currency as legal tender:  $LT \rightarrow TRC$ ;  $LTD \rightarrow LT \rightarrow M$ .

By fulfilling the canonical definition of money consumption convertibility is accordingly a sufficient condition in order for a currency to be considered money, but not legal tender; a necessary condition in order for a currency to be considered money is its convertibility into taxation revenue:  $CC \rightarrow M$ , but  $CC \not\rightarrow LT \rightarrow M$ ;  $M \rightarrow TRC$ .

By eliminating arbitrage taxation revenue convertibility is additionally a sufficient condition for consumption convertibility, as a consequence, taxation revenue convertibility is a necessary and sufficient condition in order for a currency to be considered money:  $TRC \rightarrow CC \rightarrow M$ , thus,  $M \leftrightarrow TRC$ . In brief, a second internal currency equivalent to the first must be money, fulfilling convertibility into both taxation revenue and consumption, but not legal tender.

### 4. ITALIAN MINI BOTs: LEGAL TENDER?

Despite the objections on the part of its advocates, the Italian 2019 proposal<sup>4</sup> of miniature treasury bills, “*Mini Buoni Ordinari del Tesoro (BOT)*”, was criticised<sup>5</sup> as being an *illegal* instance of a second internal currency equivalent to the first, being the Euro.

Its advocates nonetheless never denied that such miniature treasury bills were supplied with the additional, manifest end of facilitating Italy’s hypothetical abandonment of the Eurozone, which they supported, but merely stressed their legality within the bounds of Italian, Eurozone and European Union (EU) legislation.

For completeness, their circulation would have amounted to some 57 milliard (i.e. billion) Euros; **Confindustria** [1] held the number to be 53, claiming it to be roughly equivalent to a quarter of the mass of Euros physically circulating in Italy in 2019.

Contrary to Confindustria’s claims, far from being infinitesimal, the figure was of note, even in the regards of other fiscal manoeuvres, and if Italy had decided to abandon the Eurozone the circulation of such miniature treasury bills would have then eased the transition towards the new currency, initially envisaged to happen at parity; the transition would have been facilitated no less than physically and perhaps, thence, even electronically.

In detail, the proposal, ideated by Claudio Borghi Aquilini<sup>6</sup>, posited the securitisation of the Italian public sector’s trade debts by means of miniature Italian treasury bills, which would have immediately been deemed acceptable for official taxation payment to the Italian treasury.

<sup>4</sup><https://aic.camera.it/aic/scheda.html?numero=1/00013&ramo=C&leg=18>

<sup>5</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>, <https://www.lavoce.info/archives/59546/la-favola-dei-minibot>, <https://twitter.com/ecb/status/1136618501639155713>

<sup>6</sup>[https://www.youtube.com/watch?v=qTMR\\_5ghE5M](https://www.youtube.com/watch?v=qTMR_5ghE5M)

Regardless of the resoluteness of their proponents, such miniature treasury bills would have thereby become a representation of the underlying *fiat* money, the Euro, being classified as representative money. Albeit, contrarily to what the European Central Bank (ECB) governor of the day, Mario Draghi<sup>7</sup>, had affirmed, they would not have become legal tender.

In order to become legal tender, which the Euro's<sup>8</sup> adoption forbids, such miniature treasury bills would have had to be decreed as a legal form of (debt re)payment across all Italian (debt) transactions, which their proposal did not envisage.

Such a criticism therefore conflicted with the proposal. The absence of arbitrage in their hypothetical exchange induced by the Italian treasury's acceptance of them for official taxation payment, itself satisfying the necessary condition of taxation revenue convertibility for their consideration as legal tender, would have satisfied the sufficient condition of consumption convertibility for their consideration as money, but not the sufficient condition of their decretal declaration as legal tender for their consideration as legal tender.

In short, while sufficient and necessary for their consideration as money, the Italian treasury's acceptance of them for official taxation payment would have been necessary, but insufficient for their consideration as legal tender, attaining to their consideration as form of (debt re)payment across all Italian (debt) transactions only *de facto*, not also *de jure*.

In other words, they would not have become a *legal* form of (debt re)payment across all Italian (debt) transactions, thereby paradoxically preserving legality within the bounds of Italian, Eurozone and European Union (EU) legislation.

In even greater synthesis, as maintained by their proponents, the Italian Mini BOTs bore the potential for being considered money, but not that to be considered legal tender, thereby acting as an instance of a second internal Italian currency equivalent to the Euro absent losing their legality.

## 5. ITALIAN MINI BOTs: MORE GOVERNMENT DEBT?

Contrarily to the other affirmation by Mario Draghi<sup>9</sup>, such miniature treasury bills would have neither increased government debt. While exteriorly construable<sup>10</sup> as supplementary past government debt, thereby exteriorly augmenting it, they would not have caused present government debt to increase, nor present taxation, nor the present money supply, for that matter.

As part of the Eurozone, the present money supply lay out of Italy's control and present taxation would have been exempted from a corresponding change (i.e. increase) just as present government spending or present transfers *prima facie* (i.e. decrease).

The exterior augmentation in past government debt such miniature treasury bills would have caused, had they been introduced, would have therefore been met with their corresponding introduction on the supply side of the government's budget constraint. In short, the increase in government debt would have been one of demand and not of supply.

To better see it let one formalise the government's budget constraint, in which variables are indexed according to discrete time  $t : t \in \mathbb{Z}$ . Specifically, let  $r_t$  denote the present real interest rate, let  $p_t$  denote present prices, let  $b_t$  denote present government bonds or debt, let  $m_t$  denote the present real money supply, let  $g_t$  denote present government spending, let  $tr_t$  denote present transfers, let  $t_t$  denote present taxation, let denote  $mb_{Dt}$  present demand miniature treasury bills and let  $mb_{St}$  denote present supply miniature treasury bills; let all such variables be positive, real numbers:  $r_t, p_t, b_t, m_t, g_t, tr_t, t_t, mb_{Dt}, mb_{St}, \in \mathbb{R}_{++}$ .

The demand of the government's budget constraint equals its supply. The demand of the government's budget constraint is the sum of (i) past government debt weighted at the past real interest rate, (ii) the past real money supply, (iii) present government spending and (iv) present transfers, all valued at respective prices:  $D_t \equiv r_{t-1}p_{t-1}b_{t-1} + p_{t-1}m_{t-1} + p_t g_t + p_t tr_t$ .

The supply of the government's budget constraint is the sum of (i) present government debt, (ii) the present real money supply and (iii) present taxation, all valued at respective prices:  $S_t \equiv p_t b_t + p_t m_t + p_t t_t$ . The introduction of miniature treasury bills exteriorly construed as supplementary past government debt

<sup>7</sup><https://twitter.com/ecb/status/1136618501639155713>

<sup>8</sup><https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=EN>

<sup>9</sup><https://twitter.com/ecb/status/1136618501639155713>

<sup>10</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>

causes the demand of the government's budget constraint to change as follows:  $D_t \equiv (r_{t-1}p_{t-1}b_{t-1} + p_{t-1}mb_{Dt-1}) + p_{t-1}m_{t-1} + p_t g_t + p_t tr_t$ .

Alternatively, the introduction of miniature treasury bills can be exteriorly construed as supplementary present transfers, causing the demand of the government's budget constraint to change as follows:  $D_t \equiv r_{t-1}p_{t-1}b_{t-1} + p_{t-1}m_{t-1} + p_t g_t + (p_t tr_t + p_{t-1}mb_{Dt-1})$ .

The introduction of miniature treasury bills, exteriorly construed as supplementary past government debt or supplementary present transfers, causes the supply of the government's budget constraint to change as follows:  $S_t \equiv p_t b_t + p_t m_t + p_t t_t + p_{t-1}mb_{St-1}$ .

The equation of the demand and supply of the government's budget constraint in the presence of miniature treasury bills is thus the following:  $D_t \equiv (r_{t-1}p_{t-1}b_{t-1} + p_{t-1}mb_{Dt-1}) + p_{t-1}m_{t-1} + p_t g_t + p_t tr_t = r_{t-1}p_{t-1}b_{t-1} + p_{t-1}m_{t-1} + p_t g_t + (p_t tr_t + p_{t-1}mb_{Dt-1}) = p_t b_t + p_t m_t + p_t t_t + p_{t-1}mb_{St-1} \equiv S_t$ .

In real terms, on division by present prices, the equation of the demand and supply of the government's budget constraint becomes the following:  $\pi_t^{-1}[(r_{t-1}b_{t-1} + mb_{Dt-1}) + m_{t-1}] + g_t + tr_t = \pi_t^{-1}(r_{t-1}b_{t-1} + m_{t-1}) + g_t + (tr_t + \pi_t^{-1}mb_{Dt-1}) = b_t + m_t + t_t + \pi_t^{-1}mb_{St-1}$ , in which  $\pi_t = p_{t-1}^{-1}p_t$  denotes present inflation.

At given prices, an increase in demand miniature treasury bills causes an exterior augmentation in global past government debt or global present transfers, which can be financed through an increase in (i-a) present government debt or (i-b) present taxation, a decrease in (ii-a) present government spending or (ii-b) present transfers or an increase in (iii-a) the present real money supply or (iii-b) supply miniature treasury bills:  $\pi_t^{-1}(\bar{r}_{t-1}\bar{b}_{t-1} + \uparrow_6 mb_{Dt-1} + \bar{m}_{t-1}) + \downarrow g_t + \downarrow tr_t = \pi_t^{-1}(\bar{r}_{t-1}\bar{b}_{t-1} + \bar{m}_{t-1}) + \downarrow g_t + (\downarrow tr_t + \pi_t^{-1} \uparrow_6 mb_{Dt-1}) = \uparrow b_t + \uparrow m_t + \uparrow t_t + \pi_t^{-1} \uparrow mb_{St-1}$ .

The reason for which an increase in demand miniature treasury bills cannot be financed through an increase in (iv-a) past government debt or (iv-b) the past real money supply is due to their definition, namely, because they are sunk.

The exclusion of an increase in (iii-a) the present real money supply is dictated by Italy's relinquishment of monetary policy to the ECB. The sources of funds of an increase in demand miniature treasury bills thus remain an increase in (i-a) present government debt or (i-b) present taxation, a decrease in (ii-a) present government spending or (ii-b) present transfers and an increase in (iii-b) supply miniature treasury bills, which can exempt all others:  $\pi_t^{-1}(\bar{r}_{t-1}\bar{b}_{t-1} + \uparrow mb_{Dt-1} + \bar{m}_{t-1}) + g_t + tr_t = \pi_t^{-1}(\bar{r}_{t-1}\bar{b}_{t-1} + \bar{m}_{t-1}) + g_t + (tr_t + \pi_t^{-1} \uparrow mb_{Dt-1}) = b_t + \bar{m}_t + t_t + \pi_t^{-1} \uparrow mb_{St-1}$ .

## 6. ITALIAN MINI BOTs: LESS GOVERNMENT SPENDING?

The conversion of such miniature treasury bills into the underlying *fiat* money, the Euro, would have happened by means of their convertibility into taxation revenue, for they would have immediately been deemed acceptable for official taxation payment to the Italian treasury.

Such would have signified a decrease in (i-b) present taxation, which would have itself implied a corresponding decrease in (ii-a) present government spending or (ii-b) present transfers or a corresponding increase in (i-a) present government debt, eventually repaid through taxation, monetised or rolled on:  $\pi_t^{-1}(\bar{r}_{t-1}\bar{b}_{t-1} + \uparrow mb_{Dt-1} + \bar{m}_{t-1}) + \downarrow g_t + \downarrow tr_t = \pi_t^{-1}(\bar{r}_{t-1}\bar{b}_{t-1} + \bar{m}_{t-1}) + \downarrow g_t + (\downarrow tr_t + \pi_t^{-1} \uparrow mb_{Dt-1}) = \uparrow b_t + \bar{m}_t + \downarrow_3 t_t + \pi_t^{-1} \uparrow mb_{St-1}$ .

The exclusion of the corresponding increase in (i-a) present government debt is therefore entirely possible and indeed practically prescribed by the Eurozone, thereby confining the burden of their introduction to the corresponding decrease in (ii-a) present government spending or (ii-b) present transfers:  $\pi_t^{-1}(\bar{r}_{t-1}\bar{b}_{t-1} + \uparrow mb_{Dt-1} + \bar{m}_{t-1}) + \downarrow g_t + \downarrow tr_t = \pi_t^{-1}(\bar{r}_{t-1}\bar{b}_{t-1} + \bar{m}_{t-1}) + \downarrow g_t + (\downarrow tr_t + \pi_t^{-1} \uparrow mb_{Dt-1}) = b_t + \bar{m}_t + \downarrow_2 t_t + \pi_t^{-1} \uparrow mb_{St-1}$ .

In simpler terms present miniature treasury bills,  $mb_t$ , can be reinterpreted as a negative, real number to be directly added to (i-b) present taxation, causing the corresponding decrease in (ii-a) present government spending or (ii-b) present transfers, treating both (iii-a) the present real money supply and (i-a) present government debt as fixed:  $\forall mb_t \in \mathbb{R}_{--}$ ,  $\pi_t^{-1}(\bar{r}_{t-1}\bar{b}_{t-1} + \bar{m}_{t-1}) + \downarrow g_t + \downarrow tr_t = \bar{b}_t + \bar{m}_t + (t_t + mb_t) = \bar{b}_t + \bar{m}_t + \downarrow_2 t_t$ .

Under such a light miniature treasury bills are construable as mere taxation cuts even exteriorly. In fact, they are not too far from being identified with taxation credit certificates, whose various proposals<sup>11</sup>

<sup>11</sup>[http://documenti.camera.it/leg18/dossier/pdf/FI0134a.pdf?\\_1621961852956](http://documenti.camera.it/leg18/dossier/pdf/FI0134a.pdf?_1621961852956), <https://www.economiaepolitica.it/crisi->

in Italy particularly throughout the past decade went by the summary name of “*Certificati di Credito Fiscale (CCF)*”, fiscal credit certificates, that is to say.

If they had been nominally presented as taxation credit certificates rather than miniature treasury bills Mario Draghi<sup>12</sup> would have never been able to state that the Italian Mini BOTs “are either money and then they are illegal or they are debt and then the stock of debt goes up”.

The Italian treasury<sup>13</sup> nevertheless promptly prospected the univocal consideration of the Italian CCFs proposed in 2020 as government debt, in supposed accordance with EU law, arguing government debt to be composed by both legal tender and government bonds, so that such a financial instrument as CCFs might be assimilated therewith, thereby requiring a source of fund: “... *i certificati di compensazione fiscale sarebbero da considerare debito pubblico ai sensi della normativa europea, in quanto sia la moneta che le obbligazioni concorrono a formare tale aggregato e i certificati, secondo la Ragioneria, rappresenterebbero un vero e proprio strumento finanziario assimilabile a moneta o a titoli di Stato. La proposta richiederebbe pertanto una copertura finanziaria.*”.

Doubtless, such an argumentation by the Italian treasury is entirely specious, for not only does legal tender not compose government debt, merely accounting for its denomination, but taxation credit certificates, denominated in legal tender too, are assimilable with both government bonds and legal tender by accident alone, being wholly different from them both in substance: in terms of the government’s budget constraint and public finance mechanics at large taxation credit certificates speak to taxation, legal tender speaks to the money supply and government bonds speak to government debt.

For completeness, in continuous time the government’s budget constraint and the accompanying conclusions appear as follows:  $\forall t \in \mathbb{R}_{++}$ ,  $D(t) \equiv r(t)p(t)b(t) + p(t)m(t) + \dot{p}(t)g(t) + \dot{p}(t)\dot{t}r(t) + p(t)mb_D(t) = \dot{p}(t)\dot{b}(t) + \dot{p}(t)\dot{m}(t) + \dot{p}(t)\dot{t}(t) + p(t)mb_S(t) \equiv S(t) \rightarrow r(t)b(t) + m(t) + \pi(t)[\dot{g}(t) + \dot{t}r(t)] + mb_D(t) = \pi(t)[\dot{b}(t) + \dot{m}(t) + \dot{t}(t)] + mb_S(t) \rightarrow \bar{r}(t)\bar{b}(t) + \bar{m}(t) + \pi(t)[\downarrow \dot{g}(t) + \downarrow \dot{t}r(t)] + \uparrow mb_D(t) = \pi(t)[\bar{b}(t) + \bar{m}(t) + \downarrow_2 \dot{t}(t)] + \uparrow mb_S(t)$ , in which  $r(t)$ ,  $p(t)$ ,  $b(t)$ ,  $m(t)$ ,  $g(t)$ ,  $tr(t)$ ,  $t(t)$ ,  $mb_D(t)$ ,  $mb_S(t)$ ,  $\pi(t) \in \mathbb{R}_{++}$ , respectively denoting the real interest rate, prices, government bonds or debt, the real money supply, government spending, transfers, taxation, demand miniature treasury bills, supply miniature treasury bills and inflation such that dotted variables denote changes therein.

In analogously simpler terms:  $\forall mb(t) \in \mathbb{R}_{--}$ ,  $\bar{r}(t)\bar{b}(t) + \bar{m}(t) + \pi(t)[\downarrow \dot{g}(t) + \downarrow \dot{t}r(t)] = \pi(t)\{\bar{b}(t) + \bar{m}(t) + [\dot{t}(t) + \dot{m}b(t)]\} = \pi(t)[\bar{b}(t) + \bar{m}(t) + \downarrow_2 \dot{t}(t)]$ .

## 7. CONVENIENCE

It is crucial to emphasise that by excluding an increase in the money supply or government debt, as punctually prescribed by all of the philo-Euro critics<sup>14</sup> of miniature treasury bills, the repayment of public trade debt, in whatever form, would have had to pass through a reduction in (structural) taxation and a corresponding reduction in (structural) government spending or transfers.

At zero present transfers, the reduction in taxation required not for the mere introduction of miniature treasury bills but for the repayment of public trade debt would have thus necessarily passed through one in government spending. Consequently, what would have been the most convenient decision?

At first glance, contrarily to libertarian positions, it would seem that the reduction in taxation would not even be able to offset the loss in the income multiplier and in the money velocity potential of the reduction in government spending, for the private sector need not spend the reduction in taxation.

A closer inspection, however, reveals that such a reduction in taxation would no less than offset the loss in the income multiplier and in the money velocity potential of a reduction in government spending on account of the uncertainty associated with miniature treasury bills, which their critics<sup>15</sup> do not exclude,

economica-coronavirus-italia-unione-europea-mondiale/certificati-di-compensazione-fiscale-ccf, <https://www.ilfattoquotidiano.it/2014/11/18/certificati-credito-fiscale-possibile-moneta-nazionale-complementare-alleuro/1216014>, <https://www.ipsosa.it/documents/quotidiano/2020/07/14/certificati-credito-fiscale-soluzione-crisi-liquidita-imprese>

<sup>12</sup><https://twitter.com/ecb/status/1136618501639155713>

<sup>13</sup>[http://documenti.camera.it/leg18/dossier/pdf/FI0134a.pdf?\\_1621961852956](http://documenti.camera.it/leg18/dossier/pdf/FI0134a.pdf?_1621961852956)

<sup>14</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>

<sup>15</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>, <https://www.lavoce.info/archives/59546/la-favola-dei-minibot>

but effectively stress.

In other words, the private sector would try to employ them faster than Euros, firms involved first and everyone else next, either through consumption or investment; such an uncertainty would not albeit alter their correspondence with Euros, on account of their convertibility into taxation revenue.

The absence of such an uncertainty would instead not be able to offset such a loss, paradoxically, for the private sector could decide not to spend them as it could with Euros. The treasury could then certainly incentivise their use by ulteriorly reducing taxation on all transactions employing them, although inducing an ulterior decrease in government spending as well and seemingly running into the same dilemma, unless the loss in the income multiplier and in the money velocity potential of the two reductions in government spending were more than offset by the two reductions in taxation making use of miniature treasury bills.

More generally, the treasury could incentivise their use for consumption by somehow conditioning that for official taxation payment on sufficient transaction levels, the downside however being the loss of a full entitlement over them on the part of the firms involved relative to their retainment without such a condition in complete correspondence with Euros: the private sector would be obliged to save less, but such would precisely meet the allocative and stabilising scope of the treasury, thereby attaining to the more efficient solution.

Be that as it may, the corresponding reductions in taxation and government spending or transfers were inexorable, as seen. In the orbit of a reduction in taxation critics<sup>16</sup> of miniature treasury bills additionally argued for a direct cut in taxation in favour of the firms to which the treasury owed money, in a quantity equivalent to the public trade debt, regarding miniature treasury bills as redundant, if not costly.

Critics<sup>17</sup> specifically declared that a failure by the treasury to cut taxation in favour of the firms to which it owed money in a quantity equivalent to the public trade debt to the end of the introduction of miniature treasury bills, because of the lag between their reception and official taxation payment to the treasury, would have signified taxation of the opportunity cost of investment with the said money proper to such firms.

Such a failure would have been nonetheless tantamount to a failure to somehow rebate the money outright, as had hitherto been occurring, albeit ever less, with the exception of effectively obtaining the principal sum back.

Said critics<sup>18</sup> appeared to have too readily overlooked that while the gain might be certainly suboptimal for the firms involved it would have been better than nothing, despite the improvements in timeliness, and in all probability especially better for the private sector at large, as seen; furthermore, the opportunity cost of investment would not have been lost insofar as firms might immediately exchange them at parity with Euros, owing to their convertibility into taxation revenue.

Granted the need for a reduction in government spending, if the treasury had directly cut taxation in favour of the firms to which it owed money in a quantity equivalent to the public trade debt then such firms would have spent, if at all, and induced an expenditure of the money gained from such a reduction in taxation at a much lower velocity than that at which the private sector would have spent and induced an expenditure of the same in the form of miniature treasury bills, owing to the uncertainty associated with them or the treasury's incentives in employing them.

Doubtless, if such an uncertainty had not been present and the treasury's incentives in employing them had not rendered them worthwhile then, as seen, the selfsame reduction in taxation inducing that in government spending should have been renounced for the greater good of the economy, although the legal and lawful extent of such a decision might be debatable.

In fact, the very economy could have fatally suffered therefrom inasmuch as a decisive portion of the firms involved might face critical conditions in their working capital, thereby rendering the receipt of such credits of vital importance.

In brief, barred an increase in government debt or a monetisation, as the Eurozone practically dictates, that which the treasury (borrowed in the past and) owes certain firms in the present in the form of public trade debt can be neutralised, through its transformation into miniature treasury bills, by that which the

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<sup>16</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>, <https://www.lavoce.info/archives/59546/la-favola-dei-minibot>

<sup>17</sup><https://www.lavoce.info/archives/59546/la-favola-dei-minibot>

<sup>18</sup><https://www.lavoce.info/archives/59546/la-favola-dei-minibot>



private sector owes the treasury today in the form of taxation, spurring expenditure a lot more than by neutralising it through its rebate to the said firms, precisely because of the probable uncertainty associated with them, as well as facilitating Italy's hypothetical abandonment of the Eurozone.

On balance, therefore, the direct cut in firm taxation advocated by their critics<sup>19</sup> would probably not have been optimal.

## 8. SUMMARY AND EU LAW

The obligatory repayment of public trade debt without recourse to an increase in government debt or to monetisation would have necessarily caused a decrease in government spending or transfers, so that the treasury might choose between a taxation rebate of public trade debt to the firms involved and the Italian Mini BOTs.

Conceding an increase in government debt or monetisation to the end of the obligatory repayment of public trade debt would have been thoroughly contradictory in relation to both the Eurozone's ordinary, practical dictates and its dictates as applied to the Italian Mini BOTs, by which an increase in government debt or monetisation had been opposed.

In the best event, of no uncertainty associated with the introduction of Italian Mini BOTs or no successful treasury incentives in employing them, there would have been a prospected subtraction of some 57 milliard Euros from aggregate demand, for the firms involved could have chosen not to spend them, thereby favouring the anti-libertarian approach to fiscal policy and additionally enjoying the acclimatisation of the private sector to a physical alternative to the Euro.

In the worst event, of some uncertainty associated with Italian Mini BOTs or successful treasury incentives in employing them, there would have been an extraordinary multiplication of those 57 milliard Euros in aggregate demand, for the firms involved and all other private agents would have spent them more than if those 57 milliard Euros had been ordinarily employed in government spending, analogously enjoying the acclimatisation of the private sector to a physical alternative to the Euro.

Lastly, from a legal standpoint, does the Euro exclude both alternative legal tender and alternative money which be not legal tender (vouchers, coupons, cryptocurrencies etc.)? Does it exclude barter as well? Articles 2, 3, 127 and 128 in particular of the “[Treaty on the functioning of the European Union](#)” [2] seem to attribute to the ECB exclusive competence over monetary policy only through legal tender, thereby elected as being the Euro alone, consequently, alternative money which be not legal tender, legally contiguous with barter, seems to elude both the status of legal tender and the ECB's exclusive competence over monetary policy, Italian Mini BOTs included.

If the Euro does exclude alternative money which be not legal tender as well as barter then is not the Eurozone an association abiding by the rule of man and not of law, *a fortiori*? And if abiding by the rule of law is such positive law then not effectively foreign to natural and eternal law?

What is the sound rationale for the prohibition of barter, occasional as it has ever been, and alternative money which be not legal tender, albeit convertible into taxation revenue, if the practical breadth of fiscal policy and monetary policy is not corroded by the private sector?

## 9. CCCFs

The manifest end of the Italian CCFs was that of alleviating a liquidity shortage on the part of firms and the private sector at large without recourse to monetary policy. They were last proposed in 2020 as “*Certificati di Compensazione Fiscale (CCF)*”, fiscal compensation certificates, that is to say.

While to be employed for official taxation payment to the Italian treasury no earlier than two years as of their emission, lest they might be underused for consumption, they would have been immediately exchangeable, similarly suffering no arbitrage in view of their future convertibility into taxation revenue, their perpetual correspondence with Euros being thereby guaranteed.

Without such a liquidity shortage, however, the Italian CCFs proposed in 2020 could be even saved until the beginning of their use for official taxation payment to the Italian treasury, not necessarily increasing

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<sup>19</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>, <https://www.lavoce.info/archives/59546/la-favola-dei-minibot>

consumption; in fact, such could happen even in the presence of the said liquidity shortage, not without losses in rationality albeit.

One thus contends in favour of the emission of Italian CCFs endowed with a further reduction in taxation conditional on their use for consumption by means of a sufficient level of individual transactions, as suggested. One proposes that they be called “*Certificati a Consumo di Compensazione Fiscale (CCCF)*”, fiscal compensation consumption certificates, that is to say.

In the absence of public trade debt CCCFs could be channelled to the private sector through government spending, in spite of its required decrease for their emission (i.e. taxation cuts); alternatively, they could be channelled to the private sector as helicopter money, on an *ad hoc* basis or through other criteria.

The systematic approach to their implementation would be to superabound the loss in the multiplier of national income directly generated by the reductions in government spending with the gain in the multiplier of national income to be indirectly generated by the reductions in taxation making use of CCCFs, specifically linking such a gain to consumption by means of transactions.

In detail, for any positive, real variable, in continuous time, a  $dg_1(t)$  reduction in government spending induced by a corresponding one in taxation  $dt_1(t)$ , due to the emission of CCCFs, implies a loss in national income of  $dy_1(t) = dy_{1g}(t) - dy_{1t}(t)$ , which must be compensated by an augmentation in consumption of no less than  $dc_1(t)$ , which itself requires no less than  $tn_1(t)$  transactions in CCCFs, thus, the target number of transactions  $tn^*(t)$  must be greater than transactions  $tn_1(t)$ .

The target number of transactions  $tn^*(t)$  is to be achieved through a further reduction in taxation and government spending of  $dt_2(t) = dg_2(t)$ , implying a loss in national income of  $dy_2(t) = dy_{2g}(t) - dy_{2t}(t)$  and a compensation by means of an augmentation in consumption of no less than  $dc_2(t)$ , requiring  $tn_2(t)$  further transactions in CCCFs, which summed to transactions  $tn_1(t)$  yield total transactions  $tn_3(t) = tn_1(t) + tn_2(t)$  such that target transactions  $tn^*(t) > tn_3(t)$ .

Consequently, each taxpayer  $n = 1, \dots, N$  enjoying the further reduction in taxation  $dt_2(t)$  must have used CCCFs at least  $\frac{tn^*(t)}{N}$  times. The employment of CCCFs on the part of taxpayers can be either sectorally discretionary or in sectors endorsed by the government, such as those most penalised by the reduction in government spending, particularly if touching on social safety nets, or those targeted for growth outright, thereby entailing investment.

Transaction superabundance  $tn^*(t) > tn_3(t)$  is to further account for errors in the sufficiency of total transactions  $tn_3(t) = tn_1(t) + tn_2(t)$  for compensating the total loss in national income  $dy_3(t) = dy_1(t) + dy_2(t)$ .

EXAMPLE 9.1 (Simplified CCCFs) Let the income multipliers of government spending and taxation (i.e. fiscal multipliers) be  $\frac{dy(t)}{dg(t)} = \frac{3}{1}$  and  $-\frac{dy(t)}{dt(t)} = -\left(\frac{-2}{1}\right) = \frac{2}{1}$  and let that of consumption be  $\frac{dy(t)}{dc(t)} = \frac{3}{1}$ .

The CCCF reductions in government spending and taxation are  $dg_1(t) = dt_1(t) = 1$ , implying a loss in national income of  $dy_1(t) = dy_{1g}(t) - dy_{1t}(t) = 3 - 2 = 1$ , to be compensated by the augmentation in consumption  $dc_1(t) = \frac{1}{3} : \frac{dy(t)}{dg(t)} = \frac{3}{1} = \frac{dy_{1g}(t)}{dg_1(t)}$  and  $-\frac{dy(t)}{dt(t)} = \frac{2}{1} = -\frac{dy_{1t}(t)}{dt_1(t)}$ , whence  $\frac{dy(t)}{dc(t)} = \frac{3}{1} = \frac{3-2}{dc_1(t)} = \frac{1}{dc_1(t)} = \frac{dy_{1g}(t) - dy_{1t}(t)}{dc_{1t}(t)} = \frac{dy_1(t)}{dc_1(t)} \longrightarrow dc_1(t) = \frac{1}{3}$ , which alongside  $\frac{dc(t)}{tn(t)} = \frac{1}{1}$  implies  $\frac{dc(t)}{tn(t)} = \frac{1}{1} = \frac{1/3}{tn_1(t)} = \frac{dc_1(t)}{tn_1(t)} \longrightarrow tn_1(t) = \frac{1}{3}$  such that  $tn^*(t) > tn_1(t)$ .

It follows that if, say, further transactions  $tn_2(t) = \frac{1}{3}$  by the same calculations, having further reduced taxation and government spending by one unit, as a fiscal incentive for CCCF consumption use, then target transactions  $tn^*(t) > \frac{2}{3} = \frac{1}{3} + \frac{1}{3} = tn_1(t) + tn_2(t) = tn_3(t)$ , thereby requiring the individual employment of CCCFs more than  $\frac{2/3}{N} = \frac{2N}{3}$  times. Additionally, CCCF money velocity  $v_{cc}(t) \geq \frac{dy_1(t) + dy_2(t)}{cc(t)} = \frac{1+1}{1} = \frac{2}{1} = \frac{dy_3(t)}{cc(t)}$ , in which  $cc(t) \in \mathbb{N}_+$  is more generally the quantity of CCCFs.

The national accounting identity for an open economy is  $y(t) = c(t) + g(t) + i(t) + ca(t)$ , in which all variables are positive, real numbers. For clarity,  $y(t)$ ,  $c(t)$ ,  $g(t)$ ,  $i(t)$  and  $ca(t)$  respectively denote national income, consumption, government spending, investment and the current account.

As a consequence, the income multipliers of government spending and taxation are notoriously calculated thus: (i)  $\frac{dy(t)}{dg(t)} = \dot{y}(t) = \frac{dc(t)}{dy(t)} \frac{dy(t)}{dg(t)} + \frac{dg(t)}{dg(t)} = \dot{c}(t)\dot{y}(t) + 1 \longrightarrow [1 - \dot{c}(t)]\dot{y}(t) = 1 \longrightarrow \frac{dy(t)}{dg(t)} = \dot{y}(t) = [1 - \dot{c}(t)]^{-1}$ ; (ii)  $\frac{dy(t)}{dt(t)} = \dot{y}(t) = \frac{dc(t)}{dy(t)} \frac{dy(t)}{dt(t)} - \frac{dc(t)}{dt(t)} = \dot{c}(t)\dot{y}(t) - \dot{c}(t) \longrightarrow [1 - \dot{c}(t)]\dot{y}(t) = -\dot{c}(t) \longrightarrow \frac{dy(t)}{dt(t)} = \dot{y}(t) = -[1 - \dot{c}(t)]^{-1}\dot{c}(t)$ .

The relation between the two income multipliers, in terms of gains in national income, theoretically lies in favour of that of government spending, as the case in the above example:  $\frac{dy(t)}{dg(t)} > -\frac{dy(t)}{dt(t)} \longleftrightarrow [1 - \dot{c}(t)]^{-1} > [1 - \dot{c}(t)]^{-1}\dot{c}(t) \longrightarrow 1 > \dot{c}(t) = \frac{dc(t)}{dy(t)}$ , being the marginal propensity of consumption (MPC).

CASE STUDY 9.2 (CCCFs for Italy) Following Jappelli and Pistaferri [3], let Italian MPC be 0.48. Its inverse is the income multiplier of consumption:  $\frac{dy(t)}{dc(t)} = \left[\frac{dc(t)}{dy(t)}\right]^{-1} = 0.48^{-1} = 2.08$  (2 d.p.).

Italy's income multipliers of government spending and taxation are then  $\frac{dy(t)}{dg(t)} = [1 - \dot{c}(t)]^{-1} = [1 - 0.48]^{-1} = 1.93$  (2 d.p.) and  $\frac{dy(t)}{dt(t)} = -[1 - \dot{c}(t)]^{-1}\dot{c}(t) = -[1 - 0.48]^{-1}0.48 = -0.93$  (2 d.p.).

Suppose CCCF reductions in government spending and taxation are  $dg_1(t) = dt_1(t) = 100$  milliard Euros, according to the rumours<sup>20</sup> surrounding the Italian CCFs proposed in 2020. Suppose CCCFs be channelled to the private sector through the repayment of public trade debt, government spending, helicopter money, an *ad hoc* basis or some other criteria.

Then,  $\frac{dy(t)}{dg(t)} = \frac{1.93}{1} = \frac{dy_{1g}(t)}{100} = \frac{dy_{1g}(t)}{dg_1(t)} \longrightarrow dy_{1g}(t) = 193$  milliard Euros of loss in national income and  $-\frac{dy(t)}{dt(t)} = -\left(\frac{-0.93}{1}\right) = \frac{0.93}{1} = \frac{dy_{1t}(t)}{100} = \frac{dy_{1t}(t)}{dt_1(t)} \longrightarrow dy_{1t}(t) = 93$  milliard Euros of gain in national income, yielding a loss in national income of  $dy_1(t) = dy_{1g}(t) - dy_{1t}(t) = 193 - 93 = 100$  milliard Euros.

Such a loss must be compensated by an augmentation in consumption:  $\frac{dy(t)}{dc(t)} = \frac{2.08}{1} = \frac{100}{dc_1(t)} = \frac{dy_1(t)}{dc_1(t)} \longrightarrow dc_1(t) = 48.08$  (2 d.p.) milliard Euros. Positing a ratio of one Euro of consumption to one transaction there emerges the same quantity of transactions:  $\frac{dc(t)}{tn(t)} = \frac{1}{1} = \frac{48.08}{tn_1(t)} = \frac{dc_1(t)}{tn_1(t)} \longrightarrow tn_1(t) = 48.08$  (2 d.p.) milliard.

A ratio of 100 Euros of consumption to one transaction would by contrast yield some 480 million transactions. Supposing further reductions in government spending and taxation of  $dg_2(t) = dt_2(t) = 100$  milliard Euros, as a fiscal incentive for CCCF consumption use, and the same ratio of 100 Euros of consumption to one, target transactions  $tn^*(t) > tn_3(t) = tn_1(t) + tn_2(t) = 480 + 480 = 960$  million transactions, which divided by some 40 million Italian taxpayers, as per 2016 ministerial data<sup>21</sup>, yield a requirement of individual CCCF employment above  $\frac{960}{40} = 24$  times at a value of 100 Euros each, totalling 2,400 Euros of CCCFs per taxpayer.

In short, target transactions  $tn^*(t)$  in CCCFs must exceed a value of 2,400 Euros per taxpayer; twice the amount, for instance, that is, 4,800 Euros, across 40 million Italian taxpayers would yield 1,920 million transactions, since  $40 \times 48 = 1,920$ , million, which at a value of 100 Euros each would total 192,000 million or 192 milliard Euros of consumption, transformed into some 400 milliard Euros of national income:  $\frac{dy(t)}{dc(t)} = \frac{2.08}{1} = \frac{dy^*(t)}{192} = \frac{dy^*(t)}{192} \longrightarrow dy^*(t) = 399.4$  (1 d.p.) milliard Euros, being twice the amount required to compensate the total loss in national income of  $dy_3(t) = dy_1(t) + dy_2(t) = 100 + 100 = 200$  milliard Euros. Finally, CCCF money velocity  $v_{cc}(t) = \frac{dy^*(t)}{cc(t)} = \frac{400}{100} = 4t^{-1}e$ , namely, expenses  $e$  per unit of time  $t$ .

The opportunity cost of not using CCCFs for transactions despite the further reduction in taxation appears to be negligible, if not null, owing to their convertibility into taxation revenue, to their ongoing correspondence with Euros thereby and to the increasing absence of cost in their obtainment, itself prospected to be induced by those first endowed with them, excepting their proportionate and equitable distribution to start with.

It could although be argued that one could choose not to use them to the end of saving more in any event, perhaps in view of extant uncertainty associated with them, but savings without enjoying the reduction in taxation would then have to exceed those in the face of it and of the accompanying consumption; the reduction in taxation across taxpayers could be therefore applied heterogeneously, especially targeting those with a greater propensity of consumption (e.g. middle class, elderly, large families, market leaders, start up companies, research and development sectors, multinationals, large scale companies, strategic enterprises).

Their effective use for transactions could be ensured by suitable technology and legal deterrents against their misuse (e.g. fraudulent declarations); however, inasmuch as the opportunity cost of their use for transactions be negligible the incentive for engaging in fraudulent declarations regarding such a use would be negligible itself, being subsumed by it.

<sup>20</sup><https://www.ilfattoquotidiano.it/2014/11/18/certificati-credito-fiscale-possibile-moneta-nazionale-complementare-alleuro/1216014>

<sup>21</sup>[https://www.mef.gov.it/ufficio-stampa/comunicati/2018/documenti/comunicato\\_0054.pdf#page=1](https://www.mef.gov.it/ufficio-stampa/comunicati/2018/documenti/comunicato_0054.pdf#page=1)

Even in the absence of a desire to facilitate Italy's hypothetical abandonment of the Eurozone, thereby eluding public finance classification problems (i.e. government debt, transfers, taxation, Euros), the principle behind CCCFs of a reduction in taxation conditional on consumption still holds.

The 1,920 million target transactions in the example above, at a value of 100 Euros each for a consumption total of 192 milliard Euros and for one in national income of 400 milliard Euros, could be just as incentivised by means of a direct reduction in taxation of 200 milliard Euros and government spending thereby, since analogous reductions  $dt_3(t) = dt_1(t) + dt_2(t) = dg_3(t) = dg_1(t) + dg_2(t) = 100 + 100 = 200$  milliard Euros as well.

The advantages of CCCFs over a direct reduction in taxation conditional on consumption would clearly entail the facilitation of Italy's hypothetical abandonment of the Eurozone as well as the alleviation of the said liquidity shortage, granted critical working capital conditions to begin with, which liquidity shortage would nevertheless loosen the necessity of incentivising consumption in the first place, being thereby automatic, as seen.

The principle of consumption conditioning however guarantees a resolution of such a liquidity shortage in law, which its absence guarantees only in fact. The first advantage would therefore be substantial, but so would the second, despite being initially perceived as accidental, additionally incentivising consumption in the presence of the said liquidity shortage at no significant cost, as suggested.

One could also ask the reason for which the government may not directly engage in an increase of government spending sufficient to generate the target net gain in national income. The reason is that, barred an increase government debt or monetisation, it would have to be financed through a corresponding increase in taxation, thereby causing the private sector neither to partake in consumption nor to enjoy it, running foul not only of liberalism and libertarianism but of very liberty.

**CASE STUDY 9.3 (Consumption conditioned de-taxation)** The net yearly gain in Italian national income would thus amount to some 200 milliard Euros, which as a fraction of Italian government debt as at October 2022 would roughly total 7.2%.

In detail, 2,770,789 million or 2,770.789 milliard Euros of Italian government debt as a denominator of 200 milliard Euros of prospected net yearly gain in Italian national income yields  $200 \div 2,770.789 = 0.072$  (3 *d.p.*).

Now, if such a net yearly gain were to last for no more than 14 years then, all else equal, Italy's ratio of government debt to gross domestic product (GDP), which in 2021 amounted to 150.8%, would be reduced to zero, since  $2,770.789 \div 200 = 13.854$  (3 *d.p.*). However, the net yearly gain in Italian national income could be much higher, both spontaneously and by targeting more transactions, especially on the part of firms (i.e. investment).

For example, the Italian government could require that of the 1,920 million target transactions in CCCFs at a value of 100 Euros each 1% of them be additionally conducted at a value of 100,000 Euros each (and in Euros) on the part of all multinationals operating in Italy through the year, which<sup>22</sup> in 2019 orbited around 15,000, thereby totalling  $19,200,000 \times 100,000 = 1,920$  milliard Euros of consumption and 3,993.6 milliard Euros of national income, since  $1,920 \times 2.08 = 3,993.6$ .

Strictly speaking, consumption by multinationals is firm consumption, which is investment; consequently, one should work in terms of Italy's income multiplier of investment, being the inverse of Italy's marginal propensity of investment:  $\frac{dy(t)}{di(t)} = \left[ \frac{di(t)}{dy(t)} \right]^{-1}$ .

The national accounting identity discloses investment as being the difference between savings and the current account:  $s(t) \equiv y(t) - c(t) - g(t) = i(t) + ca(t) \rightarrow i(t) = s(t) - ca(t)$ , so that  $\frac{ds(t)}{dy(t)} = \dot{s}(t) = \frac{dy(t)}{dy(t)} - \frac{dc(t)}{dy(t)} - \frac{dg(t)}{dy(t)} = 1 - \dot{c}(t) - \dot{g}(t)$  and  $\frac{di(t)}{dy(t)} = \dot{i}(t) = \frac{ds(t)}{dy(t)} - \frac{dca(t)}{dy(t)} = \dot{s}(t) - \dot{ca}(t)$ .

In the absence of Italian data on the marginal propensities of government spending and of the current account, which are nevertheless expected to lie in an open, real interval between zero and one, Italy's income multiplier of investment can be thus expressed as a function thereof:  $\forall \dot{g}(t), \dot{ca}(t) \in (0, 1) \subset \mathbb{R}_{++}$ ,  $s(t) \equiv 1 - \dot{c}(t) - \dot{g}(t) = 1 - 0.48 - \dot{g}(t)$  such that  $\dot{i}(t) = \dot{s}(t) - \dot{ca}(t) = 1 - 0.48 - \dot{g}(t) - \dot{ca}(t) = 1 - 0.48 - [\dot{g}(t) + \dot{ca}(t)] = 0.52 - K$ , whence  $\frac{dy(t)}{di(t)} = \left[ \frac{di(t)}{dy(t)} \right]^{-1} = \frac{1}{0.52 - K}$ .

<sup>22</sup><https://www.istat.it/it/files//2021/11/Report-Multinazionali-2019.pdf>

Since Italy's marginal propensity of investment is likewise expected to lie in an open, real interval between zero and one the sum of Italy's marginal propensities of government spending and of the current account can be derived as lying in an open, real interval between  $-0.48$  and  $0.52$  :  $\forall i(t) \in (0, 1) \subset \mathbb{R}_{++}$ ,  $0.52 - K > 0 \longrightarrow 0.52 > K$  and  $0.52 - K < 1 \longrightarrow -0.48 < K$ , whence  $K \in (-0.48, 0.52)$ .

For simplicity, let the sum of Italy's marginal propensities of government spending and of the current account be  $0.24$ , equally subdivided amongst the two; Italy's marginal propensity of investment and Italy's income multiplier of investment are then  $0.28$  and  $3.5$ , respectively:  $\frac{dy(t)}{di(t)} = \frac{1}{0.52-K} = \frac{1}{0.52-0.24} = \frac{1}{0.28} = 3.57$  (2 *d.p.*).

By positing a ratio of firm consumption or investment to transactions of  $100$  Euros to one Euro the  $1,920$  milliard Euros of firm consumption or investment are transformed into  $6,854.4$  milliard Euros of national income, since  $1,920 \times 3.57 = 6,854.4$ .

The prospected net yearly gain in Italian national income would therefore amount to some  $7,000$  milliard Euros, since  $200 + 6,854.4 = 7,054.4$ , which as a denominator of Italian government debt as at October 2022 would roughly yield  $39.3\%$  :  $2,770.789 \div 7,054.4 = 0.393$  (3 *d.p.*), whence  $0.393 \times 100 = 39.3\%$ , in full line with Maastricht Treaty requirements, absent considering the rest of prospected Italian national income.

Each multinational operating in Italy throughout the year would clearly contribute some  $130$  million Euros of transactions in terms of firm consumption or investment, since  $\frac{1,920}{15,000} = 0.128$ , and although the scheme may be certainly such that larger scale multinationals contribute more than the others not all could be willing to contribute at all despite the prospected returns on investment.

An opportune taxation incentive would be therefore in order, such as that exempting all involved multinationals from some  $3,500$  milliard Euros of taxation, amply exceeding the  $1,920$  milliard Euros of firm consumption or investment and being half of the  $7,000$  milliard Euros of the prospected net yearly gain in Italian national income, of which the other half would be taxable:  $3,500 - 1,920 = 1,580$  milliard Euros of gain in favour of the involved multinationals and  $7,054.4 - 3,500 = 3,554.4$  milliard Euros of taxation base at disposal of the Italian government; sources of funds (e.g. debt, equity) for the  $1,920$  milliard Euros of firm consumption or investment would certainly have to be considered, but unless other countries began formulating similar proposals the  $1,580$  milliard Euros of gain in favour of the involved multinationals seem to cover the accompanying opportunity costs.

Be that as it may, the  $1,920$  milliard or  $1.92$  billion (i.e. trillion) Euros of transactions in terms of firm consumption or investment on the part of all multinationals operating in Italy throughout the year can be certainly considered infeasible and is admittedly, but the principle behind CCCFs of a reduction in taxation conditional on consumption emerges as a viable avenue to the end of a significant yearly augmentation in a country's GDP and accompanying reduction in its government debt to GDP ratio throughout the same year.

At such a point the principle behind CCCFs of a reduction in taxation conditional on consumption, in the absence of a desire to facilitate Italy's hypothetical abandonment of the Eurozone and of the said liquidity shortage, supplants the selfsame scope for an emission of CCCFs.

The  $1.92$  billion Euros of transactions in terms of firm consumption or investment could in fact be analogously obtained through American and Chinese investments alone, amounting to no more than  $5\%$  of their countries' GDPs as at 2021:  $1.92 \div (23 + 17.73) = 1.92 \div 40.73 = 0.0471$  (3 *d.p.*). In summary, the institutional willingness, in its broadest acceptation, to place Italy in the conditions of attaining back to sustained and consistent growth, as was and is yet structurally capable of, is to be ultimately doubted.

## 10. CCCF MARKET NON-ARBITRAGE (PRE-CONCLUSION)

As Italian Mini BOTs and CCFs, CCCFs would feature convertibility into taxation revenue, by which their perpetual correspondence with Euros would be guaranteed, despite claims to the contrary. Such signifies that their market would suffer no arbitrage, that they would present a non-negative or even positive stochastic discount factor (SDF) and that they themselves would suffer no discount relative to Euros.

Since the absence of a discount on them relative to Euros (i.e. law of one price) can be accepted as being an equivalent statement of the absence of arbitrage in a hypothetical market for their exchange a proof of the latter, as an application of the fundamental theorem of finance, is thereby sufficient.

The fundamental theorem of finance additionally proves the equivalence between the absence of arbitrage in a given security market and the existence of a non-negative or even positive pricing rule for such a

security, which by the representation theorem of pricing rules is in turn equivalent to the existence a non-negative or even positive SDF for the same security, consequently, the existence of a non-negative or even positive SDF for CCCFs can be derived as an application of the representation theorem of pricing rules.

PROPOSITION 10.1 (CCCF market non-arbitrage) *The market for CCCFs features no arbitrage, namely, for two states of the world and two time periods, present and future, the acquisition value of a CCCF portfolio and the value of its return are both non-negative. Formally:  $\forall p, \eta \in \mathbb{R}$  and  $G \in \mathbb{R}^2$ ,*

$$\begin{aligned} p^\top \eta &\geq 0, \\ G\eta &\geq 0. \end{aligned} \tag{1}$$

*Proof.* Let investments be made in the present and their fruits reaped in the future; let there then be two states of the world  $\theta_1$  and  $\theta_2$  in relation to their realisation in the future, modelling a state of nature and all of its antonyms thereby:  $\Theta = \{\theta_1, \theta_2\}$  such that,  $\forall i = 1, 2, \theta_i$ .

Let there exist a priced portfolio  $p^\top \eta$ , composed of strategies relative to CCCFs and any other security, which expresses its acquisition value; both prices  $p$  and strategies  $\eta$  can be assumed to be mere real numbers, respectively modelling price agnosticism and the possibility of portfolio negativity:  $p, \eta \in \mathbb{R}^2$  such that  $p = [p_1 \ p_2]^\top$ ,  $\eta = [\eta_1 \ \eta_2]^\top$  and  $p^\top \eta = \langle p, \eta \rangle = \sum_{j=1}^2 p_j \eta_j = \sum_{j=1}^2 \eta_j p_j = \langle \eta, p \rangle = \eta^\top p$ .

Let there thus exist two payoffs  $g_{1j}$  and  $g_{2j}$  for each type of strategy respectively contingent on the two states of nature  $\theta_1$  and  $\theta_2$ ; to strengthen derivations, such payoffs are assumed to be mere real numbers:  $G \in \mathbb{R}^{2 \times 2}$  such that  $g_{ij} \equiv g_{ij} | \theta_{ij}$ , by which  $G = [(g_{11} \ g_{12}) \ (g_{21} \ g_{22})]^\top$  and  $g_j \in \mathbb{R}^2$ .

Strategy returns  $\rho_i$  are therefrom determined as being payoffs  $g_{ij}$  applied to security strategies  $\eta$ , conjointly characterising portfolio returns  $\rho$ :  $G\eta = \begin{bmatrix} g_{11} & g_{12} \\ g_{21} & g_{22} \end{bmatrix} \begin{bmatrix} \eta_1 \\ \eta_2 \end{bmatrix} = \begin{bmatrix} \rho_1 \\ \rho_2 \end{bmatrix} = \rho$  and  $\rho \in \mathbb{R}^2$ .

Strictly speaking, because they are expressed in terms of payoff matrix  $G$ 's rows, portfolio returns  $\rho$  are not returns on strategies  $\eta$ , but returns on states of nature  $\theta_1$  and  $\theta_2$ , being combinations of payoffs applied to security strategies  $\eta$ . Be that as it may, CCCF strategy return is then  $\rho_1 = g_{11}\eta_1 + g_{12}\eta_2$  and the return on all other security strategies is  $\rho_2 = g_{21}\eta_1 + g_{22}\eta_2$ .

Suppose the price  $p$  of the portfolio be determined by a pricing rule  $q$  in relation to the payoffs, whose sole restriction is that of accordingly lying in the bi-dimensional real number plane:  $p^\top = q^\top G \longrightarrow p = G^\top q$  such that  $q \in \mathbb{R}^2$ ; in detail,  $\begin{bmatrix} p_1 & p_2 \end{bmatrix} = \begin{bmatrix} q_1 & q_2 \end{bmatrix} \begin{bmatrix} g_{11} & g_{12} \\ g_{21} & g_{22} \end{bmatrix} \longrightarrow \begin{bmatrix} p_1 \\ p_2 \end{bmatrix} = \begin{bmatrix} g_{11} & g_{21} \\ g_{12} & g_{22} \end{bmatrix} \begin{bmatrix} q_1 \\ q_2 \end{bmatrix}$ .

The portfolio's acquisition value  $p^\top \eta$  would be therefore determined by the pricing rule  $q$  in relation to the portfolio's returns  $\rho$ :  $p^\top \eta = q^\top G\eta = q^\top \rho$ ; in detail,  $\begin{bmatrix} p_1 & p_2 \end{bmatrix} \begin{bmatrix} \eta_1 \\ \eta_2 \end{bmatrix} = \begin{bmatrix} q_1 & q_2 \end{bmatrix} \begin{bmatrix} g_{11} & g_{12} \\ g_{21} & g_{22} \end{bmatrix} \begin{bmatrix} \eta_1 \\ \eta_2 \end{bmatrix} = \begin{bmatrix} q_1 & q_2 \end{bmatrix} \begin{bmatrix} \rho_1 \\ \rho_2 \end{bmatrix}$ .

Additionally, the price of the CCCF strategy  $\eta_1$  would be  $p_1 = q_1 g_{11} + q_2 g_{21}$  and that of all other security strategies  $\eta_2$  would be  $p_2 = q_1 g_{12} + q_2 g_{22}$ ; the portfolio's acquisition value would correspondingly be  $p_1 \eta_1 + p_2 \eta_2 = q_1 \rho_1 + q_2 \rho_2 = (q_1 g_{11} + q_2 g_{21}) \eta_1 + (q_1 g_{12} + q_2 g_{22}) \eta_2 = q_1 (g_{11} \eta_1 + g_{12} \eta_2) + q_2 (g_{21} \eta_1 + g_{22} \eta_2)$ .

By the Reisz-Fréchet representation theorem<sup>23</sup>, if either of the two pricing rules  $q_1$  and  $q_2$  is non-positive then so can be the payoffs  $g_{ij}$  of all security strategies  $\eta$ , CCCFs and not:  $(q_1 \vee q_2) \leq 0$  such that  $q \in \mathbb{R}_{-(-)}^2$  implies  $g_j \in \mathbb{R}_{-(-)}^2$ , since,  $\forall g_j \in \mathbb{R}_{-(-)}^2$ ,  $\exists! q \in \mathbb{R}_{-(-)}^2$  such that  $p_j = f(g_j) = q^\top g_j = \langle q, g_j \rangle$ , by which  $f: \mathbb{R}_{-(-)}^2 \rightarrow \mathbb{R}$ .

Accordingly, if either of the two pricing rules  $q_1$  and  $q_2$  is non-positive then so can be the returns  $\rho_i$  on all security strategies  $\eta$ , CCCFs and not:  $(q_1 \vee q_2) \leq 0$  such that  $q \in \mathbb{R}_{-(-)}^2$  implies  $\rho \in \mathbb{R}_{-(-)}^2$ , since,  $\forall \rho \in \mathbb{R}_{-(-)}^2$ ,  $\exists! q \in \mathbb{R}_{-(-)}^2$  such that  $p^\top \eta = f(\rho) = q^\top G\eta = q^\top \rho = \langle q, \rho \rangle$ .

Suppose that the investment in all other securities  $\eta_2$  may not be considered:  $p = p_1 \in \mathbb{R}$ ,  $\eta = \eta_1 \in \mathbb{R}$ ,  $G = g_1 \in \mathbb{R}^2$  such that  $G = [g_{11} \ g_{21}]^\top$ ; specifically,  $p_1 \eta_1 = \begin{bmatrix} q_1 & q_2 \end{bmatrix} \begin{bmatrix} g_{11} \\ g_{21} \end{bmatrix} \eta_1 = \begin{bmatrix} q_1 & q_2 \end{bmatrix} \begin{bmatrix} \rho_1 \\ \rho_2 \end{bmatrix} =$

<sup>23</sup>[https://fr.wikipedia.org/wiki/Théorème\\_de\\_représentation\\_de\\_Riesz\\_\(Fréchet-Riesz\)](https://fr.wikipedia.org/wiki/Théorème_de_représentation_de_Riesz_(Fréchet-Riesz))

$(q_1 g_{11} + q_2 g_{21}) \eta_1 = q_1 \rho_1 + q_2 \rho_2$ , observing that returns  $\rho_1$  and  $\rho_2$  are returns on CCCF strategies  $\eta_1$  alone, that is, they are returns both on the two states of nature  $\theta_1$  and  $\theta_2$  and on CCCF strategies  $\eta_1$ .

It follows that the only investment possible is that in CCCFs and that their payoffs  $g_1$  alone can be non-positive or even negative:  $(g_{11} \vee g_{21}) \leq 0$ , derived from  $g_1 \in \mathbb{R}_{-(-)}^2$ . However, such conflicts with CCCF convertibility into taxation revenue, by which their payoffs  $g_1$  are to be positive in one state of nature  $\theta_i$  at the minimum, by definition, therefore, CCCF payoffs  $g_1$  and the pricing rule  $q$  must be non-negative or even positive:  $(g_{11} \vee g_{21}) \leq 0$  conflicts with  $(g_{11} \vee g_{21}) \geq 0$  such that  $g_1 \in \mathbb{R}_{+(+)}^2$ , consequently,  $q \in \mathbb{R}_{+(+)}^2$ , observing that  $g_1 = h(\eta_1^+)$ , by which  $h : \mathbb{R} \rightarrow \mathbb{R}_{+(+)}^2$  is the CCCF payoff function modelling taxation revenue convertibility.

By alternatively reasoning in terms of strategy returns  $\rho_i$  the exclusion of investment in all other securities causes CCCF returns  $\rho_1$  and  $\rho_2$  to be non-positive or even negative:  $(\rho_1 \vee \rho_2) \leq 0$ , derived from  $\rho \in \mathbb{R}_{-(-)}^2$ .

Such albeit similarly conflicts with CCCF convertibility into taxation revenue, by which their returns  $\rho_i$  are to be positive in one state of nature at the minimum, by definition, so that CCCF returns  $\rho_i$  and the pricing rule  $q$  must be non-negative or even positive:  $(\rho_1 \vee \rho_2) \leq 0$  conflicts with  $(\rho_1 \vee \rho_2) \geq 0 \iff \rho \in \mathbb{R}_{+(+)}^2$ , consequently,  $q \in \mathbb{R}_{+(+)}^2$ , observing that  $\rho = g(\eta_1^+)$ , by which  $g : \mathbb{R} \rightarrow \mathbb{R}_{+(+)}^2$  is the CCCF return function modelling taxation revenue convertibility.

The gist of the presence of one positive state of nature at the minimum on account of CCCF convertibility into taxation revenue, be it terms of CCCF payoffs  $g_1$  or CCCF returns  $\rho_i$ , is the following: in at least one state of nature CCCF convertibility into taxation revenue would represent a gain over the same state of nature without it, namely, there would be a gain in relation to its absence, all else equal, which refers to all those other hypothetical states of nature by which nothing negative can come to pass relative to a CCCF investment; at worse taxation can be paid via CCCFs in one sole state of nature.

Now, a portfolio arbitrage opportunity is canonically defined in a twofold fashion. First, the acquisition of a portfolio features a negative value  $p^\top \eta$  (i.e. arbitrage portfolio) and its return features a non-negative value  $G\eta$ , that is, there exists a present gain in terms of acquisition and there exists some gain in terms of return, present or future:  $p^\top \eta < 0$  and  $G\eta \geq 0$ .

Second, the acquisition of a portfolio features a non-positive value  $p^\top \eta$  (i.e. arbitrage portfolio) and its return features a positive value  $G\eta$ , that is, there exists no present loss in terms of acquisition and there exists a gain in terms of return, present and future:  $p^\top \eta \leq 0$  and  $G\eta > 0$ . Conjointly:  $A = [-p^\top \ G]^\top$  such that  $A\eta \geq 0$ , in which  $\geq$  applies either to  $-p^\top$  or to  $G$ , applying there  $>$  to other.

Considering  $m$  states of nature and  $n$  securities, market non-arbitrage is canonically defined as being the equality between a portfolio arbitrage opportunity set and an empty set:  $\neg A := (\{\eta \in \mathbb{R}^n : A\eta \in \mathbb{R}_+^{1+m}\} = \{\})$ , by which  $p^\top \eta \sim (1 \times n) \times (n \times 1)$ ,  $G\eta \sim (m \times n) \times (n \times 1)$  and  $A\eta \sim [(1+m) \times n] \times (n \times 1)$ .

If reasoning in terms of payoffs  $g_{ij}$ , rather than strategy returns  $\rho_i$ , the CCCF strategy  $\eta_1$  must at such a point be explicitly assumed to be non-negative, by which the investor cannot be short of CCCFs:  $\eta = \eta_1 \in \mathbb{R}_+$ .

In either case CCCF payoffs  $g_1$  and CCCF returns  $\rho_i$  are both non-negative or even positive, thereby speaking both to the first canonical definition of a portfolio arbitrage opportunity  $A\eta \geq 0$ , featuring some gain in terms of return  $\rho$ , present or future: (i)  $G = g_1 \in \mathbb{R}_{+(+)}^2$  and  $\eta = \eta_1 \in \mathbb{R}_+$  or (ii)  $\rho \in \mathbb{R}_{+(+)}^2$  such that  $\rho = G\eta = g_1 \eta_1 \geq 0$ .

The accompanying arbitrage portfolio  $A\eta$  features a present gain in terms of acquisition, which in view (i) of the non-negativity or positivity of CCCF payoffs  $g_1$  and non-negativity of the CCCF strategy  $\eta_1$  or (ii) of the non-negativity or positivity of CCCF returns  $\rho_i$  suggests a negative pricing rule  $q : \rho = G\eta = g_1 \eta_1 \geq 0$ , thus,  $p^\top \eta = p_1 \eta_1 = q^\top G\eta = q^\top g_1 \eta_1 = q^\top \rho < 0$  suggests  $q < 0 \iff q \in \mathbb{R}_{--}^2$ .

However, by the Reisz-Fréchet representation theorem the non-negativity or positivity (i) of CCCF payoffs  $g_1$ , for a non-negative CCCF strategy  $\eta_1$ , or (ii) of CCCF returns  $\rho_i$  implies a non-negative or even positive pricing rule  $q$ , thereby eliminating arbitrage in the market for CCCFs:  $q \in \mathbb{R}_{+(+)}^2 \iff (q_1 \vee q_2) \geq 0$ , implied by (i)  $G = g_1 \in \mathbb{R}_{+(+)}^2$ , given  $\eta = \eta_1 \in \mathbb{R}_+$ , or (ii)  $\rho \in \mathbb{R}_{+(+)}^2$ ; it follows that  $p^\top \eta = p_1 \eta_1 = q^\top G\eta = q^\top g_1 \eta_1 \geq 0$ , not existing there a CCCF portfolio arbitrage opportunity  $A\eta \geq 0$ . QED

COROLLARY 10.2 (CCCF non-negative or positive SDF) *CCCFs feature a non-negative or positive SDF.*

Formally:  $\forall p = p_1 \in \mathbb{R}$  and  $g_1 \in \mathbb{R}^2$ ,

$$\mathbb{E}(\phi g_1) = \sum_{i=1}^2 \pi_i \phi_i g_{i1}. \quad (2)$$

*Proof.* The price of the CCCF strategy  $\eta_1$  is  $p = p_1 = \sum_{i=1}^2 q_i g_{i1} = q_1 g_{11} + q_2 g_{21}$ . The probabilities of the two states of nature  $\pi_i$  originate from probability space  $(\Omega, \Theta, \pi)$ , in which  $\Omega$  is the sample space,  $\Theta \subset \mathcal{P}(\Omega)$  is the  $\sigma$ -algebra and  $\pi$  is the probability measure originating the probability mass function:  $\pi : \Theta \rightarrow [0, 1] \subset \mathbb{R}_+$  such that,  $\forall \theta_i \in \Theta$ ,  $p(\theta_i) = p_{\theta_i} \in [0, 1] \subset \mathbb{R}_{++}$  and  $\sum_{i=1}^2 p_{\theta_i} = 1$ .

The definition of an SDF or pricing kernel  $\phi_i$  in terms of pricing rule  $q_i$  and the probabilities of the two states of nature  $\pi_i$  allows for the price  $p_1$  of the CCCF strategy  $\eta_1$  to be expressed as a product of SDF or pricing kernel  $\phi_i$  and the probabilities of the two states of nature  $\pi_i$ :  $\forall \phi_i = \frac{q_i}{\pi_i} \rightarrow q_i = \pi_i \phi_i$ ,  $p = p_1 = \sum_{i=1}^2 q_i g_{i1} = \sum_{i=1}^2 \frac{q_i}{\pi_i} \pi_i g_{i1} = \sum_{i=1}^2 \phi_i \pi_i g_{i1} = \mathbb{E}(\phi g_1)$ . *QED*

## 11. ITALIAN MINI BOTs AND CCCFs (CONCLUSION)

In conclusion, the Italian Mini BOTs: (i) would not have been legal tender, but would have neither been illegal; (ii) could have been exteriorly construed as supplementary government debt or supplementary transfers, preferring the latter for purposes of public finance statistics; (iii) would have increased neither government debt nor the money supply, by Eurozone practical dictates; (iv) would have thus decreased taxation and ultimately become exteriorly construable as taxation credit certificates, but would have thereby decreased government spending or transfers.

The Italian Mini BOTs would have then cast two birds with one stone. The Italian Mini BOTs, precisely because of the probable uncertainty associated with them, would have (i) stimulated expenditure more than a taxation rebate to the firms to which the treasury owed money and (ii) facilitated Italy's hypothetical abandonment of the Eurozone and return to sustained and consistent growth thereby.

CCCFs would cast three. In view of the further reduction in taxation conditional on their use for consumption, CCCFs would (i) stimulate expenditure more than a taxation rebate to the firms to which the treasury owes money, (ii) legally alleviate a liquidity shortage on the part of firms and the private sector at large without recourse to monetary policy and (iii) facilitate Italy's hypothetical abandonment of the Eurozone and return to sustained and consistent growth thereby, seemingly being the one and only reason for which all of their critics would oppose them and did oppose Italian Mini BOTs.

## 12. INTENT OF CRITICS (POST-CONCLUSION)

The claim by which the general critics (technocrats, politicians, academics, research institutes, financial speculators, rating agencies etc.) of the Italian Mini BOTs opposed them could be furthered by stating that they averted their intellect from them, in view of the Italian Mini BOTs' facilitation of Italy's hypothetical abandonment of the Eurozone and return to sustained and consistent growth thereby.

Such nevertheless deserves elaboration. The remarks of their general critics are not to the point, for they entirely miss it. While their remarks may be logically valid, they are certainly not logically sound, because their premisses miss the point altogether, yea, they are overblown and punctually loaded with sanctimony.

Such gratuitous remarks prominently entail: their illegality<sup>24</sup> despite their failure to be declared legal tender; their univocal consideration<sup>25</sup> as government debt despite the possibility of considering them as

<sup>24</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>, <https://twitter.com/ecb/status/1136618501639155713>.  
<https://osservatoriocpi.unicatt.it/cpi-archivio-studi-e-analisi-mini-bot-inutili-e-dannosi> and  
<https://www.lavoce.info/archives/59546/la-favola-dei-minibot> could be said to have done so indirectly.

<sup>25</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>, <https://twitter.com/ecb/status/1136618501639155713>.  
<https://osservatoriocpi.unicatt.it/cpi-archivio-studi-e-analisi-mini-bot-inutili-e-dannosi> and  
<https://www.lavoce.info/archives/59546/la-favola-dei-minibot> could be said to have done so indirectly.  
[http://documenti.camera.it/leg18/dossier/pdf/FI0134a.pdf?\\_1621961852956](http://documenti.camera.it/leg18/dossier/pdf/FI0134a.pdf?_1621961852956) did so in the regards of the Italian CCFs proposed in 2020.



transfers or taxation cuts, name (*nomen juris*) notwithstanding; the presence<sup>26</sup> of a discount upon them and of arbitrage thereby despite the acknowledgement of a non-negative or positive SDF upon them too, which by the representation theorem of pricing rules signifies no arbitrage in their exchange, due to their convertibility into taxation revenue; the supposed absence<sup>27</sup> of precedents, practically meaningless; their non-acceptance<sup>28</sup> by commercial banks on account of all such remarks.

Although ideated to such an end, the point is not their facilitation of Italy's hypothetical abandonment of the Eurozone and return to sustained and consistent growth thereby, to which the above remarks are clearly addressed, in all of their ado, the point is public trade debt repayment through corresponding reductions in taxation and government spending or transfers, being there no other option by the selfsame practical dictates of the Eurozone, and under such a light must they be appraised; yea, let Italy's hypothetical abandonment of the Eurozone be discussed in its own right and let its expedience relative to its return to sustained and consistent growth be logically and academically acknowledged thereby.

The Eurozone practically excluded an increase in government debt or a monetisation of that which the Italian treasury owed certain firms, calling for a legal and fiscal appraisal of the convenience of the Italian Mini BOTs relative to a taxation rebate of public trade debt to the firms involved, which compliance with Eurozone practical dictates permitted and adjudged as favourable in their regards.

Yet, the remarks of the Italian Mini BOT general critics are not even any longer about compliance with Eurozone dictates, which thereby emerge as ever changing, but, save for the improbability of a sudden loss of competence, about compliance with their seemingly effective intent, being that of Italy's immiseration, that is, its deindustrialisation, the eradication of its technology, productivity and human capital and the depletion of its savings, alongside its greater cultural and ethnic annihilation.

Such events are facts concomitant with Italy's entry into the Eurozone, which economic, political, ethical and metaphysical theory had clearly predicted: against a fact there is no argument, especially if the fact had been predicted and especially if facts and the common sense with which they are explained have not been buried behind the modern sickness of subjectivism.

The Eurozone's dictates are ever changing precisely because of their instrumental nature to a deeper end, as forsooth exemplified by the outright consideration of the Italian Mini BOTs as illegal and detrimental in spite of their legality and expedience or of the Italian CCFs as government debt, all of the institutionalised rage proper to the masterminds behind such dictates against so little as the remotest prospects of their highly dubitable introduction having been forthwith unleashed.

*“But the Lord is my refuge: and my God the help of my hope. And he will render them their iniquity: and in their malice he will destroy them: the Lord our God will destroy them.”* (Psalms 93:22-23)

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<sup>28</sup><https://www.confindustria.it/home/centro-studi/temi-di-ricerca/valutazione-delle-politiche-pubbliche/tutti/dettaglio/Questions-and-answers-on-Minibot>