

Financing the new Europe; working document

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Abstract

The major challenges that Europe now faces, in particular the European Commission's Readiness 2030 programme and the modernisation agenda proposed by Draghi, can be financed much better by public ECB money creation than (exclusively) by the issuance of common Eurobonds and national government bonds. In the case of public money creation, the national debt does not increase (even) but rather decreases, the stability of the financial system increases and the chance of a next crisis with its astronomic public costs decreases.

As a practical implementation of this, the €800 billion required for the Readiness 2030 programme could be created by the ECB from 2025 onwards in line with the previous 'non-conventional' policy pursued in the aftermath of the 2008 financial crisis. The ECB then created about 5000 billion € in its Quantitative Easing program to prevent deflation.

Based on the experiences in the Readiness 2030 program, it can then be decided politically / administratively to switch to a fully public monetary system after 2030, based on the current preparations for a Central Bank Digital Currency (CBDC). While maintaining a stable inflation level, this could then be used to finance the even more extensive European modernisation (Draghi) agenda. The advantages of such a system change are so great that its introduction can be legitimised in the general interest of the European people.

Introduction

The current far-reaching geopolitical developments have major consequences for European society and therefore also for the financial system. In order to make European rearmament possible as soon as possible, the President of the European Commission, Von der Leyen, has proposed to release a one-off amount of €800 billion over the next four years. In this plan "*Readiness 2030: the plan to finance EU defence*",¹ 150 billion will have to be raised from the capital markets by issuing joint loans in the form of 'Eurobonds'. In addition, Member States will raise the remaining €650 billion by relaxing allowable budget deficits (currently 3%) and debt ceilings (60%). These financial claims are therefore charged to the current budgets and/or entail mounting debts.

A few weeks earlier, former ECB President Draghi had already presented the report *The future of European competitiveness*, aimed at modernizing and strengthening the competitiveness of the European economy.² This plan, which will partly overlap with the strengthening of European defence, involves an amount of €800 billion per year.

Apart from these enormous challenges, current geopolitical developments are more generally a threat to European financial and economic stability. Since the 2008 financial crisis, the European Central Bank (ECB) has struggled for a long time to steer price developments towards the 2%/year inflation target within its limited mandate, the structure of the financial system in the EU also requires adjustment.

These recent developments have already led to discussion in politics and science about how the one-off 800 billion for the Readiness 2030 plan should be raised. In both circles, the expectation has been

¹ Future of European defence - European Commission

² M. Draghi (2025) The future of European competitiveness;
https://commission.europa.eu/topics/eu-competitiveness/draghi-report_en

expressed that this expenditure could raise interest rates and government debt to such an extent that a new debt crisis is to be feared.

In order to contribute to this discussion, an exploratory exploration of the current alternatives was carried out on the basis of a system-dynamic model.³ A brief description of this model is given in the annex to this working document. The model simulates a number of key variables of the financial and economic system in the Eurozone for a manufacturing, a services and a government sector, in combination with four categories of consumers. Although the model describes the financial and economic system at a high level of abstraction, it can nevertheless provide insight into the complex way in which the various mechanisms interact. Because the development of important variables such as the (Eurozone) GDP and amount of money (M3) can be reproduced reasonably well for the past four decades, useful significance can be attributed to forward calculations for the coming decades.

Exploration

The EU Commission's *Readiness 2030 programme* requires a one-off funding task of €800 billion, to be raised over four years. Draghi's previous plan requires an annual / structural amount of 800 billion, which roughly amounts to about 5% of European GDP. In view of the many concerns that the financing of the one-off 800 billion already raises, it cannot be expected in advance that the annual 800 billion can be raised by means of conventional policy. As in recent decades, the ECB will then have to be able to use 'non-conventional' policies (such as Quantitative Easing, or QE) again. Because the current geopolitical shifts call for new financial-economic conventions, such policies could now become the rule rather than the exception and could be considered 'conventional'.

In addition to the currently proposed variant of joint Eurobonds and government financing within the current stability rules (max 60% government debt and 3% budget deficit), the previous non-conventional ECB policy after the 2008 crisis will also have to be considered. The ECB then created and circulated approximately €5000 billion in new money in the QE program to bring the slumping inflation back to the 2%/year level. Such financing through public money creation could now be an option again. The central question for the exploration to be carried out here is whether this option can contribute to the affordability of the major challenges mentioned and at the same time contribute to the stability of the financial system itself.

Against this background, an exploration was carried out of the possibilities and effects for two storylines: conventional policy (CB) and non-conventional policy (NCB). Both are simulated on a previously published base scenario, which focused on the instability of the current financial system (Egmond and De Vries 2024).

Conventional policy, in which both programmes are financed conventionally, based here on Eurobonds because differences between Eurobonds and loans from national governments are not relevant within the scope of this exploratory study. This means:

1. Eurobonds **2025** will finance the one-off €800 billion for the EC-Readiness 2030 programme in the first 4-year period (2025-2029).
2. In **Eurobonds 2030**, the €4 x 800 billion for the Draghi modernisation agenda will be made available in the same way in the second 4-year period (2030-2034).

This is therefore existing money that is raised on the financial markets and that must later be repaid to the Eurobond holders and other capital providers through taxes.

³ Egmond, N.D. van and B.J.M. de Vries (2024) Reforming the eurozone financial system: A system-dynamics approach. *International Review of Financial Analysis* 93 (2024). <https://doi.org/10.1016/j.irfa.2024.103192>

Public money creation is necessary for a stable economy - ESB
<https://esb.nu/publieke-geldschepping-is-nodig-voor-een-stabiele-economie/> (Dutch language)

Non-conventional policies, in which both programmes are funded by public ECB money creation:

1. In **Public-Private Money Creation 2025**, the €800 billion required in the first 4-year period will be created by the ECB on a one-off basis. This is a 'non-conventional' policy, because the Maastricht Treaty (1992, Article 104) stipulates that money creation is exclusively reserved for commercial, private banks.⁴ In order to enable money creation by the ECB at the same time as the ongoing money creation by private banks, this article will have to be temporarily suspended during the first period. During this period, on the basis of the experience gained by then, political and administrative decisions will be made about the approach for the second period.
2. In **CBDC 2030**, €800 billion will be created annually by the ECB in the second 4-year period for the benefit of the Draghi modernisation agenda. The calculations assume that from 2030 onwards, the transition to a 100% public money system will be made through the full introduction of Central Bank Digital Currency (CBDC).

Because the calculated effects for conventional and non-conventional policy cannot be seen separately from the previously calculated 'baseline' development, which only includes existing policy (including QE), this baseline will first be discussed.

1 Baseline Development

Figure 1 presents the model results for four macroeconomic variables for the period 1980-2060 (black lines). The statistical data of the 'actually' realised development ('proxies') are shown as red dotted lines. The variables shown show the financial-economic development in relation to each other, as it is reconstructed by the model:^{5 6}

The financial crisis of 2008 is clearly visible in all figures. In the model, this arises because the development of real estate prices, especially in house prices, is assumed to be faster than net income as the 'willingness to lend (by banks) and to borrow (by consumers) time and again tends to be higher than the actual 'ability to borrow.' If, as a consequence, more than half of that net income is spent on interest payments and repayments, it is assumed that the number of transactions and subsequently also real estate prices will decrease, in accordance with Minsky's hypothesis⁷ for the stock market. Because fewer loans are then provided by private banks, less money enters the system, which increases interest rates and increases the cost of mortgages, which further reinforces the downward process. The then falling value of (collateral) real estate is causing problems for banks. The banking sector must then be rescued (recapitalized) by the government at high costs. The private money system is therefore inherently unstable; fluctuations are amplified; The system is 'procyclical'.

In Figure 1d, the amount of money (M3) in the system corresponds reasonably well with the statistical task and can be well explained by the continuous flow of new money created by private banks when granting loans, in particular real estate (including houses).

⁴ Maastricht Treaty; Article 104

Overdraft facilities or any other type of credit facility with the ECB or with the central banks of the Member States (hereinafter referred to as "national central banks") in favour of Community institutions or bodies, 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 ECB or national central banks of debt instruments.

⁵ Calibrating a system-dynamic model with a number of interlocking, complex feedbacks is usually only successful with regard to the long-term structural development of core variables. It is in this general sense that the simulation results give some confidence in the mechanisms in the model, given the various simplifications such as the assumption of a closed economy and uniform rules on investment, interest rate movements and consumer behaviour. This applies *a fortiori* to the advance calculation to 2060

⁶ See Annex to this working document.

⁷ Minsky, H.P (1982) *The Financial Instability Hypothesis: Capitalist processes and the Behavior of the Economy*. Hyman P Minsky Archive. Paper 282. p 34.

After the term in the order of 30 years, the loan is repaid and money disappears from the system again. Figure 1d therefore shows the net amount of money that circulates in the system at any given time. Because more loans are issued than are repaid, the money supply is constantly increasing on balance.

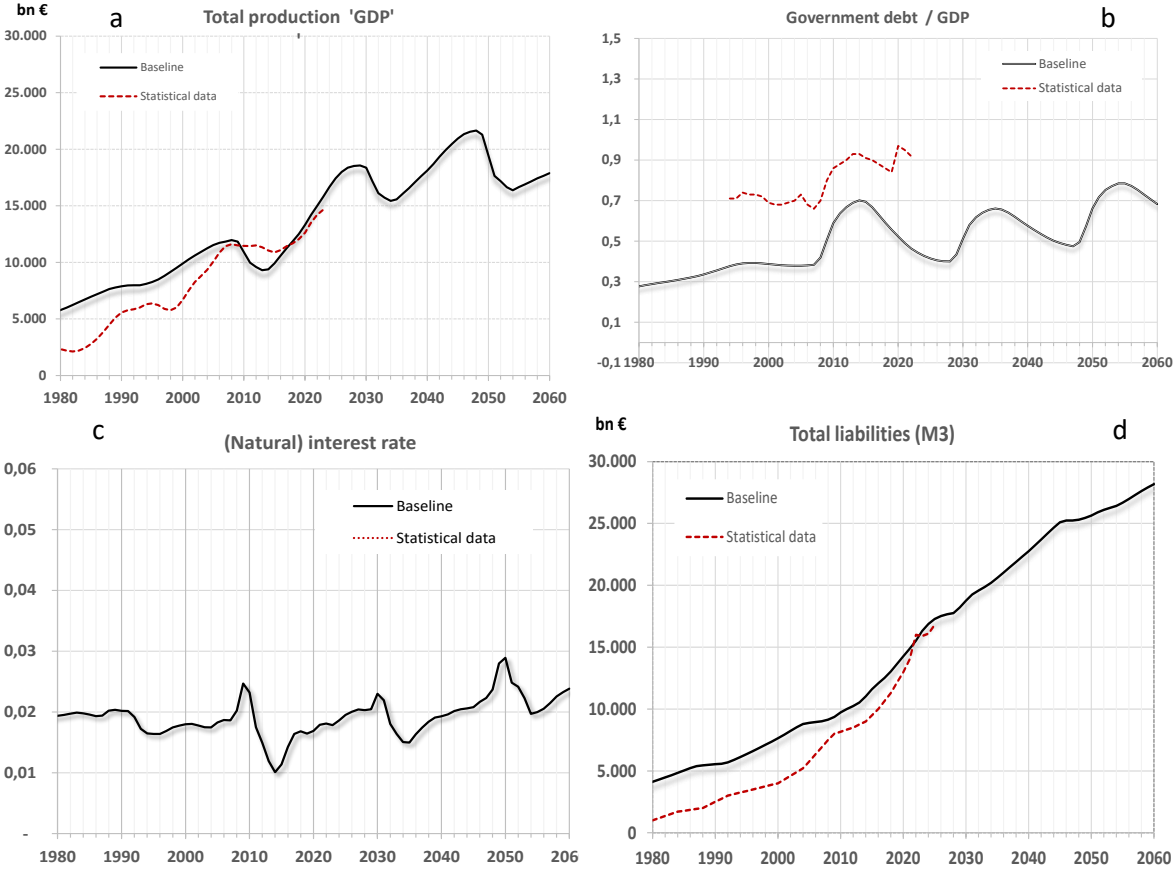


Figure 1 Model-based calculated development of GDP, government debt as % of GDP, interest rate and total money supply for the EU – historically calibrated for 1980-2023, calculated in advance for 2023-2060.

The development of the natural interest rate is less comparable with the policy rate shown (red dotted line), as it was gradually adjusted after the 2008 crisis to make inflation manageable. In Figure 1b, government debt to GDP in financial crises repeatedly rises above the level of 60% in the Eurozone, as a result of the resolution (rescue) of banks. Future crises are assumed to be similar to those of 2008. The calculated government debt lags behind the observed, average government debt in the Eurozone (dotted line) because, unlike policymakers, the model has to adhere to the agreed rules of the game. This is not a problem for the interpretation of the results.

Due to the pro-cyclical, inherently unstable nature of the system, the model suggests another financial crisis by 2030 with very high uncertainty. As in 2008, the consequences of this can be seen in the GDP shown, the (natural) interest rate and the development of the total government debt (as a fraction of GDP). The same applies to many other variables to be shown later, such as the size of outstanding government bonds, already collectively referred to here as Eurobonds, real estate/house prices and the level of inflation.

The occurrence of another crisis by 2030 complicates the interpretation of the calculation results for the various policies. Developments initiated by policy are then masked by the enormous changes that a crisis entails. However, the baseline development cannot be credibly changed. Against this backdrop of a new crisis, the results will therefore have to be interpreted with caution. On the

other hand, the threat of the crisis is realistic and some policies appear to be mitigating its impact in a positive way.

2 Conventional policy:

2.1 Eurobonds 2025

The development in the conventional scenario is shown by the red, dotted lines in Figure 2 below. These results show the development of the same four macroeconomic variables as in Figure 1, but in an otherwise similar simulation, the government will now borrow 4 x 200 billion from the private financial markets from 2025 onwards. Because the model does not distinguish between the individual member states, the entire amount can be considered as a joint loan via Eurobonds. It makes no difference to the model calculations. Existing money is therefore moved from the financial markets to the government, which will eventually repay the amount to the lenders concerned through taxation.

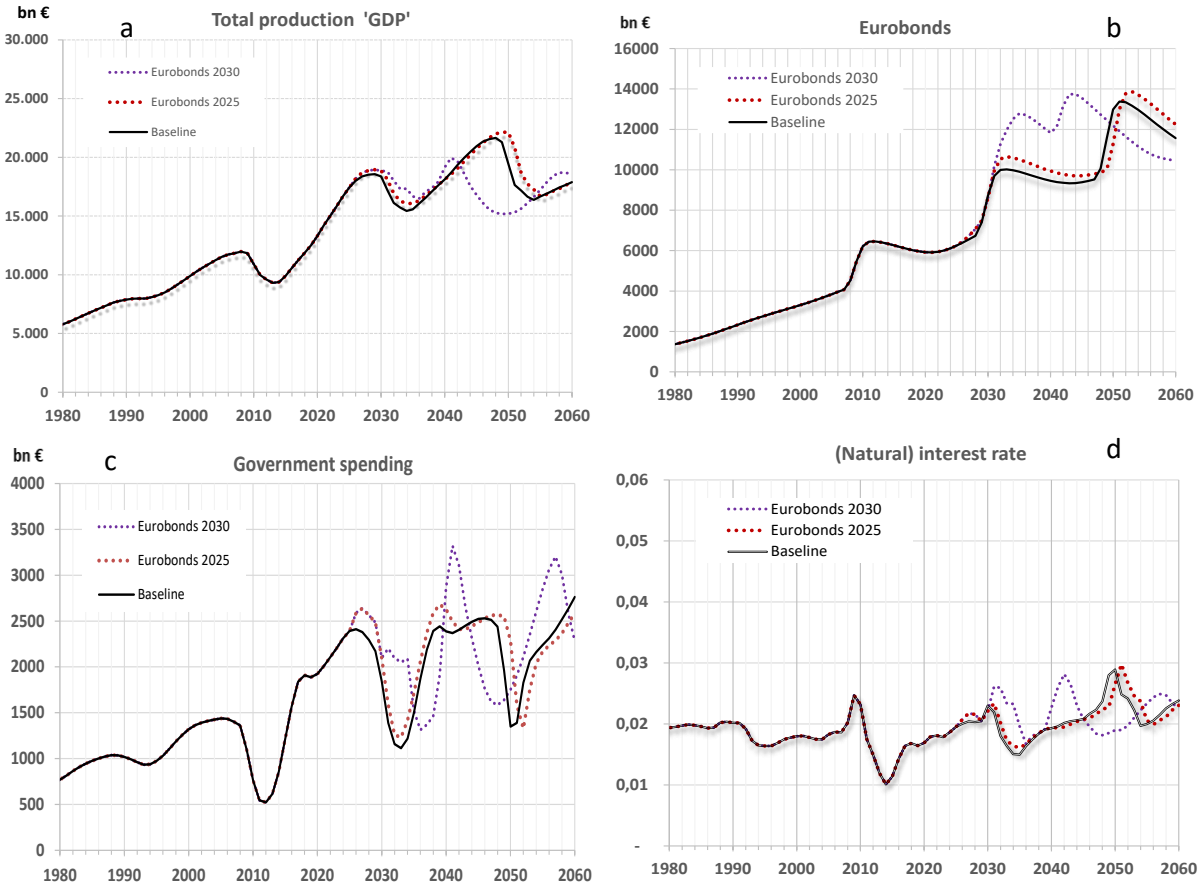


Figure 2; Conventional policy: Eurobonds 2025 and Eurobonds 2030

In the first place, it can be seen that the effect of the 'only' €800 billion over the 4-year period on GDP is small (red dotted line in Figure 2a). As a result of the recourse to the financial markets from 2025 onwards, liquidity will decrease and therefore interest rates will increase (slightly). The differences with the baseline are small. The amount of (existing) money in the system remains unchanged, but moves from the financial markets to the government. As indicated in Figure 2c, government spending is increasing in line with the intentions. In Figure 2b, the 200 billion/year from 2025 shows a barely perceptible increase in the amount of Eurobonds, before the efforts are masked by the 2030 crisis.

Figure 3 shows the effect on the tax burden and inflation for the same scenario. As a result of the necessary repayments of the Eurobonds issued in the 2025-2029 programme, the tax burden will increase more than in the baseline scenario. In that scenario, the pressure is already increasing because the government has to bail out banks in the simulated crisis of 2030. The effects on inflation are nil; The level of inflation in the years after 2025 hardly deviates from the baseline development.

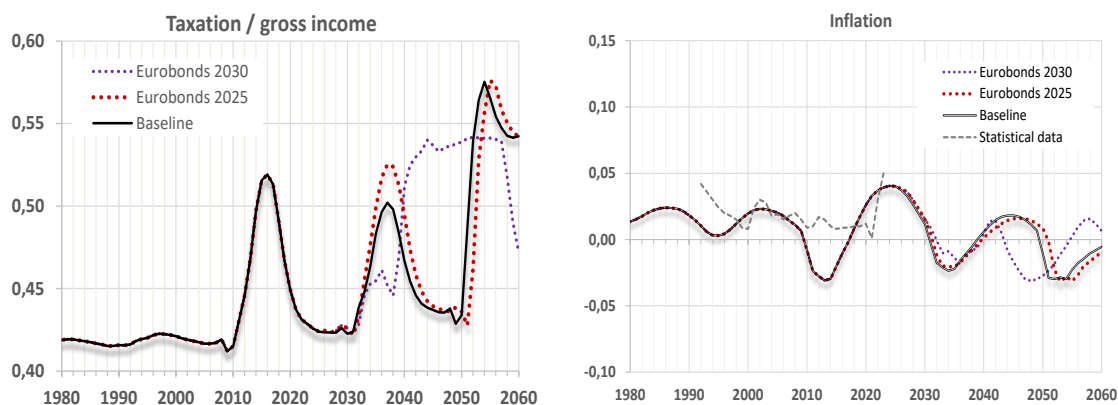


Figure 3 Conventional policy; tax burden and inflation.

It must be noted that the effects of the financing of the 4x 200 billion in the form of Eurobonds and/or government loans are limited. However, the consequences of this financing will be felt in the form of subsequent tax increases.⁸

2.2 Second period from 2030: Eurobonds 2030

We assume that after the injection of €800 bn in the period 2025-2029, funding will be sought for the Draghi modernisation agenda after 2030. To this end, calculations have been made for a 4-year programme, in which the €800 billion of government expenditure per year is also financed by means of Eurobonds. The results are represented in the same figures above by purple dotted lines.

The effects of this much higher 4 x 800 billion € financing are correspondingly greater. Even more than in the first period, the Eurobond issuance appears to reduce the negative effects of the (simulated) financial crisis that occurred, (GDP; Figure 2a). Government debt, and the large component of Eurobonds in it (Figure 2b), is now rising sharply, which in turn leads to a markedly higher interest rate level (Figure 2d).

The most pronounced effect of this €4 x 800 billion financing is that a new crisis is now occurring *over and above* the previous scenario around 2040, with far-reaching consequences for GDP, government spending and interest rates (Figure 2). The tax burden (Figure 3a) will increase sharply and for a long time after 2040. At the same time, inflation is falling sharply as a result of the new financial and economic crisis.

It is concluded that the financing of €4x 800 billion as Eurobonds or government loans from the financial markets entails major risks to financial stability. Also, and of course, these debts are passed on to later generations.

⁸ The model sees the Eurozone as a closed system. Trade with other economic blocs is therefore not included. However, it can be stated in advance that if part of the extra money for the rearmament amount is spent elsewhere, for example in the US, this money will not have an inflationary effect on the system in the Eurozone. That part could therefore be created additionally, albeit weakening the position of the euro, but that is not a problem with the EU's current export surplus. European products will also become relatively cheaper and thus gain a stronger market position.

3 Non-conventional policy

3.1 Private-Public Money Creation 2025

In the aftermath of the 2008 financial crisis, the ECB created some €5000 billion through 'non-conventional policy' under the Quantitative Easing programme. The programme was unconventional because money creation is exclusively reserved for private banks and is therefore (almost entirely) outside the ECB's mandate, as laid down in the Maastricht Treaty.

Given the now exceptional circumstances, it may be an option to finance the 4 x 200 billion for the first period (2025-2030) again 'unconventionally' through money creation from the ECB. By temporarily suspending Article 104 of the Maastricht Treaty, this policy could then be implemented as a 'conventional' policy. New, non-existent money is then created, which in this case the government can spend on defense purposes. In addition to this public money creation, in this scenario the private banks will also continue to create money in the usual way when they provide loans. Private and public money creation therefore function side by side here.

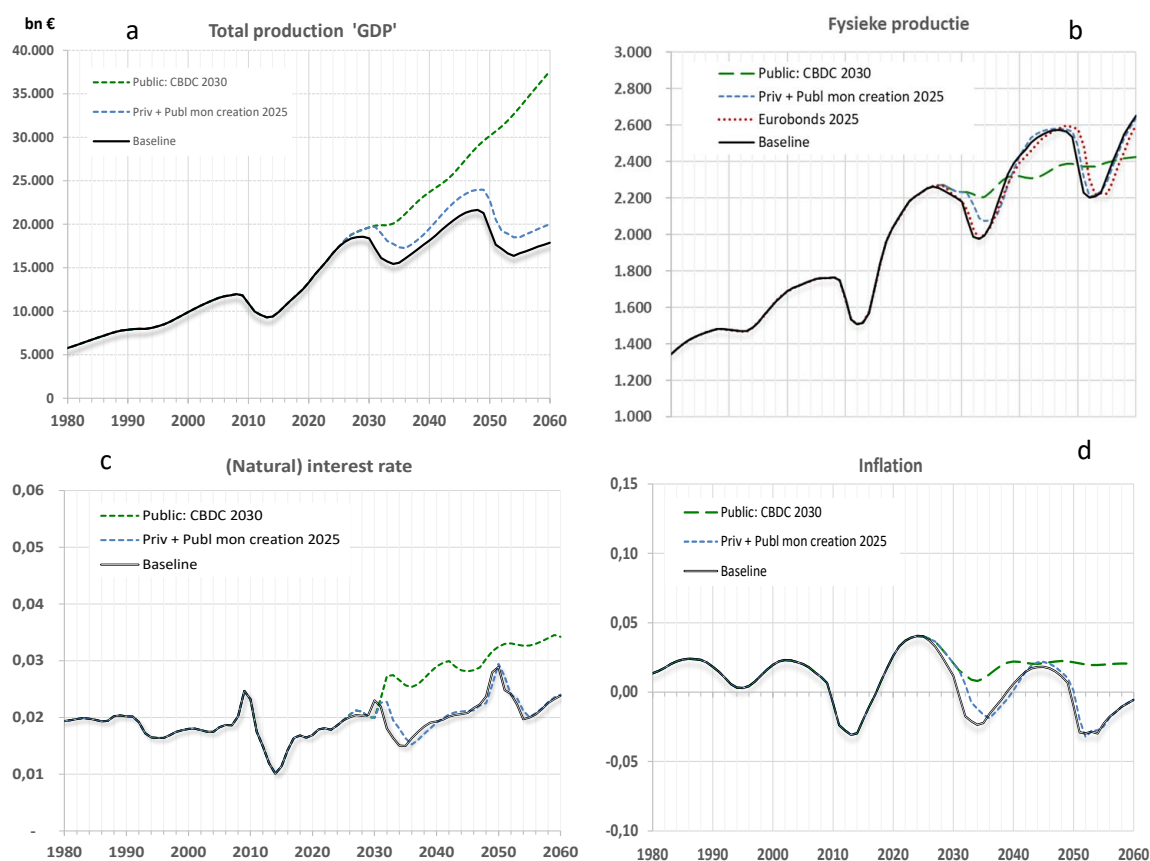


Figure 4: Results for non-conventional policies; ECB money creation; total production / GDP, physical production, interest rate and inflation.

In this **Private – Public 2025 scenario**, it is simulated that the 4 x 200 billion in the period 2025-2029 will not be obtained by the government from the financial markets, but by direct money creation by the ECB. The results are shown in figures 4 and 5 by the blue dashed lines.

Thanks to the larger amount of money in the system, GDP levels and physical production are increasing (Figures 4a and 4b), despite interest rates rising slightly due to the increase in investment (Figure 2b). However, the increasing amount of money does increase inflation above the baseline

level, but given the rapid decline in inflation as a result of the crisis situation expected for 2030, this is turning into an advantage (Figure 4d). The national debt, as a fraction of GDP, is of course lower, including the additional money creation in it. Targeted government spending is now increasing more than in the case of purely private financing (Figure 5b). The tax burden here is much lower than in the case of financing by Eurobonds or equivalents, because no existing money has to be repaid to the Eurobond holders. These calculations illustrate that public, debt-free money creation during the first 4-year period can yield a significantly more favourable result than financing from financial markets.

3.2 *Second period from 2030: non-conventional policy*

Partly due to a growing demand for financing after 2030, consideration could be given to leaving money creation after 2030 exclusively to the ECB, in which the experience from the years 2025-2029 could be taken into account. From its mandate of price stability, the ECB will only (be allowed to) create new money insofar as inflation does not exceed the 2% target. This is quite feasible in practice because this public money creation makes it possible to control price stability much better than is currently the case. By putting into circulation at the right time the amount of money that must be added to the economy annually to keep inflation at 2%, fluctuations in the price level can be dampened. In contrast to the money creation by private banks, the money is no longer created at the most lucrative moment when the economy is already in the upward 'boom' phase, but rather in the 'bust' phase in which economic activity threatens to decline. The system changes fundamentally from procyclical / unstable to anticyclical / stable due to this different control. In such a system, the intended price stability with 2% inflation is substantially more manageable. Because this public financing does not entail any debt, it does not increase the national debt. So there is no need to appeal to the taxpayer.

The ECB's money creation can practically be linked to the existing plans for Central Bank Digital Currency (CBDC), which, like the former physical coins and banknotes, can still be created by the ECB. For the time being, this 'digital euro' would be 3% of the amount of money in circulation. In the CBDC 2030 calculation carried out here, it is assumed that this can grow to 100%, i.e. full public money creation.

The CBDC-2030 variant assumes that the ECB continuously creates money and puts it into circulation directly in the real economy through government spending when price developments fall below the target inflation level of 2% per year. Money creation stops as soon as the 2% target level is reached again. Such inflation-driven money creation is practically possible, in the same way that the economic outlook is now estimated annually to determine the budget space for the next financial year. The differences that occur with the actual realisation will be included in the following estimates.

3.3 *CBDC-2030*

The results for this situation in which money creation is exclusively reserved for the ECB are shown by green, dashed lines in the same Figures 4 and 5.

There is a constant increase in GDP and (to a lesser extent) physical production (Figure 4a-b). Physical production continues to grow due to increased net investment and productivity improvements. However, because inflation is 2%/year, monetary production measured as GDP is increasing faster (Figure 4a-b).

The stability of the price level with 2% inflation is maintained precisely and for a long time (4d). This is achieved by steering money creation entirely on the basis of this progressing, actually realized inflation level.

In sharp contrast to the variants discussed earlier, government debt is also gradually being reduced, as can be seen in Figure 5d. With these developments, interest rates remain stable, rising very slightly to a new equilibrium level between 3 and 4 %. The tax burden is also stabilising at a new equilibrium level, of more than 45%. In contrast to all other variants, financial crises no longer occur in the now anti-cyclical system.

Price-adjusted, physical government spending is now at the highest and most stable level of all variants (Figure 5b). Ultimately, this is where government spending for the European (Draghi) modernization agenda is realized.

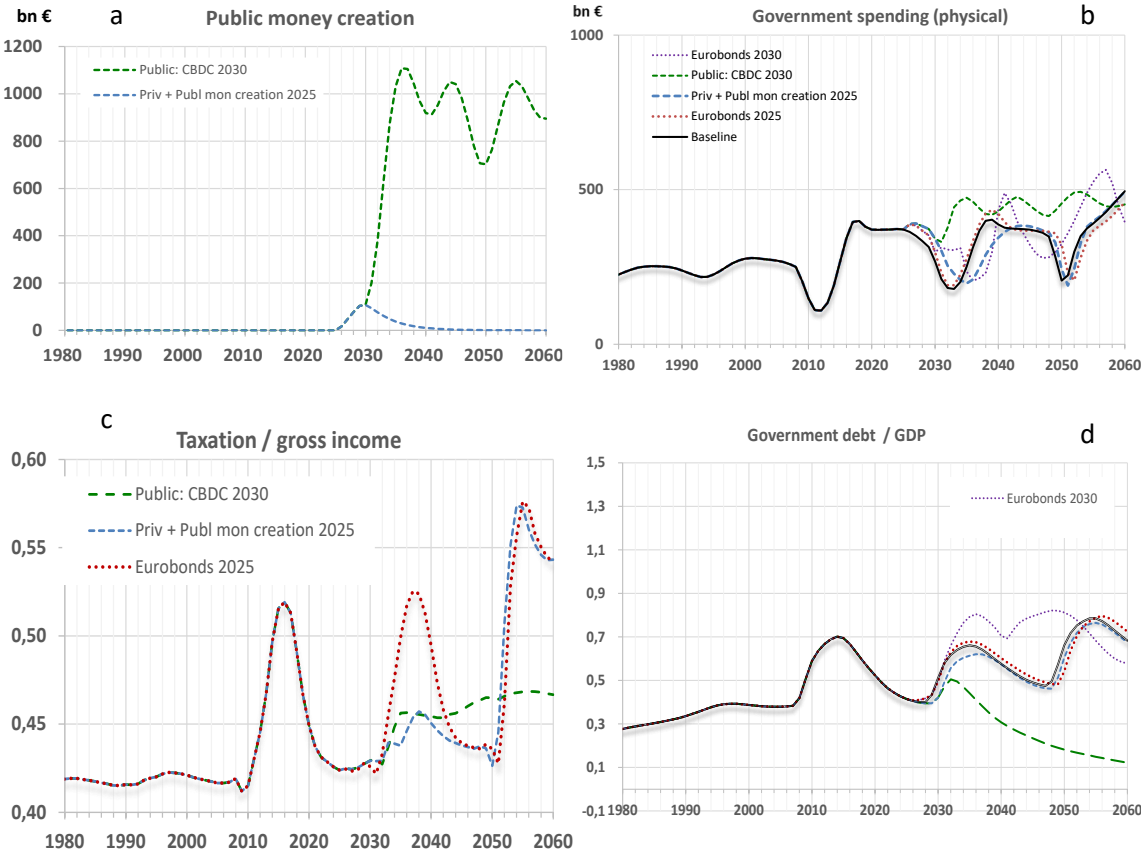


Figure 5: Results for (mainly) non-conventional policies; ECB money creation; CBDC 2030; Money creation in the event of continuous 2% inflation (A), physical government spending (B), tax burden (C) and government debt (D)

Figure 5a shows that between €800 billion and €1000 billion of new money is created annually and needs to be put into circulation in the real economy in order to achieve 2% price stability. This amounts to more than 5% of both the Eurozone GDP (€16 billion) and the M3 money supply (€17 billion in 2025).⁹ On the basis of very general considerations ¹⁰, this percentage is determined by the desired inflation rate (2%), physical economic growth (about 1%) and by the speed at which the existing government debt is repaid. As a robust lower limit, the 3% money creation could be assumed, i.e. without including the repayment of the existing national debt. That would amount to 500 billion € / year. The amount of money to be created is therefore determined exclusively and in advance by the 2% inflation target and the nature and functioning of the current financial-economic system as a whole. It can be legally regulated that the ECB, as the executive body, is bound by exactly this amount of money creation, no more and no less. What the money is spent on is then at the discretion of (European) politicians. The only condition is that the new money is invested in the real economy, and

⁹ <https://tradingeconomics.com/euro-area/gdp>

¹⁰ This is the identity $M.v = p.Y$, in which M is the money supply, v is the velocity of circulation, p is the price and Y is the physical production (so p.Y is GDP). The velocity of circulation v varies, but can be assumed to be constant over longer periods of time.

not, as at the time of the ECB-QE program, in the financial markets, because this is too indirect to control inflation.

The total money creation as it is realized in the financial economy is shown in Figure 6. In the period 1980 to 2030, private banks will have created around 30,000 billion. In addition, another approximately €5000 billion has been created in the ECB-QE programme. As indicated earlier, a significant part of this gross money creation has already been cancelled out by repayment of the loans taken out (for example, for mortgages). As a result, the current amount of M3 money in the system amounts to €17000 billion, as indicated earlier in Figure 1d.

In the case of exclusive ECB money creation, as assumed after 2030 in the CBDC 2030 variant, money creation by the private banks is completely taken over by money creation by the public ECB. The green dotted line marks the moment when, in that scenario, the private banks no longer create new money and the money creation is continued by the ECB.

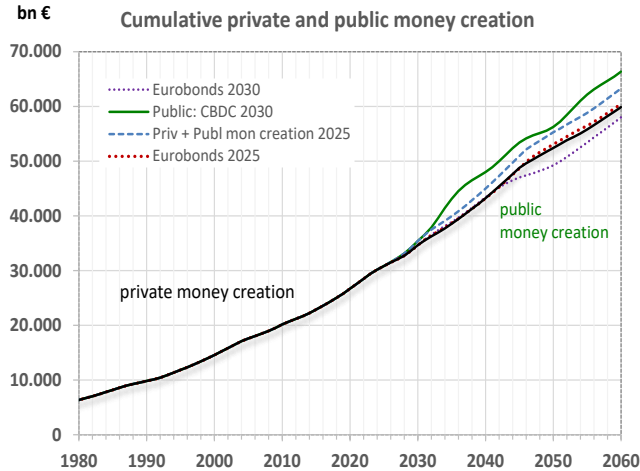


Figure 6 Cumulative (private and public) money creation for the baseline and the four variants.

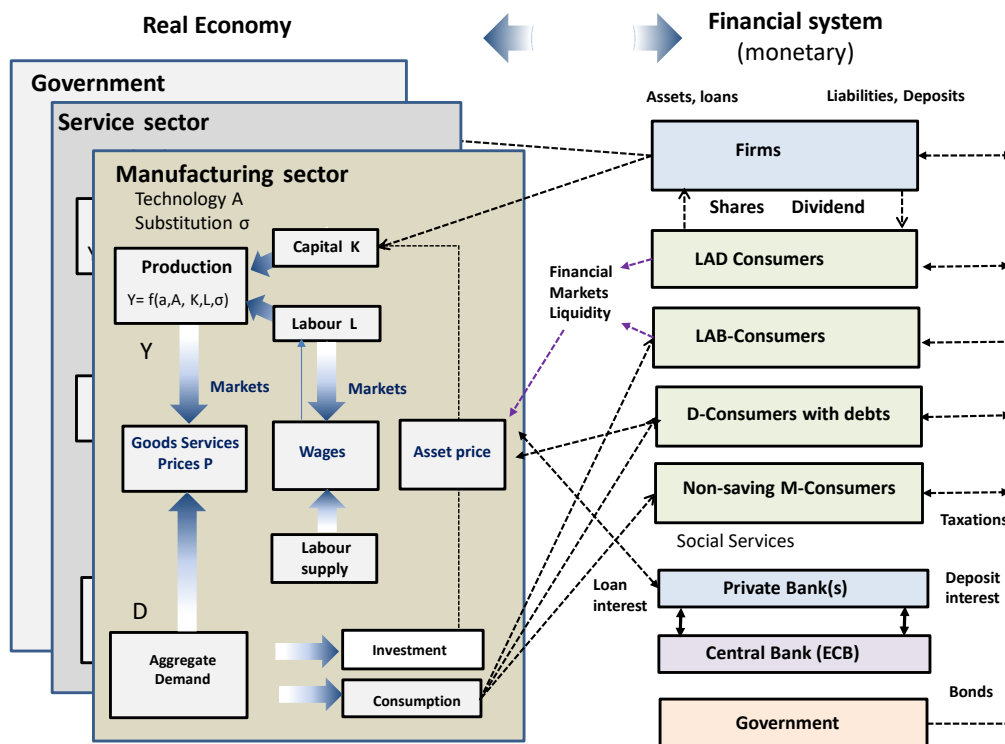
This means that private money creation is converted into public money creation, whereby the role of private banks is taken over by the Central Bank as representative of the public government. The use of the newly created money was initially determined by the private banks on the basis of commercial considerations, in particular the short-term return and the risks incurred. In the alternative situation, the funds created by the government are put into circulation through the ECB through spending in the context of larger joint programmes. Apart from the many advantages of the alternative situation, it can also be justified by the fact that the creation of new money has concrete consequences for all citizens and businesses, especially in terms of inflation. This legitimizes public involvement and responsibility. This restores the public-private balance in the management of the economy in a pure and functional manner.

In the public system, a completely different destination is therefore chosen for the newly created financial resources than in the private system. Public money creation therefore contributes significantly to the government's ability to provide directional guidance. The European community will certainly need that capability in the coming years.

Conclusion

Public money creation combines a high degree of financial and economic stability with a structural benefit for the taxpayer in the order of 3% to 5% of GDP. This means that by scrapping Article 104 of the Maastricht Treaty, the European Union can structurally spend 3% to 5% more jointly each year. It would provide immediate relief for the financing of the Readiness 2030 plan and could structurally provide for the vast majority of the Draghi modernization agenda.

Appendix: Model description



The model simulates a number of key variables of the financial and economic system for a manufacturing, a service and a public sector, in combination with four categories of consumers. The system-dynamic, non-equilibrium model (on the left) is combined with a stock-flow representation of the financial sector (right). Both real and monetary stocks and flows are modelled at a high level of aggregation, with a stylised bank balance sheet containing assets and liabilities for the banking system. In the model, money is created 'endogenously' when private banks provide loans in response to the demand for investment in the real economy and, increasingly, for mortgages. Interest rates are determined by (changes in) both liquidity and investments. Asset prices, especially real estate and house prices, depend on net income and its growth.

In a *boom phase*, in which production, income and asset prices rise, banks provide as many loans as possible for commercial reasons, and thus the corresponding bank money. In this pro-cyclical process, asset and house prices rise, which then leads to more and higher loans, thus more money creation, increasing liquidity and therefore inflation. Nevertheless, the increasing economic output and associated investments are pushing the interest rate up on balance. Rising inflation leads to higher wages, which in turn leads to even higher real estate and house prices with the then still optimistic future expectations.

It becomes problematic when the increasing mortgage costs can no longer be afforded by some, because these costs, partly due to the rise in interest rates, will form too large a part of the net income. This moment of crisis is simulated in the model on the basis of data on the size and distribution of mortgage payments across population groups and the resulting probability of *defaulting*. The downward trend is exacerbated by the fact that the number of real estate and house transactions is declining considerably. As a result, house prices fall and the economy shrinks, which is interpreted in the model as a financial crisis in which the banks have to be bailed out by the government (recapitalization).