Reforming the Eurozone financial system: a system-dynamics approach

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Extended Summary

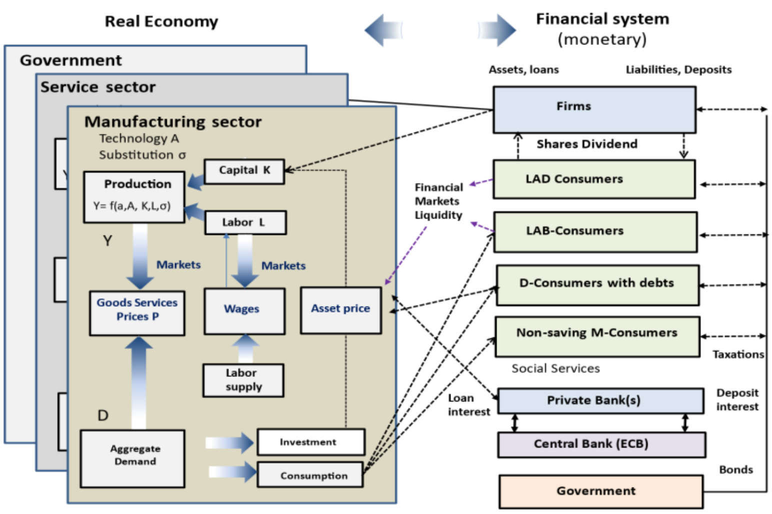
Without reforming the current, inherently unstable financial system, Europe is not expected to be able to meet the major challenges of the coming decades. As model calculations show, improving the functioning of the euro area financial system requires untangling private and public roles and responsibilities. In order to maintain price stability and stability in general, the money in the system must be created and controlled exclusively by the European Central Bank as the sole monetary authority for this single purpose.

The problem

Especially since the financial crisis of 2008, the functioning of the Eurozone financial system has been seriously flawed. After the massive recapitalization of banks, higher taxes due to austerity policies to restore government budgets caused stagnation. To counter the ongoing deflation, the European Central Bank (ECB) launched the unconventional 'whatever it takes' Quantitative Easing (QE) program, adding a net amount of the order of 5000 billion euros to the liquidity of the total system. This was done indirectly by buying government and commercial bonds on the financial markets. Given the associated time delays, actual core inflation remained too low for many years, leaving the 2% target out of reach. It was only in 2022 that core inflation rose significantly. Later, also boosted by the energy scarcity caused by the Ukraine war, an inflation level of 6% was reached. This excessively high level had to be controlled by slowing down the economy as a whole by means of increased interest rates (Quantitative Tightening; QT). It appears that the ECB does not have the right policy tools to maintain price and overall stability in the euro area, in line with its mandate.

The model

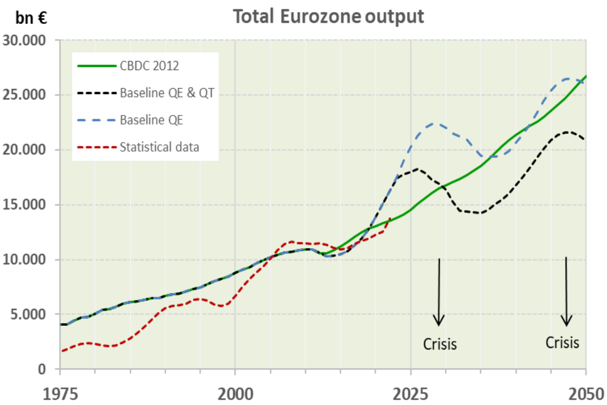
To explore more stable alternatives, a system dynamics model was developed, simulating the behaviour of the financial and economic system for a manufacturing, a service and a government sector, in combination with four categories of consumers. The financial system is modeled as a stylized bank balance sheet with assets and liabilities, as shown in the following figure:

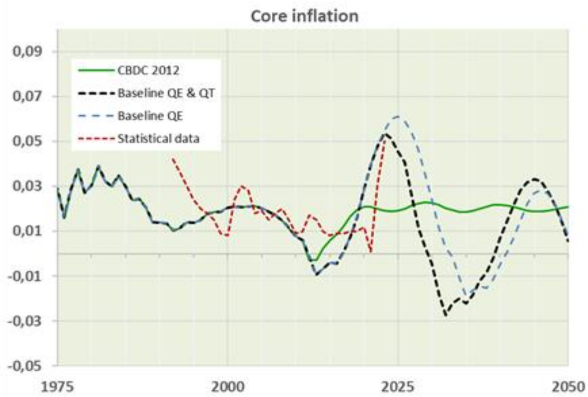


The evolution of the euro area economy has been modelled over the period from 1975 to 2050, taking into account the ECB's policy to date, i.e. only QE (blue dotted line) and both QE and QT policy (black dotted line). Together with the statistical (realized) data of the historical period to date (red dotted line), these results are shown in the Figures below for the total output of the euro area and for the level of core inflation.

The understanding

In the current pro-cyclical system, corporate banks create the money for the economy by providing loans. From a commercial point of view, these loans and the associated bank money (euros) are created at the wrong time during the 'boom phase', when the economy and asset prices are already rising. As a result of increasing liquidity, asset prices continue to rise, as does core inflation. As soon as asset prices and/or debt become too high, the "bust" phase begins, during which the economy shrinks and can collapse. As a result, the financial system is inherently unstable, as shown by the (modelled) total output of the euro area below; financial crises are expected to recur again and again in the future. The inherent instability is also reflected by the level of the core inflation, which has fluctuated widely over the past few decades, as discussed above.
The model results shows the previous too low level of inflation (blue dotted lines), the subsequent effect of the rising inflation due to the QE programme from 2012 onwards and (given by the black dotted line) the effect of the subsequent QT increased policy rate programme. As can be seen from the dotted black line, this QT programme has prevented even higher inflation, but carries the risk of constraining economic activity to such an extent that it could lead to a severe crisis.





More generally, the economic boom-bust cycle is generated by corporate bank money creation during the boom (e.g. before 2008), which must be offset during the next bust phase by inadequate ECB policy measures with too limited a mandate. The policy measures are somewhere between ‘unconventional and controversial’ with regard to QE and between ‘trial and error’ and risky in the case of QT interest rate policy. Without reforming this current unstable financial system, Europe is not expected to be able to meet the major challenges of the coming decades.

The alternative

To substantially improve the functioning of the euro area financial system, private and public roles and responsibilities need to be unbundled and redefined. To maintain price stability and stability in general, the amount of money in the system must be controlled by a single actor/authority from the sole purpose of stability, rather than the profitability of private actors. As a result, an overarching public institution such as the ECB is seen as the most appropriate entity to exclusively create the money for the eurozone economy. It implies an amendment to Article 104 of the Maastricht Treaty, which allows the ECB to create money within specific, constitutionally defined regulations.

The ECB can then continuously and directly adjust the amount of money in circulation to the current state of the economic system. The ECB creates the money as a 'Central Bank Digital Currency' (CBDC) according to an explicitly formulated 'money growth rule', which is only based on price stability (inflation target). It has legal or even constitutional status, allaying fears of creating too much money. Corporate banks no longer create money. They operate as financial intermediaries/brokers in the financial markets, based on their unique risk management expertise.

The model is used to investigate the effect of a system reform in this direction. If such a revamped system were assumed to have been implemented in 2012, after the 2008 crisis, the expected economic development would have followed the green lines in the graphs of total output and core inflation above.

The conclusion

An economic crisis is no longer expected; the financial system will remain stable until the end of the modelling period (2050). The ECB's annual money creation (CBDC) is initially around 5% of the eurozone's total output (€500 billion), and later drops to 2 to 3% (€200-300 billion). As indicated, this money can be spent by the government(s) of the euro area. The price/inflation level is now steadily maintained around the target inflation rate of 2%. Since the amount of money in the system is now fully under control, there is no 'excess' liquidity and the interest rate resumes its role as the market price of money between supply and demand, stabilising between 3 and 4% (not shown). Physical production follows a path of stable, continuous growth, while maintaining full employment in the long term. Asset prices now follow stable growth in the aggregate price level and income/wage levels. More generally, the stability of all macroeconomic parameters is significantly increased.
A very important additional benefit is that the complexity of the system can be greatly reduced, allowing for much more effective supervision of the financial system as a whole, eliminating the need for thousands of pages of Basel regulations. The complexity will be handled by the financial markets, on which commercial banks operate as financial intermediaries/brokers.

The stability of the system can therefore be significantly improved by the transition from the current procyclic to a countercyclic system. The results also indicate that a partial transition, with money creation by *both* the corporate banks and the ECB, would already improve stability. However, because the volume of money creation by the ECB is by nature smaller in that case, the ECB's ability to control stability is also smaller. As a result, interventions sometimes remain necessary to cool the economy (and thus corporate money creation) through trial-and-error rate hikes with unforeseen negative economic consequences. These negative consequences will no longer occur in the event of a full transition from money creation and control to the ECB.

The amount of money created in this way depends (according to the law) exclusively on the state of the macroeconomic system, in particular core inflation. In general, this amount is between € 200 billion and € 500 billion per year, depending on the proportion of public debt that is repaid. The CBDC money can be credited to central and/or national governments from where it can be channeled to the real economy. According to political preferences, the money is put into circulation through tax cuts and/or higher government spending (infrastructure, etc.) and/or repayment of the national debt.

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