Monetary Reform: dynamics of a sustainable financial-economic system

N D van Egmond en B J M de Vries

Utrecht University

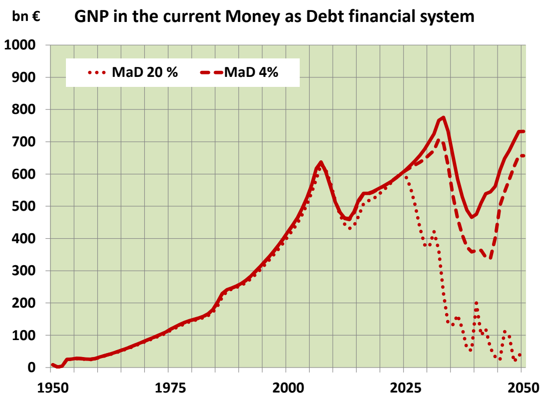
This working paper (3rd version May 2018) describes research in progress by the authors in the framework of the Sustainable Finance Lab (SFL), a think tank directed to a more sustainable financial system. The paper is published to elicit comments and to further debate. The views expressed in this Working Paper are those of the authors and do not necessarily represent those of the SFL.

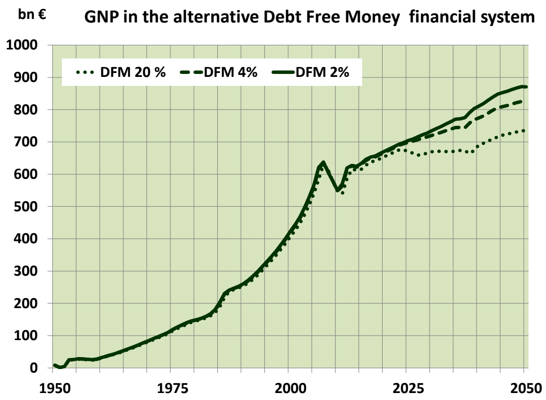
Summary

In order to explore the feasibility of an essentially improved financial – economic system, a system dynamics model has been developed to describe the most important mechanisms governing physical output of goods and services in the economy in interaction with the financial system. The model has been parameterized for a 600 bn €/year (Dutch) economy 1950-2010 in order to reproduce and investigate the time paths of some key economic variables. In particular, the model distinguishes explicitly the financial system and the process of money creation and debt formation. The model can give a meaningful reconstruction of the overall long-term dynamic behaviour of the financial-economic system. The occurrence of the boom- and bust-cycles can be understood and to a reasonable extent predicted from the asset-price driven credit cycle. The model experiments allow the following conclusions:

- The model confirms Minsky's *instability* hypothesis. The system is inherently unstable, given its *pro-cyclic nature*. In the euphoria over apparently ever increasing (asset) prices, GDP, wages, consumption and loans turn the boom into the downward spiral of the bust, when financing cost becomes unbearable for individual households, banks go bust and have to be recapitalized by the government which has to increase taxation and decrease expenditures, thus aggravating the situation further. Money is created by private banks, who decide on other criteria than the stability of the system as a whole. Lacking central coordination, (monetary) economic growth by decentralized money creation brings about the unjustified euphoric herd behavior of the many private banks creating too much money, in the belief of and speculating on an ongoing rise of asset prices. The Central Bank does not have the possibility to control the decentralized money creating process, as the Bank's ability to determine the interest rate is not effective. As a consequence, average inflation over the 57 years before the 2007/2008 crisis amounts almost 4 %, rather than the Central Bank objective of 2 %. After the inevitable crisis, the system had to be rescued from societal chaos by the government through centralized coordination, via recapitalization of banks at the expense of the tax payer.
  After the crisis, the same herd behavior results in too less money creation by banks, which subsequent impacts on the monetary consumption and production in the first place and to a lesser extend also on physical consumption and production. This then adds up to increasing debt levels, which temper consumption. The overall result is economic stagnation.

- Given the inherent instability of the system, a *next crisis* is modeled to occur around 2035 (see red baseline in both figures). But given the (not modeled) technology (ICT-)driven acceleration of the processes within the financial system, this as well might be earlier.





- Control, or at least significant weakening of the boom-bust cycle, and herewith avoiding inflation during the boom- and deflation during the bust-phase, can be achieved by *anti-cyclic centralized control over money creation*. The model experiments show that in such a Reformed Monetary System money creation by the government, according to a 'money creation rule' which is for example directed towards price stability and / or employment, indeed can stabilize the boom-bust cycle. At a constant price level, both the physical and the monetary production (GNP) and consumption then follow a pathway of stable, continuous growth, which reflects the increased real productivity which results from technical progress; see (right hand side, green).

- The coming decade, the financial-economic system has to face several radical transitions. Through environmental constraints like climate change and resource depletion in an overpopulated world, the *'limits to growth'* inevitably will come closer. Moreover robotization might provoke income redistribution by means of basic income. Most likely this developments will result in decreasing levels of economic growth and subsequent *decreasing stability of the system*. As shown in the Figures by the dotted lines, representing increasing environmental costs, the current pro-cyclic Money as Debt system becomes very unstable under decreasing growth, while the anti-cyclic Debt Free Money alternative remains stable, even when the system inevitably converges to the stationary state.

- At a politically preferred inflation rate, debt free money can, and has *to be created at a rate of 5 % at first and about 2 % of GDP per year* later, depending on the rate at which the current government debt is repaid. The money can be used to lower taxation and / or to invest in democratically chosen projects, for instance an efficient and renewable energy system. It also can be lent to firms, via commercial banks as mediators. On the European scale it would enable a significant revitalization of the economy and the cohesion within the European Union.

- Money creation by the government is not only legitimized by the above stability-considerations, but also by millennia of philosophical and ethical thought in which money is considered to be a social construct, implying that *money has to be defined and created by the community*.

A *smooth transition* to the reformed monetary system seems feasible. Such a transition requires the reformation of the Central Bank(s) to a separate (4^{th}) power of government**.** Under supervision of these reformed Central Banks, Digital Cash Accounts are introduced in existing commercial banks, running in parallel with the current (demand) deposits. The payment system is migrated from operating on bank deposits to this state issued Digital Cash, as the government gradually dismantles its support for use of bank deposits as a means of payment and a store of value.