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Monies, debt and policy. The concept of endogenous money as a basis for household and non-financial companies instead of bank centered monetary statistics

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Summary. *The lack of attention to the stock of debt and, to an extent, the flow of credit by central banks and central bankers was one of the reasons why the Great Financial Crisis took them by surprise. Their focus on consumer price inflation led them astray. This is remarkable, as the very monetary statistics of the central banks are based upon the idea that money creation is 'joined at the hip' with debt creation: 'loans create deposits'. The statistics show this, including sectoral differences and differences between loans. This enables central banks to differentiate between different sources of money growth. National differences as well as differences between debts for asset purchases and debts to finance productive investments come to mind. Monetary statistics which are more focused on national differences and debt will, in the Eurozone, also enable a more coherent formulation of national and Eurozone economic policies as the data matrix of the EU 'Macro Economic Imbalances Procedure' Eurostat financial accounts of countries already contains sectoral debt and asset price related variables. Using 'debt' as a standard element of monetary analysis however requires a wholesale acceptance of the idea, inherent in the statistics but not in central bank monetary philosophy, that money and debt creation constitute an endogenous, dynamic process largely outside the control of central banks. To enable this a much broader concept of 'Money' than the rather narrow concept which at the moment dominates monetary analysis is needed. Much attention is paid to establish such a concept, which unlike the present concept is consistent with monetary statistics, quadruple entry accounting, the reality of economic transactions as well as monetary history.*

Monies, debt and policy. The concept of endogenous money as a basis for household and non-financial companies instead of bank centered monetary statistics¹

'In truth, every economic unit can create money – this property is not restricted to banks. The main problem a 'money creator' faces is getting his money accepted.'

Hyman Minsky

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1. Introduction

Most of us didn't see it coming, the Great Financial Crisis (GFC). The question is: why not? Did we not see it because fashionable economic models excluded, by assumption, any possibility of financial instability in an economic environment with low and stable inflation, as argued by Buiter (Buiter, 2009)? Did we look, but were unable to understand what we saw because our 'Weltanschauung'² made our understanding dim and slow, as was the case with the European Central Bank (ECB) in 2007 when it rationalised the inexplicable increase in private debts (ECB, 2007)? Did we look at the wrong, domestic data which made us miss international flows of credit (Borio e.a., 2011)? Did we use the right, accounting models which showed that money was often created to 'Ponzi-finance' real estate booms (Bezemer, 2009)? Did we even have the right data (ECB, 2012 B)? Or were available monetary and price data biased in such a way that a proper assessment of financial tensions which were building in the run up to the crisis was disabled (Gaffney, 2012; Borio, 2012)?

This paper starts from the idea that all these aspects, all of which are related to monetary statistics in one way or another, played a role in the Great Failure of Economics (GFE). It will map the role and shape of monetary statistics. And it will investigate the idea whether monetary statistics can be reconstituted in a way which makes it more difficult not to see what is happening. It will do this by using the idea that 'private debt' has to become an element of the system of monetary statistics, up to and including how organisations such as central banks present their data and state their goals, just as the amount of money,

¹ The English has been corrected by Maggie Dundas

² According to Wikipedia: 'A comprehensive world view ... the fundamental cognitive orientation of an individual or society encompassing the entirety of the individual or society's knowledge and point of view including natural philosophy; fundamental, existential, and normative postulates; or themes, values, emotions, and ethics', http://en.wikipedia.org/wiki/World_view, assed 18/12/2012.

inflation and, more informally, government debt (about the 'obsession' of central bankers with government see Jens Weidmann, head of the Bundesbank (Weidmann, 2012).³ This requires a change of emphasis in our view of monies. We will have to move from the idea of 'exogenous' monies created or at least controlled by central banks, which is implicit in, for instance, ECB monetary philosophy (Scheller, 2006), to the concept of 'endogenous' money. In our fiat money system the emitting of debts by households and non-financial companies enables banks to create money because we have allowed them to do this. This plays, as Georgist economists have long argued, a large role in the creation of house price and building bubbles when this money leads to inflationary prices in the price of the collateral (read: land) needed to emit these debts (Gaffney, 2012; also Borio 2012). In this view, 'transaction based money creation' is an endogenous, potentially disequilibrium process inherent to monetary economies. This runs counter to the idea of 'exogenous' money', which is basically created by the state, greases transactions in an equilibrium market system and therefore enhances stability (as long as its amount does not increase too fast). However, below, it will be argued that 'transaction based money creation' is not just an aspect of our fiat money economy, but an essential feature of any monetary economies and therewith a fundamental aspect of money that needs to be taken into account in monetary statistics and policy. The question is whether it is possible to design a system of monetary statistics, in this case for the Eurozone, which shows increases in financial tensions and specifically the run up in debt and money creation and the increase of 'loose credit' which characteristically precedes financial crises as an embedded, integral part of these statistics. This endeavour can be seen as a counterpart to the present travails of the ECB which is clearly in search of new methods to track financial instability, now that its belief in the fundamental financial stability of an economic environment with low and stable inflation has been torn to shreds (ECB, 2012 B, for the economics behind this Draghi e.a., 2004). If we take a look at the speeches from its board members (only one instance: Praet, 2012), the ECB still does not seem to gauge how misguided the ideas behind its former policies were, when it comes to the very nature of money. This also applies to debt. Such ideas have to change, just as the statistics.

2. What do we need for an 'endogenous money' centred system of monetary statistics and policy?

To enable this, we will draw upon the concepts behind models mentioned by Bezemer (2009), but also and, to many perhaps surprisingly upon the very models already used by the ECB to estimate money – models which are fully consistent with the 'right' models emphasised by Bezemer. Indeed, these models *are* the models emphasised by Bezemer. According to these accounting models, many economic transactions lead to a flow of credit which leaves a two tiered trail of debts as well as new money. 'Loans create deposits', as is often stated. In other words (to put it more simply) when a person uses an overdraft facility to pay for groceries the bank lends her or him instantly created money to pay for the groceries with the new overdraft-debt as a counterpart. The woman or man has emitted a new debt, the bank has emitted new money (and the government allows several banks to do this; a remarkable and profitable privilege). This simple idea is the basis of the ECB's

³ Anglosaxon literature often stresses that modern central banks do not stress 'Money' anymore (Goodhart, 2007). The ECB, still not the least important central bank, never stopped doing this.

monetary statistics (ECB, 2012 A) and, in fact, of all mayor central banks (Bank of Japan, 2008).

This leads to a paradox: when the ECB refused to admit risks inherent in the run up of debts in the Eurozone (ECB, 2007) it trivialised the money and debt data produced by its own money-and-debt estimating accounting model. This paradox can be explained when we consider the intellectual philosophy of the ECB, which right from the beginning was based upon full scale acceptance of monetarist and 'new classical' monetary ideas, which were in turn based upon 'exogenous' money, controlled by the central bank or the government instead of created by transactions.⁴ This led the bank to focus its policies not on the flow of credit and the subsequent increase in debt, i.e. upon the world as shown by the statistics, but upon a specified money aggregate (monetarist). This led it to *equate* low and stable inflation in combination with deregulated capital markets with financial stability (new classical).⁵ According to Otmar Issing, he has been very instrumental in tying ECB policies to a monetarist-money target, i.e. to the idea that in the end only money matters in relation to prices and not the other way around (Issing, 2006) - remarkable in a period when monetary targeting was entirely out of fashion (Goodhart, 2007). Fortunately, although Issing was and is clearly wrong about the causality between money and prices, which sometimes goes from prices to money instead of the other way around (Lütkepohl and Wolters, 1997), this led the ECB as well as the Eurozone countries to establish and improve their money metrics – and even to tie them to an old chartalist Bundesbank tradition emphasising transactions instead of the stock of money. A tradition more or less forgotten by the Bundesbank policy board, but alive and well in the statistical department of the Bundesbank, as (implicitly) shown by Scharnagl (Scharnagl, 1996) as well as many other Bundesbank publications from the time.⁶ The tradition can still be seen every month after the ECB monetary policy board meeting

⁴ Highly influential: Robert Lucas, 1972. He first defines 'normal' money out of his models (really) and subsequently introduces (following Paul Samuelson) a kind of government pension fund for the elderly in a kind of parents/children world where only the parents use it, as a store of wealth, albeit not as a means of exchange in the market (serious) and mistakenly calls this 'money': *'In addition to labor-output, there is one other good: fiat money, issued by a government which has no other function. This money enters the economy by means of a beginning-of-period transfer to the members of the older generation... No inheritance is possible, so that unspent cash balances revert, at the death of the holder, to the monetary authority... Within this framework, the only exchange which can occur will involve a surrender of output by the young, in exchange for money held over from the preceding period, and altered by transfer, by the old.'* All transactions take place in a single instance, without the use of money. He explicitly rules out endogenous money: *"If members of the younger generation were risk preferrers they could and would exchange claims on future consumption among themselves so as to increase variance. This possibility will be ruled out in the next section"*.

⁵ 'Post-Keynesian' economists of course disagree with this. On the Amazon site of Draghi e.a., 2004, the next text can be found: *'Discussions of the role of derivatives and their risks, as well as discussions of financial risks in general, often fail to distinguish between risks that are taken consciously and ones that are not. To understand ... financial crises, the prime source of concern is not risk per se, but the unintended, or unanticipated accumulation of risks by individuals, institutions or governments including the concealing of risks from stakeholders and overseers of those entities... the implicit guarantees that governments extend to banks and other financial institutions, and which may result in the accumulation, often unrecognised from the viewpoint of the government, of unanticipated risks in the balance sheet of the public sector.'*

http://www.amazon.com/Transparency-Management-International-Financial-Fragility/dp/1898128685/ref=la_B001HOZULW_1_1?ie=UTF8&qid=1356892497&sr=1-1

⁶ Issing states only once in the article that the money aggregate is part of a more encompassing system of statistics and even then only mentions posts on the liability side of the balance sheet of the MFI's: *"The interpretation of information from the monetary pillar (i.e. the ECB monetary statistics, M.K.) sometimes has been anything but simple not least because of substantial portfolio shifts (i.e. changes between, for instance, currency and deposit money, M.K.)."* Such changes are of course part of the very nature of money.

when the ECB press release routinely pays attention to the *flow* of credit which caused growth in the stock of money. Nevertheless, monetarist and new-classical ideas, which emphasised the stock of 'Money' c.q. 'expectations' led the ECB to largely ignore data on the *stock* of debt which, as will be shown below, is the very core of its own monetary statistics. And it also explicitly chose to emphasise Eurozone wide aggregates and to ignore (not: 'to downplay', but 'to ignore') national differences in debts and the flow of credit – a fateful mistake.⁷

This situation, of course, makes our task of redesigning the system of monetary statistics easier as well as more difficult. Economic statistics (defined in a 'broad' way) and specifically macroeconomic statistics are based upon a dynamic interactive system of (Bos, 2006):

- Concepts
- Definitions
- Operationalisation
- Measurement
- Presentation and analysis (which to an extent has shifted to the econoblogosphere – a very fortunate development)
- And policy or policy statements

One might argue that 'policy' is not part of the statistical process, but the ECB explicitly targets monetary metrics such as 'M-3' money or the Harmonized Index of Consumer Prices (HICP), which were designed for this very purpose. The concepts of macroeconomic statistics are not purely based on science, but also on the informational requirements of economic policy. Think of the national embarkation of many statistics or, recently, the way the new 'Macro Economic Imbalance Procedure' data are presented on the Eurostat website. However, such a dynamic system is not always coherent or consistent, as we have seen above. The policy target or the economic analysis is not always consistent with the definitions and operationalisations of the statisticians. It turned out that to redesign 'broad' monetary statistics it was necessary to make the system of monetary statistics (i.e. the dynamic process mentioned above) more coherent and consistent in the sense that the importance of debts and the concept of endogenous money inherent in monetary statistics had to be extended to the presentation, analysis and policy phase. However, to be able to do this, it is necessary to discuss the very concept of money implicit in the monetary philosophy of the ECB on the one hand and its economics statistics on the other. For the first phases mentioned above direct use of the data already available can be made (albeit in a slightly restructured/reshuffled way). Nonetheless, it is difficult to design a grid, including the presentation and analysis of the data and the stated goals of a central bank, which not only highlights potential threats to financial stability but which also and almost by necessity connects to an economic 'discourse' that emphasises non-equilibrium processes in the economic system. And that is consistent with the idea that money creating credit can sometimes be a beneficial and necessary element of our economy, but that the same amount of credit, creating the same amount of money in the same period but with another purpose ('Ponzi-financing' of house purchases, i.e. financing based upon the expectation that house prices will rise faster than the general price level 'forever') might be harmful – a

⁷ This is clear from the pre-Draghi statements of the bank. Several persons have told me that even asking about national differences was a kind of 'taboo'.

concept which is not consistent with much of present day mainstream economics. Of course, one article can only make a very small contribution towards such a change in 'Weltanschauung'. Nevertheless, we will take this task head on. To do this, we will first describe how the ECB currently estimates 'endogenous' and how ideas at odds with the idea of endogenous money are used in an attempt to try and understand this information.

3. The pros and cons of the present monetary statistics of the ECB

3.1 Why does the ECB track the monetary 'M-3 money' aggregate?

Why and how does the ECB estimate the amount of money or, to be more precise, the amount of euros and close equivalents? Every month the European Central Bank (ECB) publishes data on the increase of the amount of 'M-3'-money in the Eurozone. It has to do this since one of the goals it has set itself in accordance with the 1992 Maastricht treaty is to keep money growth around 4,5%. According to the treaty, the ECB is responsible for monetary policy, not wrecking prosperity (!) and price stability. The treaty, however, did not set specific goals, but left this up to the bank. And it did this in a quite monetarist way: it followed the 1968 'target money growth!' advice of Milton Friedman which, by the way, did not have 'low and stable inflation' as its rationale, but which aimed at preventing discretionary central bank policies (Friedman, 1968, especially p. 16). This despite the fact that after 1968 'monetary targeting' quickly came into disrepute since it turned out that the relation between 'Money' and consumer prices was, at moderate levels of inflation, not really strong. Furthermore, price increases often *preceded* increases in money growth (for instance, Scharnagl, 1996; Lütkepohl and Wolters, 1997) while central banks had a hard time controlling the stock of money, however defined.⁸ These inconvenient facts, at odds with the monetarist creed of the ECB, are consistent with the idea of endogenous money which states that it is not the central bank that, directly or indirectly, controls the stock of money. The facts, however, quickly led economists to switch from 'money growth targeting' to 'inflation targeting' – the idea that when people do not expect inflation they will not increase prices, with low money growth as a consequence. And the central bank has to manage 'expectations' to keep price increases low, using the threat of extreme spikes in the interest rate and a wholesale destruction of economic prosperity to control the flock. An idea which again put the central bank and inflation centre stage – but in order to do this it had to state that controlling 'Money' is in fact irrelevant! This neglect of money led Charles Goodhart (2007) to state, quite exasperatedly, 'Whatever happened to the monetary aggregates?' since no-one seemed to look at these anymore. Well, that is not quite true... – with the exception of those using the models mentioned by Bezemer (2009). And, of course, the ECB, which defied mainstream economics and did look at the monetary M-3 aggregate, albeit – a fatal flaw – only for the Eurozone in its entirety.⁹ At the same time it also joined the 'inflation targeting' crowd of the post-monetarist economists (Issing, 2007). And indeed:

⁸ *'It turns out that shocks in the money growth variable do not have a very pronounced impact on inflation whereas there appears to be quite a strong effect of inflation shocks on money growth'*, Lütkepohl and Wolters, 1997, p.14.

⁹ It chose the 'M-3' variable as this showed the highest correlation with prices (albeit with long lags), in the present crisis the development of M-3 seems to be more stable than 'M-1' and 'M-2' money.

the ECB not only states a money growth target, but communicates an inflation target as well (ad nauseam, we may add).

In fact, Goodhart (2007) did not show much surprise about the neglect of money – aggregates such as M-3 money. He specifically stated that a central bank should not be as interested in the amount of money, but also and, even more so, in monetary aggregates such as ‘loans for house purchase’ or ‘loans of non-financial companies’. In his opinion, money is ‘endogenous’, created by debts. And any analysis of money growth cannot be complete without an analysis of debt growth. Central banks should be interested in debts; however, this was not the stance of the ECB, which did track the flow of Eurozone credit but downplayed the stock of debt (ECB, 2007). And ‘debt’ seems to have fallen entirely off Milton Friedman’s radar (Friedman, 1968). We will return to this in the next paragraph. Here, it is important to stress that the ECB still officially assumes that to keep inflation low and stable and to prevent deflation(!) money growth should be targeted (Scheller, 2006). Or at least that people are made to believe that the ECB controls the stock of money. And money is, therefore, measured and published (graph 3.1). Note, by the way, the high rate of money growth in the period up to November 2007, higher than anything in the 1981-1999 pre-Euro period and to a considerable extent caused by ‘lending for house purchase’ in a number of Eurozone nations. But the ECB did not look at national differences. And house price inflation was large and off the ECB radar as well.

Graph 3.1 The official ECB M-3 money growth graph (money growth target added)



Source: ECB,

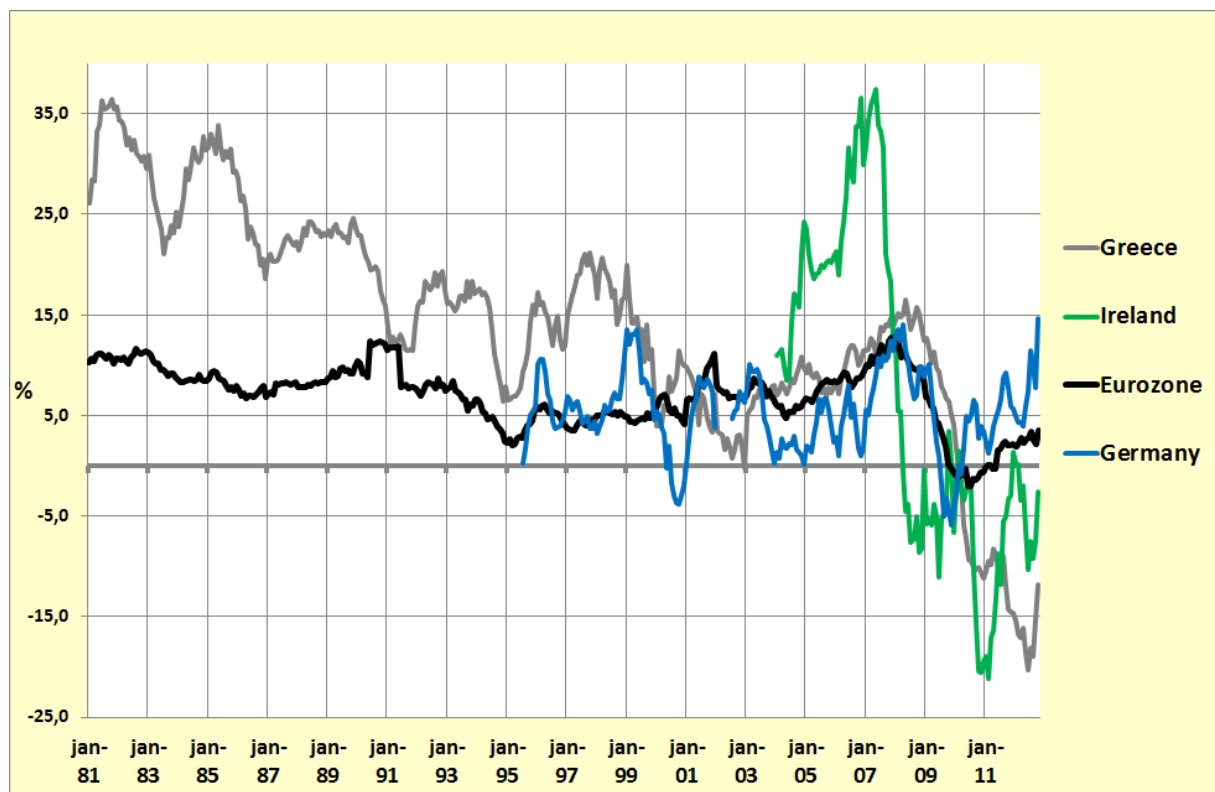
http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=BSI.M.U2.Y.V.M30.X.I.U2.2300.Z01.A&

Note also that to emphasise its focus on the Eurozone as a whole, the ECB only publishes Eurozone aggregates of money, although national data are available in the electronic archives of as well as published by (most) national central banks.¹⁰ This aggregate focus would be warranted if differences between countries were negligible and did not pose a threat to financial stability. Graph 3.2, however, shows that differences between countries were large. And now we know that these differences did pose a major threat to financial stability. Additionally, the introduction of the Euro does not seem to have led to smaller differences in growth rates – on the contrary! Graph 3.2 shows that monetary financing of private housing bubbles can lead to growth rates of debts (and money) which are as high as those caused by monetary financing of government debt in the eighties in Greece (Lazaretou, 2003).¹¹ The bump in ‘Eurozone’ money growth around 1991 was connected to the reunification of Germany which, again, shows how extra-ordinarily high money growth was in the Eurozone and in countries such as Ireland and the entire Eurozone in the period 2005-2007.

¹⁰ We couldn’t find information on national ‘counterparts’ of money in the ECB electronic archives. This may be our mistake, they are available (albeit not in a user friendly way) in the electronic Bundesbank archives, http://www.bundesbank.de/Navigation/EN/Statistics/ESCB_indicators/Monetary_statistics/eszb_table_view_node.html?statisticId=growth_rates.

¹¹ Money growth in Greece was more benign than Irish money growth as it not only led to an increase in debt and house prices, but also to an increase in nominal income and the GDP price level (i.e. also nominal income) which matched the debt increase increases while money growth in Ireland did not lead to an increase in nominal income which matched the nominal growth of debts.

Graph 3.2 M-3 money growth in selected Eurozone countries



Sources: ECB, Central Bank of Ireland, Bundesbank, Central Bank of Greece

3.2 The measurement of M-3 money

To be able to measure something it has to be defined in a precise and practical way – note the ‘M-3’ prefix before ‘money’. In the Eurozone, the ‘money’ estimated in Germany in 2006 should be, as far as possible, equivalent to the money measured in Greece in 2009.¹² This is quite difficult not only because of national differences in institutions, but also because the economy is a ‘moving target’, which requires monetary statistics to be adapted to changing circumstances (ECB, 2012 D). An historical example is the rise of ‘deposit money’ in the twentieth century – an event at first not actually understood by monetary economists (Salerno, 1987). To be able to adapt the definitions in a consistent way, however, a definition in its turn, should not just be practical, but should also have a clear concept behind it as well as a theory of money and the role money plays in our economy (an example: ECB 2012 C). Considering such ‘meta-definitions’ leads the economist to rather fundamental questions such as: why does the ECB state an official money growth target? Why does it track ‘M-3’-money? What is ‘M-3’ money anyway? How is it measured? Is this the right definition of money? What is money, anyway? Or, when we look at graphs 3.1 and 3.2: why did the amount of M-3-money grow so fast in the period 2004-2007? Why were differences

¹² For an overview of the slightly different operational definitions of money in Japan, the Eurozone, the USA and the UK see Bank of Japan (2008). The endogenous nature of the measurement process is only shown in paragraph 3.13 and further.

between countries so large? We will try to answer these questions by investigating the process of the estimation of money of the ECB and the concepts behind it.

The official philosophy of the ECB focuses on a precise 'M-3' definition of money: cash, deposits as well as some of our savings accounts and the like which can be readily changed into deposit money or cash. Following ECB philosophy (Issing, 2007; Scheller, 2006), it is a definition of a stock of a storable good owned by economic agents, a good which these agents cannot produce themselves.¹³ This and the emphasis on money as a store of wealth resembles the 'Austrian' concept (Salerno, 1987).¹⁴ However, anyone who investigates the way the ECB estimates the amount of money will notice that, remarkably, the ECB money metric is not based upon this rather mainstream, single accounting' concept of exogenous money. Not at all! It is theoretically and operationally based upon a quadruple entry accounting model of the money creating process. Households, companies or the government emit a debt as part of a transaction which enables certain banks, *endowed by the government with the legal right to create legal tender*, to buy this debt with newly created money (a kind of 'repo', in fact), a transaction which creates offsetting and legally and contractually related changes on the asset as well as the liability side of the balance sheets of the creditor as well as the debtor (this is of course the very definition of a debt). These banks are the so called Monetary Financial Institutions (MFIs) of the System of National Accounts (SNA), more or less the medium sized and larger banks. To be precise: the SNA calls them the *other* MFIs, as the central bank is in fact an MFI. Legal tender is defined as money in the shape of coins, paper money or deposit money which, by rule of law, has to be accepted for the settlement of monetary contracts and obligations, including tax debts. It is often stated that this money is created 'out of nowhere'. But '*created out of a legal privilege backed by the state and the central banks as well as upon the idea that the debtor can and will pay back the debt*' would be a less catchy but more precise description. Examples of such money creating debts are mortgages, or the use of an overdraft facility. The banks in fact *buy* the debt emitted by the debtor, with newly created but *temporary* money – when the debt is paid back the money disappears again. And the fee paid to the banks for this service is of course the interest on the loan. Money is indeed 'joined at the hip' with debt (Singh and Stella, 2012)! The idea that banks can create money can, of course, be found in most present day textbooks. However, to preserve the theoretical foundation of much of present day theory these textbooks have to assume that the central bank can control this process via the money multiplier. But they cannot (Bindseil, 2004). Central banks influence money creation – but they do not *and cannot* control it since they have to control the interest rate – they are not free to choose. Whenever they have to choose between the interest rate (which influences money growth) and money growth they have to choose the interest rate. See also Annex III.

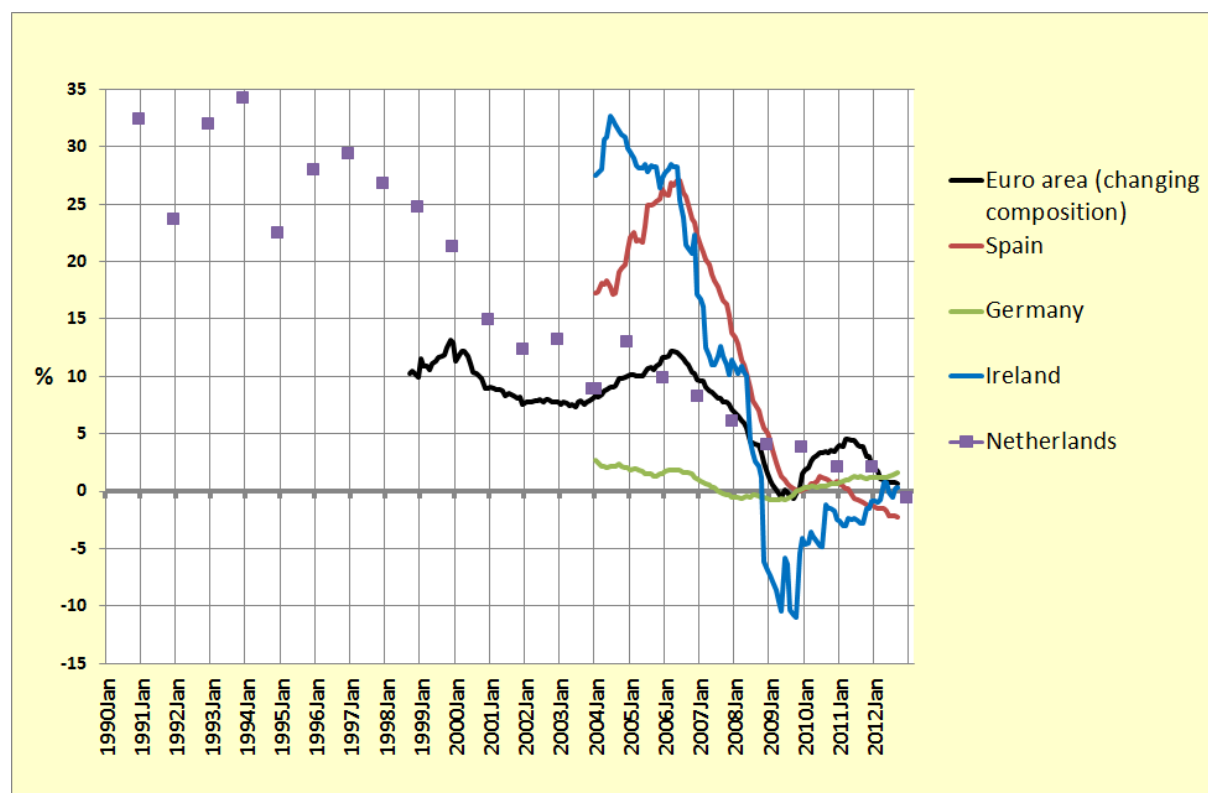
The money created by banks does not by necessity have to be legal tender, i.e. the money used to pay taxes and backed by the central bank. Other kinds of money are possible as well. Singh and Stella even talk about 'modern credit creation without central bank reserves' (Singh and Stella, 2012). However, the ECB restricts its monetary statistics to 'legal tender' or close substitutes, which also means that it leaves out the lending (and the change in the accompanying debts) of existing money, for instance, through pension funds. With

¹³ Market monetarists share the same view of money and basically promote 'helicopter drop' monetary policies.

¹⁴ Emphasis on money as a means of exchange leads to an inclusion of for instance *the right* to use a credit card based credit expansion to buy something. This is consciously excluded from the definition.

that in mind the quadruple entry accounting concept enables us to connect the flow of credit with the stock of money *as well as the stock of debt*. An example: households emit mortgage debts. MFIs buy these debts. The resulting flow of mortgage backed credit (and therewith money creation) is shown in graph 3.3 for selected countries (for statistical details see Annex II). These debts (among many others) led to the growth of money shown in graph 3.1. Furthermore, the Spanish and Irish Booms contributed to high Eurozone money growth up to the end of 2007. Notice that the debts can be measured by looking at MFI balance sheets (they own the debts) as well as by looking at household balance sheets (these owe the debts) while the statistical system allows for both points of view. Note also that the roots of the present high level of household debt (graph 3.5) in the Netherlands has quite old roots – debts are the ultimate path dependent economic variable. Note, finally, that these data with the exception of the Netherlands have not been adapted for ‘securitisation’, i.e. the selling of these debts by the banks to ‘Special Purpose Vehicles’ – total growth of mortgage debt was even higher.

Graph 3.3 Growth of mortgage credit, selected Eurozone countries. MFI balance sheet (Spain, Ireland, Eurozone) and household balance sheet data (Netherlands)



Source: ECB, De Nederlandsche Bank, Centraal Bureau voor de Statistiek

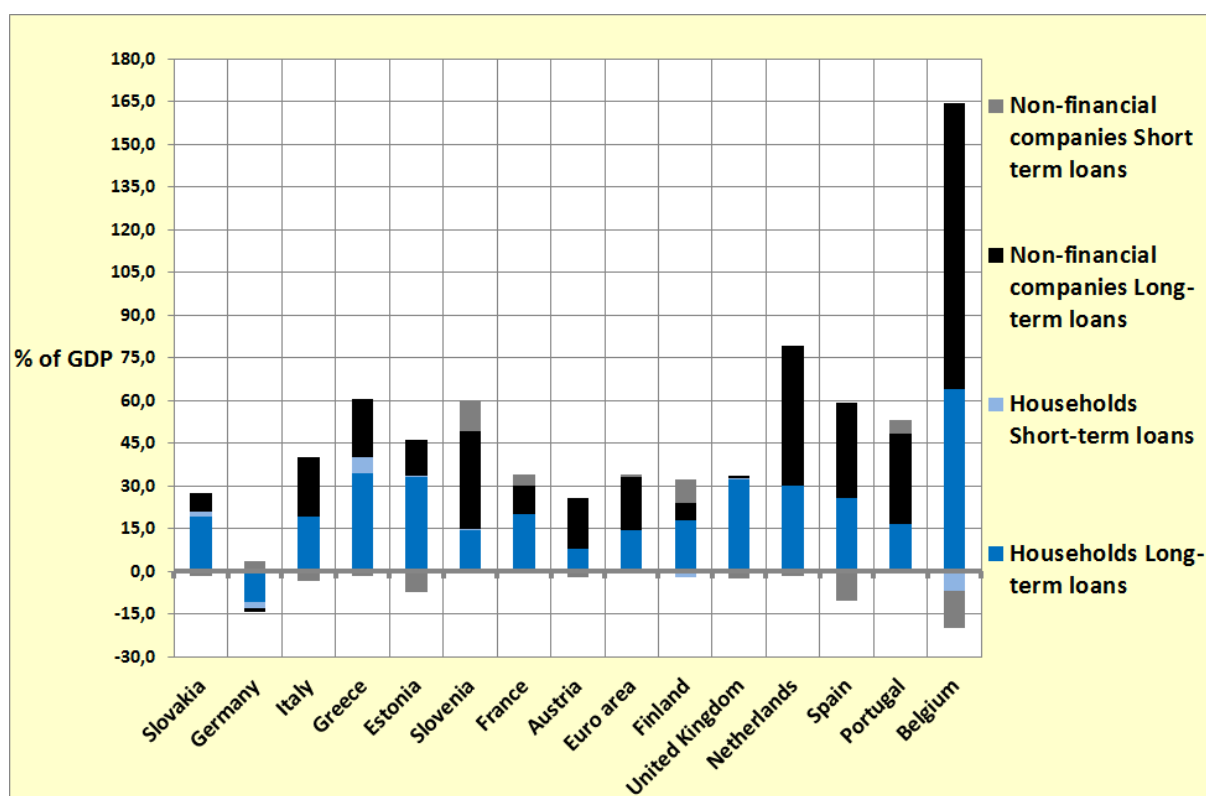
Technical detail: to be able to construct a longer time series the Dutch data are based upon national accounts and De Nederlandsche Bank balance sheet data for households instead of on MFI balance sheets. The other data are based on balance sheet data of MFIs which have only systematically taken securitisation into account since June 2010.

To be able to estimate these data, the ECB takes a short cut (ECB 2012 A). As the net changes on the balance sheet of the banks mirror the net changes on the balance sheets of households and non-financial companies, it calculates a consolidated balance sheet for all the MFIs in the Eurozone on a monthly basis, which shows the aggregated loans of Monetary Financial Institutions (MFIs) as well as the deposits of the debtors and the amount of cash and deposits emitted by the banks.¹⁵ The net changes in the monetary aggregates on the asset side of the balance sheet (i.e. the loans of the MFIs to households, governments and non-financial companies as well as a post for revaluations and the like, see again graph 3.3) are supposed to have created the changes in the monetary aggregates on the liability side of the consolidated balance sheet of the MFIs (and on the asset side of the balance sheet of the households and companies) such as currency, deposits and other items considered to be money, although due attention is also given to flows between aggregates on the liability side of the MFI balance sheet. Of course, every metric is always prone to errors and mistakes. And economic metrics have the additional drawback that the economy is a 'moving target' which changes all the time (ECB, 2012 D). This means that economic statistics have to be improved and adapted all the time. However, taking this into account, the ECB estimate of money is probably reasonably accurate at the moment although *systematic* adaption of the data on mortgage debts for securitisation has only been in place since June 2010 (ECB, 2012 A). This might mean that money growth in the ECB statistics was wrongly attributed to post 'revaluations' and the like instead of lending. See also Annex II.

The ECB monetary statistics are not the only monetary statistics around. The Eurostat financial sector accounts contain data on sectoral debt. As these are basically founded upon the same System of National Accounts (SNA) embarkations and definitions as the ECB data, they can be reconciled with ECB statistics. There is also a good reason why this has to be done: by now it is clear that the present crisis is closely intertwined with a run-up in private debts. Although at the time this was belittled by central bankers and central banks (Greenspan, 2007; ECB 2007), it was mapped by these monetary statistics (but practically no-one saw this...). This enables us to calculate changes in debts (graph 3.4). Large international differences stand out, compare Germany with Ireland. Bear in mind that these data do not only show debts financed by MFIs, but also debts financed by non-money creating financial institutions like pension funds – as such they are a clear addition to the ECB statistics on the flow of credit!

¹⁵ Revaluations of debts and foreign exchange influence these posts too.

Graph 3.4 Change in debt (% of GDP) of households and non-financial companies, 2002-2011



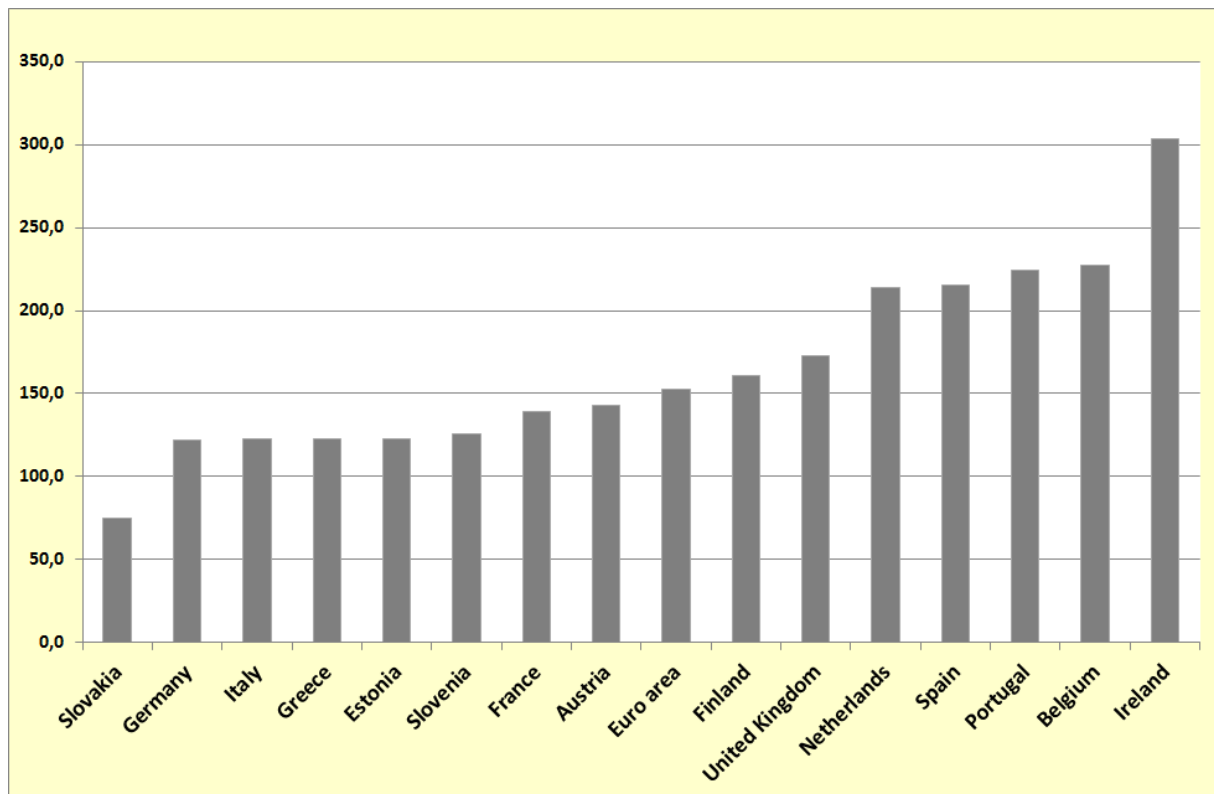
Source: Eurostat

Technical detail: countries with less than 1 million inhabitants excluded, Finland excluded due to lack of data.

The run up in debts in combination with the national differences clearly contributed to the GFC (Borio, 2012). However, the ECB actively refused to look at debt or at developments in individual countries. A double negation which, as we now know, has to be rated as a failure: *'Credit booms tend to precede banking crises'* (Taylor (2012) p. 7).¹⁶ However, it is not merely about the flow of credit. It is also about the absolute level of debt (graph 3.5). Despite relatively low credit growth in the Netherlands between 2002 and 2011, the Dutch debt level was quite high, specifically due to high per capita mortgage debt which shows that long term trends matter (graph 3.2): debt is path dependent. The fact that the national accounts estimate national sectoral credits and debts as a matter of routine opens up the possibility of reframing monetary statistics in such a way that is not centred around the Eurozone M-3 aggregate, but which also shows national and sectoral developments as well as the development of different kinds of credit and debts, such as total mortgage debt or total loans to non-financial companies, i.e. including the non-MFI flow of money.

¹⁶ This is clearly shown in press releases and speeches and continued well into the last year of Trichet.

Graph 3.5 Debts as a % of GDP, Eurozone countries



Source: Eurostat

There are also theoretical advantages to such a disaggregated approach. The idea is consistent with the concept of endogenous money which is in actual fact the metrological core of the concept in the EBB approach – in fact even more consistent than the present focus on aggregated M-3 variable and its accompanying flow ‘counterparts’. It enables a distinction between ‘good’ debts and ‘bad’ debts, which only lead to asset price increases not based upon fundamentals and leading to rentier seigniorage profits of lenders, defined as (net) interest on loans leading to money creation (Hudson and Bezemer, 2012). To put it explicitly: *households and non-financial companies and not the banks nor the central bank are the active ‘money creators’ as they use the money and their income is the main collateral of the loan, whereas the banks play a more passive role in (not) accepting the debt.*¹⁷

To underscore the importance of this it is necessary to delve a little deeper into the concept of ‘endogenous money’. ‘Endogeneity’ is a much more general characteristic of ‘Monies’ than often thought, making it important to have a monetary policy which explicitly takes this into account. This will be explained in the next paragraph which will also consider the consequences of the changing technology of money. Additionally, many of these changes have been engineered, hindered or helped by the state. Modern monetary

¹⁷ Compare Williamson, 2012: “Here I should make an important point about something that often confuses the public. The worry is not that the Fed is literally printing too much currency... The quantity of currency in circulation is entirely determined by demand from people and businesses. It’s not an independent decision of monetary policy and, on its own, it has no implications for inflation.”

technology, like the concept of 'legal tender', is in actual fact a creation of the state. This will be the subject of the next paragraph.

4. The hidden, implicit concept of monies behind monetary statistics

4.1 Introduction

Above, we have seen how the idea of 'endogenous' money is used to estimate money. In paragraph 5 the details of this estimation process will be considered more fully. This paragraph will focus on the idea of 'endogenous' money itself and show that the creation of legal tender by MFIs is only a special example of a more general process of money and money creation since it creates a special kind of money, 'legal tender', created or at least designed, accepted and guaranteed by the state. This paragraph will also focus on the idea of 'money as a creation of the state', as this is needed to fully understand money creation by MFIs. In addition, money is a changing technology. This idea will also be discussed. In doing so, ample recourse will be made to a method often used in the medical sciences: the case study: 'a situation which highlights real life experiences that present students of a science with a likely scenario to be found in professional practice, to develop the skills of analysis and synthesis'.¹⁸ Remarkably, 'market monetarists' are also staunch defenders of this historical, empirical method (Christiansen, 2011). It will be used to show that the concept of exogenous money can be used as an encompassing framework to analyse seemingly very different situations – an insight necessary in explaining why a revised system of monetary statistics is needed and a focus on M-3 money alone does not suffice.

4.2 Present ideas about money

According to ECB board member Praet (2012) 'Modern Money' is in the end created independently of the realm of actual economic transactions. This surely feels warranted. Who has not grown up with coins and paper money as the first tokens of this rather strange thing called 'money'? These tokens were clearly produced by rather fuzzy but no doubt powerful institutions, like the government or something mysteriously called 'the *central* bank' – and not in any way by your parents, who were clearly forbidden to do this! When students of economics read the textbooks they encounter the very same ideas: money as an 'exogenous' good that somehow is produced, generally by a rather mysterious independent entity which at the same time is part of the government as well as of the banking system and called the *central* bank. It provides 'normal' banks with a hazy substance called 'reserve' or 'base' money which serves as a basis to lend to households and companies. It is all about exogenous supply, a common metaphor even refers to money being 'injected' into the economy, often by a central bank, like a doctor who transfers blood into a body.¹⁹

Such a 'medical' view of money is, however, rejected as naive and 'academic' by Ulrich Bindseil (Bindseil, 2004). This *former head of liquidity operations of the ECB* (talk about an insider) states that central banks have to set and maintain an interest rate – and to be able to do this have to supply whatever amount of (base)money is required by the banks (Bindseil, 2004) – the anemic patient creates their own blood! Note that this is not yet about money in circulation, i.e. 'M-3' money, but about bank reserves –reserves that they are required to have to be able to create new money, but which can be acquired at will, albeit at a price. Note that this refers to 'legal tender' money; other kinds of money will be discussed

¹⁸ The definition is based upon Azize and Aviles, 2008.

¹⁹ A google search on 'money injected into economy', 5/12/2012, yielded 41.700.000 hits.

in the next paragraph. The amounts lent are ultimately decided by (perceived) profitable opportunities for the banks to lend newly created money to the 'real' economy. And the amount of base money banks require is, given a current set of banking and lending rules and interest rates, based upon the amount of lending they do, and not the other way around. Singh and Stella (2012) even state that international capital markets enable banks to circumvent central banks altogether. These (empirically sound) ideas can be characterised as a theory of 'endogenous' money because supply is in a sense infinitely elastic or at least not directly controlled by the central bank. Money is not injected into the economy – it is, like blood, created by the boy himself (Williamson, 2012).

However, Bindseil does not discuss the concept of money inherent in his endogenous view of money creation – he describes the real life dynamics of money creation. But just as the exogenous view of money is based upon a concept of money (which can be found in most textbooks and which is repeated by Peter Praet, member of the board of the ECB (Praet, 2012) the endogenous view is based on a concept, which, not surprisingly, differs a little from the exogenous view. The problem is, however, that this endogenous concept of money is often quite implicit in articles and books. We will try to define this concept in a more precise, explicit way. As almost every economist is acquainted with the exogenous concept of money and the 'parables' that are explicitly seen as a description of the historical process but which are about as historical as the Swedish Muppet chef is Swedish (see the literature in the notes of Praet, 2012), we will have to use some matching rhetoric and use real historical monetary case studies. These have been obtained from Dutch financial history as this is the area we are most familiar with. Also, due attention will be paid to changes in monetary technology (paragraph 4.3), which by metrological necessity have to be mirrored in monetary statistics (ECB 2012 D; ECB 2012 A pp. 128-129). In the next paragraph we will first delve more deeply into the idea of endogenous money, stating among other things that there is a considerable difference between '*money as a means of exchange*' and '*money as a means of payment*'

4.2 What is endogenous monies: three examples which show that endogeneity is at the heart of what we call 'monies'

In this paragraph we will try to explain the concept of endogenous money. When applied, this concept is often restricted to money created by MFIs and borrowers. However, the concept is more fundamental. Households and non-financial companies create a lot more money than just 'legal tender'. And this is not a measly amount of money either – on a Eurozone scale, it is about trillions. To explain this, we will have to make a distinction between money that is not a means of payment (i.e.: it can extinguish debts) and, when both parties are in agreement, money as a means of exchange (i.e. it can, legally, settle transactions).²⁰ To explain what happens and to show the fundamental endogenous nature of money we will use three seemingly disconnected examples: a transaction in early seventeenth century Friesland, the amount of payables and receivables on the balance sheets of Dutch multinationals and the monetary statistics of the European Central Bank (ECB). These examples are however *only seemingly* disconnected – the common thing which

²⁰ This is a mayor distinction from the Austrian and neo-classical concept of money which is aptly summarised in Salerno (1987). This concept sees the means of exchange as, necessarily, a store of value – but I can pay, using a credit card, when I have zero 'store of value' but can emit a debt to the credit card company!

binds them is the pervasiveness of monetary endogeneity: debts are emitted and, when accepted, lead to the creation of some kind of money which settles a transaction. All three of them are prime examples of money created *by one actor accepting the debt of another party as a means of exchange*. But only the last one is an example of the creation of *legal tender* – a special case of endogenous money.

a. Friesland, 1619

On 14 February 1619 Hoeyte Claesz and his wife, Grietke Jochumsdochter, living in the backwater of Bergum in Friesland (the Netherlands), sold their mill annex bakery as well as their house, garden and baking utensils to Sioerd Bonnisz and his wife, Treyntje Meinertsdochter, who lived in the nearby and even smaller backwater of Suawoude. The price: 1,760 guilders or roughly 11 times the wage income of a fully employed carpenter. As this was a thoroughly monetised society (Knibbe, 2006; Nijboer, 2007) *without banks* the buyers could not finance this with a bank loan. Instead, they emitted a debt (inscribed in the Frisian *hypotheekboeken* or ‘mortgage books’ of the time): they had to pay the money to the sellers in a number of instalments, ending in 1632.²¹ Emitting and accepting this debt (more precisely: the activa post on the balance sheet of the seller in relation to accepting this debt) served as *the means of exchange*; probate inventories of the time show that such debts were indeed a heritable asset. And this debt consequently served not as an entirely illiquid asset on the balance sheet of the sellers: on 9 May 1620 the sellers stated, in a separate contract, that a debt of 25,-- due to back house rents would be paid out of the money from the third instalment. In modern phraseology: they emitted a derivate (*source: internet site Tresoar*). And money *as a means of payment* (in those days: a myriad of different kinds of coins, recalculated into the unit of account which in the end was the stuiver, although all kinds of multiples of the stuiver like guilders or daalders were often used) had to be used to eventually settle the debt. Other people mentioned in the books paid by accepting responsibility for someone else’s debt. And still others by pledging the right to use certain meadows to the creditor, specifically to pay interest due (in this case the *right to use it* and not production was used as the means of payment, note that this excluded compound interest, somewhat like an Islamic *sacc* (which by the way has the same etymological roots as our *cheque*).²² This charming and seemingly innocent and simple historical example is in fact far from simple and innocent:

- The existence of the mortgage books themselves shows that the government was a crucial player as well. This was not just true in an administrative sense, but also in a legal sense as the Frisian government enacted the (Roman) law, ensured property rights and could enforce contracts like those in the abovementioned books. One example: in 1580 the former Catholic rulers were ousted by Protestant revolutionaries who not only seized church lands and declared them the property of the government, but also ordained that charging interest was legal.
- When it comes to a definition of money it is useful to distinguish between the ‘*means of exchange*’ and the ‘*means of payment*’ with the means of exchange enabling legal (!) transactions while the means of payment not only settles transactions, but also

²¹ Emitting and accepting a debt to finance the purchase of a mill was common practice in this area at this time. See Annex I.

²² For instance Jan Ryencksz. and Tyemeck Oebeledr., Tresoar, 9 Feb. 1623. In those days repo-contracts were called ‘reversalen’. See Tresoar, 5 May 1622.

debts or interest arising out of the initial transaction enabled by a means of exchange (about this distinction: Van der Lecq, 1998, p. 19).²³

- It also shows that at that time in this particular area anyone who was 'in' as a debtor, i.e. had a good reputation, could emit debts as 'exchange money' more or less at will (Nijboer, 2007), while occasionally accepting a debt from somebody else could be a means of payment. This means that the renowned problem of the 'double coincidence of wants', which according to ideas on 'exogenous' money gave rise to the development of currency, had (and has) a more efficient solution than silver or copper commodity money. Your reputation was your credit card (see also Nikolov, 2012). Remarkably, the large majority of the contracts in the mortgage books are between couples (see below) from *different* villages, which probably meant that additional 'trust' was needed. See also Annex II.
- This also means that the 'double coincidence of wants' parable neo-classical economists use to explain the historical genesis of money (Praet, 2012) is wanting or is in fact totally wrong, especially when we take into account that this parable states that barter preceded trade, which is not the case (Graeber, 2009).
- The fact that emitting exchange money is still very important to (temporarily) finance transactions between companies (think of many trillions, see below) also shows that ECB economists, who state that 'archetypal' money cannot be created by economic agents, are more than a little wrong (ECB, 2012C, emphasis added):

*"The concept of monetary liquidity attempts to capture the ability of economic agents to settle their transactions using money, **an asset the agents cannot create themselves**. Money is typically seen as the asset which, first, can be transformed into consumption without incurring transaction costs, and second, has an exchange value that is not subject to uncertainty in nominal terms, rendering it the most liquid asset in the economy. Strictly speaking, these characteristics apply only to currency. The question of which other assets can be defined as money depends on the degree of substitutability between currency and these other assets. In practice, the definition of money in an economy generally includes those other assets which can be easily converted into currency"*

Surprisingly and despite such statements, ECB *statistics* on money creation are based upon the idea that economic agents *can* create money and even legal tender (see section c) – although the government of course defines legal tender and charters the companies allowed to create it.

- It also shows that the subtitle of this article is not an example of politically correct third wave feminism – but an accurate description of many lender-borrower relations in the Netherlands of the seventeenth century. In this highly monetised and commercialised high mortality society property, including 'receivables', was in the case of married people invariably and with good reason defined as the legal responsibility of the couple and not the individual. Your spouse was an important 'collateral', since he or she inherited the property (with the exception of the amount due to the children). A tobacco brand which still exists in the Netherlands, 'Van Nelle

²³ Coins and a coins based monetary system of course existed in this period. The relation between the system of transactions and this 'payment money' has, however, to wait. One might consult Dehing, 2012, to get an idea of the complexities and the importance of virtual money in early modern societies.

“daughter of the widow”’, traces its roots to exactly such a situation while the coffee brand ‘Douwe Egberts’ also lived through such a phase. (Nijboer, 2007, for a discussion of the views of some classical economists on this). We emphasise this to show that at that time, as nowadays, family structures influenced money growth.

- And, finally, it shows that although present day banks no doubt have some useful purposes, alternative solutions are sometimes possible.

b. Receivables and payables on the balance sheets of Dutch multinationals

This emitting of exchange money is still very important to (temporarily) finance transactions between companies. Companies of course still use the very same kind of technique to enable transactions as seventeenth century Frisians: almost all inter-company transactions are initially financed by ‘receivables’, i.e. by the debt emitted by the buyer and accepted by the seller. Table 1 shows that the value of ‘receivables’ and ‘payables’ on the balance sheets of nine companies listed at the Amsterdam Stock Exchange, with a combined turnover which is almost as large as the GDP of the Netherlands, were about 20% of total turnover, a value which, if anything, increased after 2007. The data from the different companies are not entirely comparable in an accounting sense, but comparability is good enough to emphasise the point that economic agents still emit their own monies – and at no trivial amount. For the entire Eurozone economy and taking into account that turnover is a flow while the balance sheet shows stocks, it is about trillions.

Table 1. Turnover in millions and receivables and payables as a percentage of turnover from nine listed Dutch companies, 2007 and 2011. Source: Annual Reports.

	Turnover, Millions		As a % of turnover			
			Receivables	Payables	Receivables	Payables
<i>year</i>	<i>2007</i>	<i>2011</i>	<i>2007</i>	<i>2007</i>	<i>2011</i>	<i>2011</i>
Aegon	39.271	29.159	17	37	20	50
Ahold	28.152	30.000	3	8	3	9
Arcelor Mittal	96.293	93.973	10	15	7	19
Heineken	12.564	17.123	15	22	18	37
Randstad	9.197	16.200	17	15	34	27
Shell	355.782	347.339	21	21	22	23
Unilever	40.187	46.467	10	20	11	27
ASML	5.651	3.800	16	8	11	5
Total	587.097	584.061	17	20	18	24

Money as a means of exchange is 'injected' into the economy. And not a measly amount, either. However, in this case, as in seventeenth century Friesland, it is not the central bank which does this (which, in seventeenth century Friesland, clearly did not exist. Banks did not actually exist then). Companies are doing it all by themselves – although there is of course extensive legislation which backs the value of the receivables, as expressed in legal tender.

c. The ECB monetary statistics

The same basic process is observable in the monetary statistics of the ECB, which uses a flow-of-funds system to estimate money, though restricted to legal tender. It shows how, in a modern fiat money economy, banks can not only create a means of exchange *but also the means of payment*, though to do this *they need the assistance of a borrower*. And, of course, a legal charter issued by the state. A borrower can, when the Monetary Financial Institutions with such a charter accept the debt he or she or a couple emits, create legal tender. And although in the case of borrowing for house purchase the house is still collateral, as was the case with the seventeenth century mill, your reputation (having a tenured job, for instance, or not being a Greek company, or being part of a couple) still counts.²⁴

How does the ECB estimate these data? Every month, the European Central Bank publishes data on money growth which, conceptually, are founded upon these ideas (Bê Duc and le Breton, 2009). And they – perhaps inconspicuously – lead the way for another definition of 'monies'. Although the ECB officially focuses on M-3 money and has an M-3 money growth target which implicitly defines money in a rather monetarist way, i.e.

²⁴ One of the reasons behind the rise in prices of Dutch houses in the nineties is a change in lending behavior of banks who in the case of couples increasingly accepted the income of the women as collateral for the loan.

disconnected from debts and collaterals, an ECB study explaining the flow-of-fund statistics of the ECB states (Bê Duc and le Breton, 2009):

“Flow-of-funds statistics are naturally relevant to the analysis of an economy where “money matters” for economic and price developments... Monetary analysis at the ECB includes a comprehensive assessment of the liquidity situation based on information on the components and counterparts of the monetary aggregate M3 (in particular, loans to the private sector). This entails in particular close monitoring of the interdependencies between M3 and its counterparts on the consolidated balance sheet of the MFI sector, in order to assess whether variations in the holding of liquidity are driven by portfolio shifts between money and other financial assets or by credit growth, which may have different implications for price stability... it provides an insight into the importance of portfolio shifts between money and nonmonetary financial assets. Second, it offers information on the sources of financing of the non-financial private sector, i.e. whether financing is obtained through a money-creating expansion of bank credit or from other sources”

The point being made is that money is *not* defined as some kind of valuable good but in relation to institutional sectors, to the purpose of lending as well as in relation to other assets. Instead of a ‘narrow’, aggregate definition of money we get an array of different kinds of assets, emitted and received by different sectors of the economy. And the way in which and the reason why these assets, including money, are created can influence the economic situation decisively (Borio, 2012). This in turn shows that money *can* not only be defined in an endogenous and institutional way – it already *is* defined and even estimated in this way (at least when it comes to legal tender, although business accountants of course track receivables and payables as a matter of routine). Table 2 shows how this works:

Tabel 2. The ‘loans as well as substitution create deposits and other kinds of money’ money accounting methodology of the ECB.

Assets of the MFI's		Liabilities of the MFI's	
4.1 Credit to general government	3,407	1.3 Currency, deposits	5,093
4.2 (1) Credit to Households	5,234	1.6 Longer term deposits	8,969
4.2 (2) Credit to Companies	4,643	1.11 Marketable instruments	828
4.2 (3) Credit, other		2. Holdings against government	278
5. Net external assets	963	3. 'Longer term savings'	7.634
6. Other	241		
P.M: 'revaluations etc.'	4.266		
Total	21.974		21.974

Source: ECB press release 28 November 2012, *Monetary developments in the Euro area, October 2012*

The liabilities side of a balance sheet essentially does not show debts or equity, but the past (where *did* the money/wealth come from which was used to finance the assets) while the asset side shows the present (in which items *is* the money/wealth invested). The liability side here i.e. shows how much money *was* created (in the past!) in exchange for the debt which the MFIs (*at present!*) own, the 'revaluation' post (not included in the ECB press releases) is actually the counterpart of debt free money (debt free, for instance, due to a bankruptcy which has led to writing of a debt owned by an MFI as well as revaluations and the like).

According to the ECB, posts 1.3, 1.6 and 1.11 are together 'broad money' or M-3 money. This is open to discussion: according to the Austrian definition of money, post 2. should also be defined as money (a valid point in our opinion) whereas some of the longer term financial assets in 1.6 should be subtracted (hmm – not a good idea, considering rampant substitution between these posts post 2008).²⁵ But regardless of this – when a household or a company or the government borrows from an MFI, *new* money becomes available as the MFI has the right to create this money. So, whenever a household borrows from an MFI, for instance to buy a house, it emits a debt which shows up in '4.2: credit to households'. But it also shows up in '1.3: currency, deposits' (even though it has already been paid to a building company unless this company transfers the money to a savings account; however, that will not change the totals of the balance sheet!). This shows how, according to the ECB, *loans lead to deposits*. It is of course possible that the former owner of the house puts the money in a longer term savings account: that would mean that 1.3 will diminish while 3. will increase. It can also occur that longer term savings are changed into 'deposit' money: substitution leads to deposits. Together these changes lead, according to the methodology of the ECB, to changes in the amount of money:

$(\Delta 1.3 + \Delta 1.6 + \Delta 1.11) = (\Delta 4 + \Delta 5 + \Delta 6) - (\Delta 2 + \Delta 3)$ which for October 2012 yields:

$$(68 + 32 + 12) = (7 + 19 + 41) - (-32 - 12)$$

This shows that money M-3 growth was mainly due to substitution plus an increase in net foreign assets by the bank - and not due to lending! This system is not beyond criticism. For one thing the data are based upon end of month balance sheet data from the MFIs which means they show 'net' flows and not gross flows. In addition, considerable debts on these balance sheets were securitised and sold to non-MFI banks (Special Purpose Vehicles). As this was not entirely systematically recorded up to June 2010, this means that the actual flow of credit was possibly understated up to that period (ECB, 2012 A, 172-173). And it leaves out national differences...More on this in Annex II. A more general view of money creation is shown by table 3. Clearly, an increase in money in the 'vaults' of the bank does not automatically translate into more M-3 money, 'financial capital' is an old Bundesbank phrase for longer term savings accounts. As the interest rate on short term government debt is, at the moment, very low it is also not excluded that this will start to function as a kind of M-3 money. Also, at this moment governments in the Eurozone as well as the USA government are at this moment drawing down financial capital because of lending constraints and debt ceilings, there is an additional reason to reclassify government financial capital as M-3 money.

²⁵ About the Austrian 'true money supply' as well as some metrics:
<http://blogs.forbes.com/michaelpollaro/austrian-money-supply/>

Table 3. The relation between different money creators and money acceptors

		Holders			
Originators		Government	Banks	Private sector	
Name	Kind of money	Financial capital	Reserves	M-3 money	Financial capital
Government:	Coins	A1, F1	A3, E1	A6, B1	A7, D1
Central banks:	Banknotes	A2, F2	A4, E2	A7, B2	A8, D2
	Bank reserves		A5, E3		
Banks:	Deposit money	C1, F3	C2	C3, B3	C4, D3
Government:	short term debt		H1		H3
A: base money		=sum(a1:a8)		To increase C3 the private sector has to borrow from the banks. This money can be used to buy B1 or B2 from the banks. Banks have to buy B1/A6 or B2/A7 from the government/central bank	
B: M-3 money		=sum(b1:b3)			
C: deposit money		=sum(c1:c4)			
E: bank reserves		=sum(e1:e3)			
D: financial capital, private sector		=sum(D1:D3)			
F: financial capital, government		=sum(F1:F3)			

4.3. Money as a changing technology

Money has been described above as not being some kind of 'good', but as a kind of 'agreement' between parties. Of course, as those parties change all the time, money has to change as well. This can be shown by examples from Dutch monetary history that not only show that money changes, but also that monetary inventions change society as well. We will start with the establishment of Kaapstad (Cape Town) in 1652, a refreshment post established many thousands of kilometres from the Netherlands by a private company, the famous Vereenigde Oostindische Compagnie (VOC) which was also the largest customer of the renowned Amsterdam 'Wisselbank', lauded by Adam Smith.²⁶ In December 1651 Jan van Riebeeck, a captain employed by the VOC, left Amsterdam headed for 'Cabo the boa esperanza', with the express purpose of establishing an outpost where food and refreshments could be produced for the VOC trading/pirate ships. The beginning of his captain's log is too fascinating not to quote; at the same time, it is highly relevant to this narrative:

Saturday 30th December 1651²⁷

A strong, westerly wind. The ship 'Drommedaris' turns out to be too unseaworthy to be able to raise sail without running into great difficulties. For that reason I have summoned the captains of 'Den Reijger' and 'Hope' aboard to confer with them on the ship's instability; the

²⁶ This is clearly not meant as a history of money. The purpose is to show that money changes all the time and changes society with it, M-pesa being a more recent example. These changes are an essence of money.

²⁷ This piece has been translated by Maggie Dundas

*other officers were also asked to give their advice. They said they were terribly concerned about putting to sea because, if we were to run aground on the lee shore, it would be impossible to free the boat and heaving to would be no remedy against a battering of waves in rough seas. After proper consultation and serious consideration it was unanimously decided in the interest of the noble Company that as we could make little headway by laying anchor, we should search for a harbour on the English coast with the three ships and there bolster the 'Drommedaris' with ballast stone, **and to leave from there with all speed** to pursue our destination.*

Thus it was resolved for the ship the 'Drommedaris', for days and years to come.

JOHAN VAN RIEBEECK, 1651.

DAVID CONINCK.

JAN HOOCHSAET.

SYMEN TURVER.

P. v. HELM, *Secrets*.

Romantic as this is - this business decision could not have been written down if it had not been for a financial innovation: *the stock exchange*. The VOC was a 'listed company'. Around 1600, shares were nothing new. Many enterprises, specifically in the risky business of shipping, were financed by people who took a share in the enterprise. These shares could be inherited and, sometimes, sold. But the liquidity of these shares was limited which often meant that such companies were 'liquidated' in the literal sense after some time (Dehing and 't Hart, 1997). The high liquidity of VOC shares, however, enabled the VOC to 'live forever'. This was not supposed to be the case when the VOC was established in 1602 as a kind of merger between already existing companies. It was only expected to exist for several decades instead of the two centuries it actually existed. And the 'logboek' could not have been written if this company had not been listed and had not been able to use its 'virtual immortality to finance rather long term and expensive operations, such as maintaining their own army or even a colony at Cabo de Boa Esperanza – and (indirectly) using credit from the new, government-owned Amsterdam Wisselbank to do so (Dehing, 2012). This shows the direct connection between the Van Riebeeck expedition, entrepreneurial discovery and a financial innovation. Money wasn't an evolutionary consequence of 'free' markets, as stated in the neo-classical money parable. Markets were a revolutionary consequence of monies and monetary innovation.²⁸ Financial innovation changed the course of history, enabled the rise of wage labour, a labour class in the Marxist sense (i.e. in the strictest sense everybody earning a wage, including top-managers) and led to a financial sector that at the moment accounts for a whopping about 8% of GDP. It is hard to see that as a 'veil', to use a common economic metaphor about money. Money is not a veil. It is a tool – and just like fire, the wheel, knives, the spinning wheel and other spinning machines, domesticated cattle or the integrated circuit we keep changing and improving it, which enables us to change our destiny. And sometimes our destination.

²⁸ The classical example is of course the Agora, or the market place, which became the centre of city life instead of the palace, quite soon after king Croesus (or somebody near him) started to combine the already long existing bookkeeping 'unit of account' with standardised pieces of metal: coins. Again: this runs counter to the parable.

The connection with the stock exchange was not the only deeply financial characteristic of the VOC. It was beyond all doubt a profit seeking enterprise - talk of an entirely financial variable enabled by but not preceding the growth of a monetary system! And the VOC was, though active in the slave trade, in an organisational sense based upon wage labour – like profit, an institution which did not exist before the advent of money and which enabled a totally different kind of economy (Van Rossum, 2011). In this case, it was a red blooded multinational with its own army, cities and colonies which traded, taking due recourse to violence and/or debt peonage when needed, with Japan, present day Indonesia, India, and Sri Lanka to name only a few of the areas where its possessions were located. See Breman, 2010, on how the VOC introduced coffee in the Preanger area, Java and, after a few years of highly successful ‘free trade’ took recourse to violence, oppression, bribery and debt peonage to drive prices down and slowly changed the Preanger countryside into a kind of Soviet kolkhoz if not a gulag. And yes: purely financial variables like profit, debt, interest and money- exchange played their role in fostering these developments in what would be the most important coffee production area in the world for a considerable length of time. Monetary innovation is a revolutionary force.

However, modern Dutch money, including the new, stable deposit money of the Exchange bank of Amsterdam and the literal ‘export quality’ coins minted by the seventeenth century Dutch mints (Dehing, 2012) had its limits. The settlers at ‘Cabo de Boa Esperanza’ were chronically short of food and even had to resort to hunting and gathering – Robben island (i.e. seal island) got its name for a reason.²⁹ They also tried to trade with the indigenous people they encountered, the San hunter-gatherers and the Khoi nomadic cattle farmers. Dutch money did not work in these cases.³⁰ The San occasionally worked for the Dutch settlers – but had to be paid with food, gin and tobacco as they had no use for metal coins or items – not even the copper rings valued by many other tribes. The settlers also quite desperately wanted to buy cattle from the nomadic Khoi, but had to barter these against copper wire and copper rings, which rapidly lost exchange value, as these nomadic farmers did not have an exchange economy based upon a unit of account and used these variable rings for adornment as well as a store of value and prestige. Tobacco did retain value, but was in short supply among the Dutch. I call this barter since trade, in my definition, presupposes a price system, i.e. a system in which a number of goods and services have more or less stable prices nominated in a unit of account that itself is a non-stable price which fluctuates each time relative prices change between any set of goods or services. This enables indirect trade. It also enables profit nominated in this unit of account, as well as the rise of a class of wage laborers. This does not seem to have existed among the San and the Khoi. Every transaction was individual (to the chagrin of the Dutch, who continuously complained about the time it took to barter for two or three cattle at a time instead of the twenty which were available). Comparable stories can be told about the West-African trade of the Dutch merchants. Despite their own rather sophisticated monetary system, gold (not a monetary metal in Africa), slaves and ivory had to be bought with

²⁹ Based upon an analysis of the records of the deeds of the Kaap colony ‘government’ as published by Tanap: http://www.tanap.net/content/activities/documents/resolutions_Cape_of_Good_Hope/index.htm

³⁰ The earliest account, dating from 1673, shows San (“Hottentot”) people being employed for manual farm work and paid in ‘arrack’ (booze), rice and tobacco. Arrack and tobacco as well as clothes and ‘goods’ were also given to European farmhands, but these were also paid in money/‘receivables’. Besides these labourers, slaves are also mentioned, as well as a promised ‘merry day’ (with lots of arrack) at the end of the work. About the use of textiles and the like to pay boarding labour in Groningen see Paping (1996) and for Scotland the study of Gibson and Smout, 1995.

copper, textiles, rifles and gunpowder – which by the way explains why some Dutch gunpowder producers started to expand into the West-African trades. Modern money clearly only has use value in the monetary society it belongs to. And although the settlers at Cabo the Boa Esperanza did sell their products to passing Dutch (and in times of peace also English and Spanish) ships, in time many of the original settlers would increasingly become a kind of nomadic farmer themselves (the ‘Boeren’ of the ‘Boer wars’) although probate inventories – themselves a kind of balance sheet and therewith a monetary invention - show that these ‘Boeren’ did not completely lose their connection with the monetary economy (Fourie and Uys, 2012).

The point been made here is that money is a technology. And ‘financial innovation’ is nothing new: monetary technology – and therewith monies - changes all the time. And societies change with it. Monies are, in a sense, a function of the society in which they are used and vice versa. Any definition and estimation of monies (and debts) has to take this into account – money is ‘path dependent’ in essence. Today’s money would not have functioned one hundred years ago – and vice versa. Vending machines accept plastic, not gold.

4.4 (Modern) money as a creation of the state

Another aspect of modern money has to be highlighted, particularly where the Euro is concerned. People and non-financial companies create money by accepting and emitting debts. But when these debts are accepted by (private) MFIs the money created is ‘legal tender’. And legal tender is, by definition, a design of the state. It is difficult to overrate the influence of the state, including the central banks, on ‘Money’. Directly, the state accepts only legal tender as the means of extinguishing tax debts. And it is the state which charters the MFIs and allows them to create ‘legal tender’ – while the bankers’ bank or the central bank, endows them with reserves which are nominated in legal tender. In a more indirect way the state forces or at least coerces people to use legal tender in economic contracts. To quote Paul Davidson: *‘Since all production and exchange activities are organized by legal monetary contracts between the buyers and sellers, — then money is that thing that the State determines discharges all contractual obligations.’*³¹ This brings us to the relation between money and the state – or the monetary system. Modern money is supposed to be ‘a creation of the state’. But we cannot easily describe the Euro in this way since a euro-state does not exist (yet). The Euro is a creation of a number of states – which makes it different.³²

³¹ With the exception of the ‘state’ this closely resembles the Austrian definition as stated by Murray Rothbart which excludes ‘exchange’ money, quoted and commented upon by Michael Pollaro: ***“money is the general medium of exchange, the thing that all other goods and services are traded for, the final payment for such goods and services on the market.”*** ... Of primary import, a point that cannot be overemphasized is the requirement that for a thing to be money it **MUST** serve as the **FINAL** means of payment in all transactions. In other words, it must be the thing which **FULLY** extinguishes the debt incurred in a transaction.”, <http://blogs.forbes.com/michaelpollaro/money-supply-metrics-the-austrian-take/> . The difference with the definition used in this article will be clear: when a debt is not fully extinguished something still can serve as exchange money – a transaction based definition which is more ‘Austrian’ than the Austrian one.

³² <http://www.eurotreaties.com/maastrichtec.pdf>

We will have to go into more detail to show the differences. The relation between the MFIs and the state (and remember that the shares of the ECB are owned by the EU states) is aptly described by the national accounting guidelines. The ESA 95 define the guideline the MFIs as follows (emphasis added):³³

2.41 . The financial corporations sector is subdivided into five sub-sectors:

- a) the central bank (S.121);*
- b) **other monetary financial institutions (S.122);***
- c) other financial intermediaries, with the exception of insurance corporations and pension funds (S.123);*
- d) financial auxiliaries (S.124);*
- e) insurance corporations and pension funds (S.125).*

*The other monetary financial institutions sub-sector is regarded as equivalent to the other depository corporations sub-sector as defined in the 1993 SNA 4.88 - 4.94. ... the definition of the other monetary financial institutions sub-sector ... is intended to cover **those financial intermediaries through which the effects of the monetary policy of the central bank are transmitted to the other entities of the economy**, the other depository corporations sub-sector is defined in the 1993 SNA with reference to measures of broad money. **The combined sub-sectors S.121 and S.122 coincide with the monetary financial institutions** for statistical purposes as defined by the EMI.*

Source: ESA 1995

The ESA 1995 was written to enable the measurement of, among other things, money or in fact legal tender. To estimate 'broad legal tender' (i.e. M-3) it proved necessary to demarcate an MFI sector *consisting of the central bank and the 'other MFIs'*. This shows how the government conducts monetary policy. The 'other MFIs' are described as financial intermediaries used to transmit a monetary policy which is government monetary policy, as the central bank is a creation of the state and, although independent, has to pursue goals which are in the end set by this government. And monetary policy is not just interest policy. At a deeper level a central bank has to do 'whatever it takes' to define and maintain 'legal tender'. The problem for the state is how to disseminate this currency, which it uses to define tax debts. And it uses the monetary system, defined above, to solve this problem. This system can be viewed as a two-tiered system. It consists of a central bank (ESA sector S.121, the only individual company with its own sector in the national accounts!) and 'other MFIs' (sector S.122) which function, when they create legal tender, as branches of the central bank in the sense that they lend and create money defined by this central bank. To be allowed to do this, banks need reserves which are not lent out, but serve as collateral and can be borrowed from the central bank which creates it: it is the bank of banks. The money created this way is coupled to 'public' money through the possibility of unlimited 1:1 conversion of bank deposits of households and companies, which are created by the MFIs, into banknotes (issued by the central bank) as well as the role of the central bank as 'lender of money

³³ Extensive study of at least some of these (unusually boring) protocols should be required for all students of economics.

designed by the state' of last resort' – banks are only allowed to create Euros when their reserves also consist of Euros. Banks therefore need reserves and can obtain these (at a price) from the central bank. Reserves nominated in legal tender do not have the role ascribed to them in economic textbooks, i.e. playing a role in the 'money multiplier', but more importantly serve to *define* legal tender. Contrary to newspaper headlines, 'monetary policy' is not just interest rate policy – it is also (and even mainly) *the creation and dissemination of legal tender*. To state it more simply: the state has outsourced legal tender creation but still ties this to (more or less freely available) legal tender reserves. The question is whether a state controls this system. Normally this is supposed to be the case: central banks do not go broke and are in fact the only 'SNA' sector (government, households, non-financial companies, MFIs, Central banks) which never experiences liquidity or solvency problems in a financial crisis (Bin Ibrahim, 2012). Duhhh... it's the only economic agent which can print its own legal tender! The present Eurozone situation is, however, rather complex and requires more explanation. It is open to discussion if the Eurozone is 'monetary sovereign', i.e. if the Eurozone state can not only define, but also guarantee and maintain the currency and disseminate it in a way which enhances or at least does not hamper prosperity .

According to Bindseil and Winkler (2012), this *can* be the case. In the system explained above, MFIs can create private legal tender deposits *ex nihilo* by providing loans to borrowers (Bindseil (2004), Holmes (1969), Lavoie (1985)). But *ex nihilo* does not mean 'no rules'. Central Banks are chartered by governments and these charters typically contain broadly described goals for monetary policy, goals which the central banks translate into policy as well as explicit rules for MFIs, among other things for reserves. Where applicable, banks have to fulfill minimum reserve requirements by maintaining a certain amount of reserves, set by the central bank, at their central bank averaged over a certain maintenance period based on specific liabilities (reserve requirement). Not complying means severe punitive measures (ECB/200/7). So, banks have to do everything to obtain these reserves when they have a shortage – which means that money creation by MFIs seems to be held on a leash by the central bank and thus the government. But the situation is more complicated. In the end, the central bank will provide the banks, at a price set by the central bank, with any reserves the bank needs – the leash is therefore flexible. The central bank has to provide these reserves for a reason. Normally, banks in need of short term funds or reserves borrow from other banks, against a rate called the interbank interest rate which is set by the central bank. When this is not possible, they have to borrow from the central bank. To maintain the target for the interbank interest rate, central banks in advanced economies initially (pre financial crisis) provided reserves elastically³⁴, matching supply with demand (Bindseil & Seitz (2001)), since failing to do so would put upward (downward) pressure on the interbank rate in the case of a shortage (excess) of reserves. (Fullwiler (2004), Lavoie (2010)). Sometimes, banks can of course have excess short term funds available. These can be lent to other banks or to the central bank (which has to accept these). When the central banks began paying interest on excess reserves this provided a floor for the interbank rate.³⁵ When banks can get this interest by lending the money to the central bank, they will charge other

³⁴ Central banks would forecast demand for reserves and supply them based on the forecast. The Fed did this through open market operations, the ECB through fixed allotment refinancing operations.

³⁵ The fact that the effective Fed Funds Rate has been lower than the interest paid on excess reserves is (mostly) due to the fact that institutions like GSEs, who participate in the Fed Funds Market, are not eligible for interest on excess reserves. Market monetarists see this measure as a quite extreme kind of monetary tightening and advocate negative rates, like in Sweden (Christiansen, 2011).

banks a price which is at least that high. Now, a central bank can maintain a target interbank rate while oversupplying reserves, by setting the interest paid on excess reserves equivalent to the target rate. Be that as it may - the main take-away is that the creation of private money is not reserve constrained since central banks provide those reserves elastically to maintain a target interbank rate. In other words, the causality of the 'money multiplier' runs from private money to reserves and not vice versa (Carpenter & Demiralp. (2010), Goodhart (2007)). When banks need reserves – they can always get them, albeit at a price. But the other side of these Euros is that a central bank can oversupply reserves, *without this necessarily leading to an increase in private money*.³⁶ When borrowers do not want to borrow or if the debts these borrowers emit to finance, for instance, the buying of a mill aren't accepted by the bank no money will be created. And the banks simply lend the reserves back to the central bank which is obliged to accept this money.

The Eurozone provides an example of this (graph 4.1). The white line shows an average, GDP weighted interest rate for 2 year Eurozone bonds of different EZ countries. This is not an official target, as the ECB can't control it in any direct way. The rate directly controlled by the bank is the EONIA rate, which almost by definition is somewhere between the upper and lower band shown. The ECB however wants to influence interest rates outside the financial sector and in this sense the 2 year Eurozone bonds average shown can be considered to be some kind indirect target, which is supposed to be somewhere between the upper and lower interest rates set by the ECB. If it's outside the corridor the so called 'monetary transmission channel' can be supposed to be broken. Which means that it increases too much – the ECB not de jure but de facto *forced* to adapt the amount of money or to talk the rate down. The famous LTRO and OMT operations clearly did the job, albeit in different ways.³⁷

³⁶ Large scale asset purchases (LSAP) by central banks in response to the financial crisis did not lead to a large increase in private money, which would be expected based on a casual interpretation of the money multiplier. Nor did the liquidity providing measures of the ECB. And neither did the LSAP of the Bank of Japan prior to the financial crisis. Now, one can pertain that the 'money multiplier is broken' (Christiansen, 2011). *We maintain that the monetarist money multiplier idea gets the causality fundamentally wrong.*

³⁷ The OMT will of course be a classic textbook example of managing expectations. Markets will test it, however.

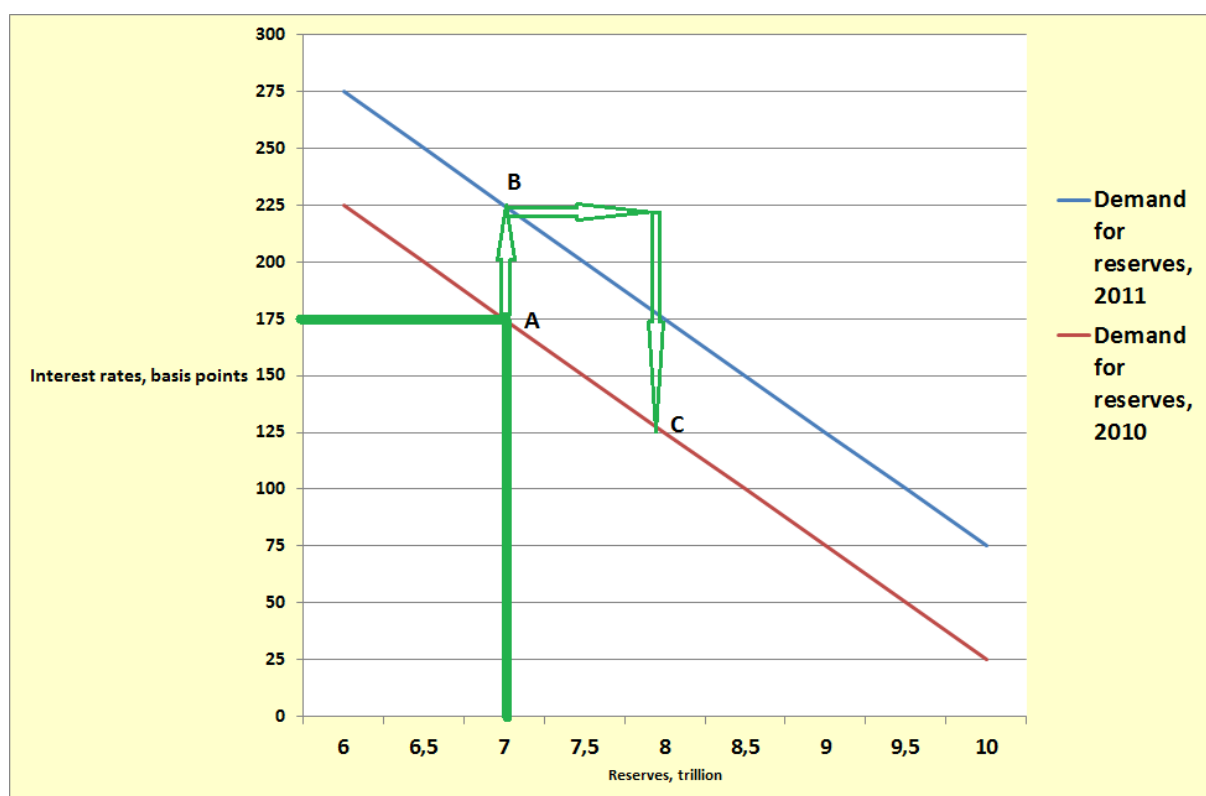
Graph 4.1 The need to control the interest rate prevents the central bank from controlling the stock of money



Source: Thaler's Corner 20 December, 2012

This can be explained with a supply and demand graph introduced by Paul Krugman (2012) (graph 4.2). Point A shows a stylised version of the Eurozone situation in 2010. The marginal rate is 175 basis points; bank demand for money is 7 trillion. However, banks panic and the interest rates start to rise (the 'control lost' situation in 4.1). As the ECB did not want to increase the amount of money it had to raise rates in 2011 (point B in 4.2). When the economic situation deteriorated 'market discipline' forced the ECB to lower rates and to increase the amount of money via the VLTRO operation by about 1 trillion Euro, which made rates decrease (point C). The subsequent OMT is of course highly interesting as, at the moment of writing, no government bonds have been purchased while the weighted average interest has declined. This time, Mr. Draghi managed, with his already historical 'whatever it takes' remark, what political leaders and summit after summit failed to accomplish – to push down the demand line.

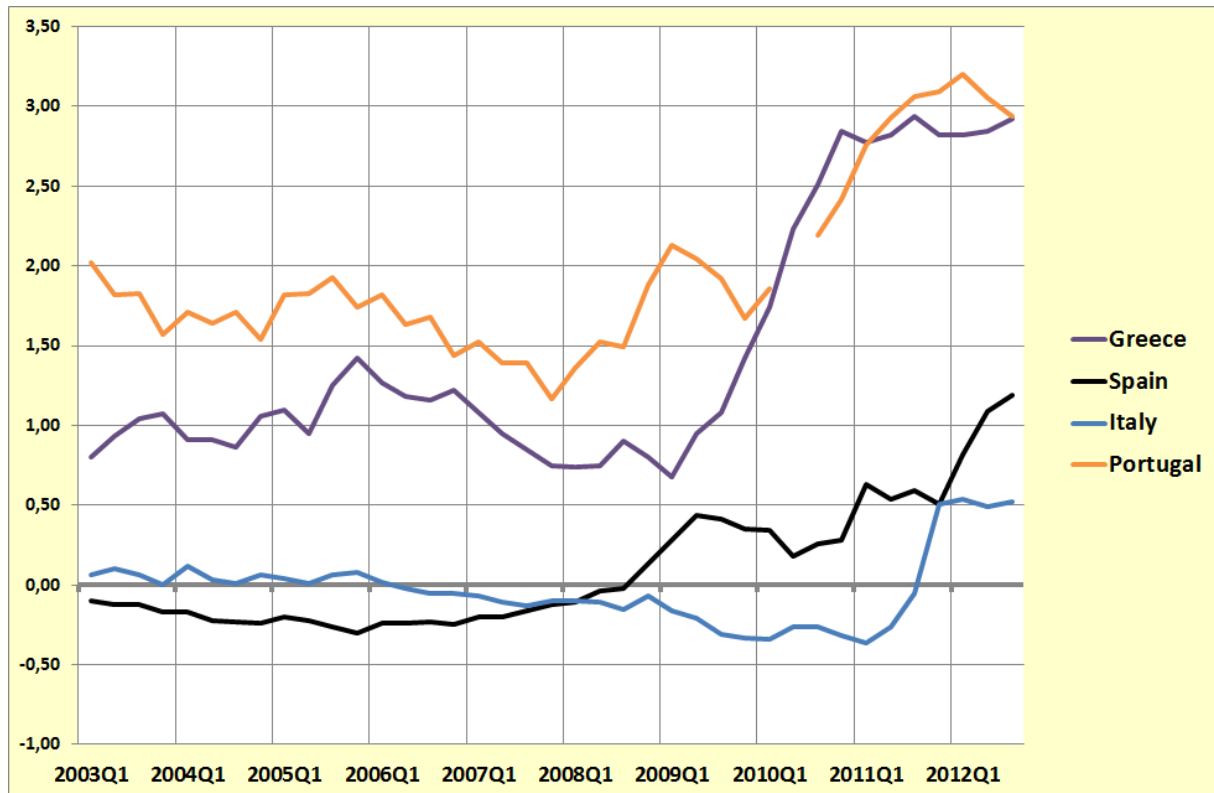
Graph 4.2 Demand, supply and interest rates for base money in Europe, 2010 – 2011



However, the Eurozone is also a perfect example of why ‘ordinary’ central bank policies might not always work, in a currency zone which consists of different nation states instead of one. After the introduction of the Euro interest rates differences in government bonds rapidly disappeared. This, in combination with rather restrictive economic policies in some states and expansive policies in other states led to regional economic booms (southern Europe) and slumps (Germany and to an extent Italy) and a flow of capital from the slump-countries to the periphery.³⁸ This contributed to current account imbalances and a build-up of inter-Eurozone debts which were implicitly guaranteed by governments. After 2008, a combination of outflows of private capital coincided with a bust in the (building) booms and a sharp and sudden deterioration of government finances which was caused to a considerable extent by creditors bailing out and banks that had financed the booms. Interest rate differentials rapidly increased again and not just interest rates on government bonds. Graph 4.3 shows that interest differentials for loans to companies increased as well; a highly undesirable situation and a clear sign of monetary tightening in a severe financial crisis (mortgage loans and larger loans as well as loans with a longer maturity basically show the same pattern: differences are about as large as before the introduction of the Euro).

³⁸ Remember that though Spain experienced a rapidly deteriorating current account, Spanish exports increased faster than German exports in this period. Italy exported a lot of capital on a gross basis.

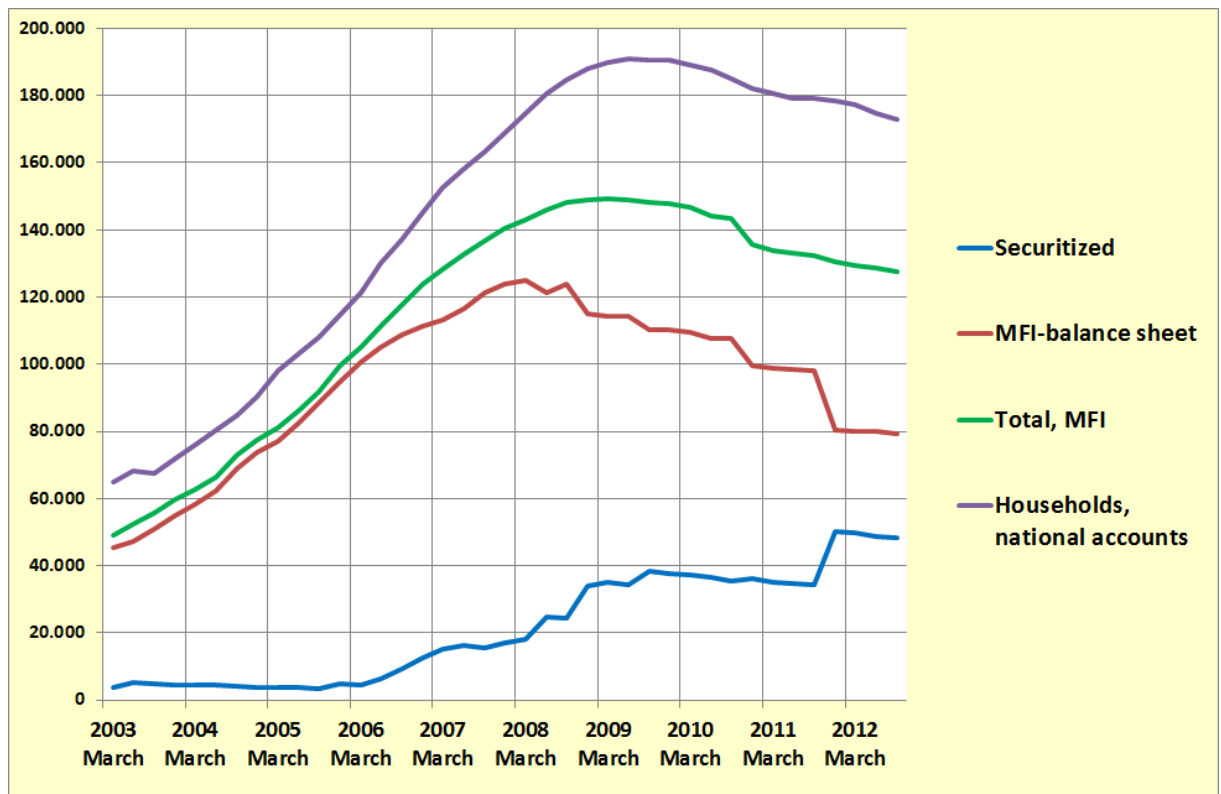
Graph 4.3 (other loans, new contracts, maturity one year or less, non-financial companies, less than 1 million Euro)



Source: Eurostat

Inter-Eurozone income transfers were far too small to accommodate the post 2008 outflow of private capital from the periphery countries and central banks had to provide hundreds of billions of credit via a kind of overdraft facility. The problem is of course that money left these countries – but debts stayed behind. This was and is a large problem. Loans create deposits – it is a sort of matter/anti matter relationship. But there is an important asymmetry between loans and deposits. Loans are identified, have a maturity and are coupled to a debtor who cannot transfer these loans at will. Deposit-money is however, as we all know, much more liquid. Money left the countries (graph 3.2) – debts stayed behind (graph 4.4). Graph 4.4 shows mortgage debt in Ireland, the green line shows debt originally financed by MFIs which was, therewith, money creating debt. The difference between the green and the purple line shows the amount of mortgage debt financed by already existing money, i.e. for instance, by pension funds using pension savings to do this. Clearly, during the bust the amount of debt declines much more slowly than the amount of money in graph 3.2 while the opposite was true during the boom! And remember that Ireland has about 4 million inhabitants...

Graph 4.4 Mortgage debts of Irish residents, millions



Sources: Irish financial sector accounts,

<http://www.cso.ie/en/media/csoie/releasespublications/documents/economy/2011/isanonfinfin2011.pdf>; Irish monthly financial bulletin, Irish money and banking statistics October 2012, <http://www.centralbank.ie/polstats/stats/cmab/Pages/releases.aspx>

This situation – one currency, multiple countries, loose money, sticky debts - has implications for the central bank in its function as lender of last resort (LOLR), i.e. the lender who can solve liquidity problems of either the government or the banking system and therewith can guarantee the smooth working of the payment system and therewith the use value of the currency as a means of exchange and payment. Theoretically, a central bank can bail out the government, and/or the banks (or even households) at will. The central bank can purchase existing (!) government securities by adding reserves, without this necessarily influencing private money through a bank lending channel (Borio & Disyatat (2009)). In a depressed economy, the money stays within the financial system. This makes a central bank the ideal party to act as a lender of last resort for governments, since it can, in principle, set the interest rate on government debt and make it a risk-free asset.³⁹ To state this in a more down to earth way: the ECB has all the means (including the formal right to do so) to buy Greek government debt on the secondary market to influence the interest rate on Greek debt. It does not do this, however, since the ECB is bound to rules and decisions. The

³⁹ In the sense that it carries a 0% risk of default.

capacity of a central bank to function as a lender of last resort (for either banks or governments) depends on the institutional arrangements within that system. These differ between the Federal Bank of the U.S. (which is often used as the archetype of central banks) and the System of European Central Banks of the Eurozone. And the question is not if the central bank can bail out the government – but if it can bail out governments, plural.

To answer this question, we will examine a fiat monetary system in a flexible exchange rate environment (a valid description for the USA as well as the Eurozone) and investigate the consequences of the differences between the USA and the Eurozone for the ‘monetary sovereignty of a country’ (Bindseil and Winkler, 2012). We define the degree of monetary sovereignty as the capacity of the ‘broad’ government (government plus central bank) to deal with economic shocks like a liquidity crisis, i.e. a crisis in which an economic sector has difficulties in obtaining money through lending. One of the most extreme cases, that of a dual liquidity crisis involving the government and the banking system, will be considered to estimate the capacity of the Eurozone and the U.S. to absorb such a shock and determine the degree of monetary sovereignty and the capacity of the state to guarantee the usability of the currency and the payment system. The highest degree of monetary sovereignty would be achieved if central bank and Treasury/the Treasuries could, for all practical purposes, be consolidated (see the balance sheets).

<i>Simplified Balance Sheet Government</i>	
Assets	Liabilities
Government Account at Central Bank	Government Debt Securities
Other Financial Assets	Other Liabilities
Real Assets	

<i>Simplified Balance Sheet Central Bank</i>	
Assets	Liabilities
Government Debt Securities	Banknotes in Circulation
Other Assets	Reserve Accounts
	Government Account at Central Bank
	Other Liabilities

<i>Simplified Balance Sheet Consolidated Government</i>	
Assets	Liabilities
Real Assets	Banknotes in Circulation
Other Financial Assets	Reserve Accounts
	Government Debt Securities (in hands of private sector)
	Other Liabilities

If the central bank and treasury can be consolidated, the consolidated government's spending is financed by monetary base creation and/or government debt securities issuance (to the private sector). The central bank creates money and lends this to the government, but this does not increase the external debts of the consolidated balance sheet of the government *or* the central bank. Since, in a fiat system, the monetary base is not a claim on the assets of the consolidated government and government debt is paid in base money, the consolidated government is unconstrained in spending as long as the monetary base is accepted by the non-government sector when the government spends it and therewith adds

it to M-3.⁴⁰ Of course, potential inflation as a result of net government spending is a real concern, but the government is unconstrained in the sense that it can adjust fiscal policy and government spending in a way to maximise prosperity. Establishing the best policy stance is beyond the scope of this article. It should however be noted that this arrangement offers maximum flexibility to adjust policy and is therefore assigned the highest degree of monetary sovereignty. In the case of a liquidity crisis of a government, the central bank can step in. And even in the case of a dual liquidity crisis the *monetary* problem can be solved.

However, in almost all advanced economies, there are restrictions on the capacity of central banks to (directly) substitute government debt for base money ('monetary financing prohibitions'). In both the U.S. and the Eurozone the respective central banks are not allowed to purchase government debt on primary markets (i.e. to monetarily finance new debt) or to provide overdrafts on the accounts of the government at the central bank.⁴¹ Purchases of government debt in secondary markets are allowed. In the U.S., monetary policy is mainly implemented through temporary and permanent open market operations, in the form of (reverse) repurchasing agreements (repos), typically collateralised by government debt securities or MBS, and outright purchases of government debt securities and MBS. In the Eurozone, liquidity is mainly provided through refinancing operations (MRO, LTRO) in the form of repos collateralised by a wide variety of debt securities⁴² (Cheun et al., (2009), p.24). If there is no stigma attached to outright buying of government debt securities in the secondary market by the central bank, then, in all likelihood, the central bank will be able to effectively set the interest rate on government debt if it chooses to do so. By acting as a price setter on the secondary market for government debt securities, differences in prices between primary and secondary markets can be arbitrated away by primary dealers without risk, as long as the central bank's commitment to buy the government securities in the secondary market for a fixed price is credible.⁴³ Under these arrangements, were the government to face a liquidity crisis, the central bank would have the capacity to adequately mitigate the crisis. When (market) yields on government debt rise to unsustainable levels, the central bank can set yields by acting as a price setter in the secondary market. The central bank would effectively swap government debt securities for base money, for as long as is needed to restore market confidence. The central bank would be unconstrained in doing so, and eventually the resultant excess reserves would arbitrage with short dated government debt securities (since the commitment to convert the short dated government debt securities to reserves is 100% credible). And, as said before, since private money creation is not reserve constrained, this process would not be inflationary through a bank lending channel in case of limited demand for loans.⁴⁴

⁴⁰ The fact that post 2 of table 2 is left out of 'M-3' money is exactly because this enables a distinction between base money and 'exchange' money which enables one to define government spending as money creation.

⁴¹ In the Eurozone this legal constraint is imposed by the monetary financing prohibition in Article 123 of the Treaty establishing the European Union.

⁴² See also: <http://www.ecb.int/mopo/implementation/intro/html/index.en.html#operations>, <http://www.ecb.int/paym/coll/html/index.en.html> and <http://www.newyorkfed.org/aboutthefed/fedpoint/fed32.html>, <http://www.newyorkfed.org/aboutthefed/fedpoint/fed04.html>

⁴³ Primary dealers in the U.S. are required to make a reasonable market in Treasury auctions and function as a counterparty for Fed operations. See: http://www.newyorkfed.org/markets/pridealers_policies.html

⁴⁴ Portfolio rebalancing effects could potentially have an effect on inflation. Also, through an interest rate channel, inflation will be influenced. However, the central bank could choose to set rates on government debt in such a way that it is in line with its inflation target mandate.

These central bank operations merely constitute an asset swap of government liabilities for a certain duration and yield, for central bank liabilities with overnight duration and yield equal to the rate paid on excess reserves which, in this case, would be the same as the target rate (Borio & Disyatat (2009)). Both could be viewed as liabilities of a 'consolidated' government, since the central bank has guaranteed the possibility of conversion. So, under these conditions, the degree of monetary sovereignty is, for all practical purposes, only minimally diminished since the only difference with the 'highest degree of monetary sovereignty' is the fact that in this case primary dealers have to arbitrage between the primary and secondary market. But while both the Fed and the ECB have the authority to purchase securities outright in the secondary market, the buying of government debt securities is much more controversial in the Eurozone than it is in the U.S.⁴⁵ This is mainly due to the decentralised nature of the Eurozone. Fiscal policy is largely conducted on the level of member states and not on a federal level. The same with political power: legislative power is still mostly in the realm of member states. The consequences are manifold. Fiscal transfers between member states are highly controversial and often not supported by the general public. So, current account imbalances are not (partly) compensated for through fiscal transfers (in contrast to the U.S.). The result is that current account imbalances have led to debt build-up (both public and private) between member states. Furthermore, purchases of government debt by the ECB is in political terms a very sensitive subject leading to the introduction of moral hazard as long as member states who receive support still have autonomy over their budgets. This is, to an extent, remarkable as open market policies, i.e. the buying and selling of government bonds, are one of the traditional instruments of monetary policy. Not so, anymore, in the Eurozone. Conditionality has been introduced, which has had a backlash on the general population of the member state since it constitutes a loss of sovereignty on a political level. This is not the place for an in-depth discussion of Eurozone political and social challenges, but it suffices to say that the ECB is much more hesitant in purchasing government debt due to political and social constraints than the Fed. *The result is that the ECB cannot act effectively as a price setter in the national secondary markets* (plural, again) and its potential commitments are less credible than those of the Fed, as long as the Eurozone is not as politically and fiscally integrated as the U.S.. So while on paper the ECB has the same capabilities as the Fed, due to political and social constraints the Eurozone can be viewed as a system with a lower degree of monetary sovereignty than the U.S. since monetary and fiscal policy are not properly harmonised. To put this into plain language: the Euro was created by states. However, situations can arise in which there is a real chance that the Euro will implode or explode unless these states agree to transferring sovereignty, monetary financing of governments, debt relief (through other means by accepting Target2 imbalances) or income transfers. Or, in the words of Mario Draghi in an interview in the Financial Times which mirrored the remarks of Wynne Godley about the Euro in 1992 (Godley, 1992):

⁴⁵ While the Fed aggressively embarked on large scale asset purchases (LSAP) of Treasuries and MBS in response to the financial crisis, the ECB mainly enlarged its balance sheet through longer term refinancing operations (LTRO). The Securities Markets Programme (SMP), through which the ECB bought distressed government debt of Eurozone member states, was since its onset highly controversial. The recently announced outright monetary transactions (OMT), which have a similar scope as the SMP, although potentially unlimited in nature, have strict conditionality attached to them to alleviate concerns of moral hazard. Significantly, macro-economic textbooks, which are typically USA oriented, do not even mention the European view towards open market operations when these are explained and treat them as 'business as usual'.

“FT Anything to add?”

MD I’d like to give you this quote of Professor Zygmunt Bauman, a Polish sociologist who has become best known for his analyses of postmodernity and consumerism. It has to do with the fact that you don’t lose sovereignty when you share it, but you actually regain it. Countries with high debt and deficits should understand they have lost sovereignty a long time ago over their economic policies in a globalised world. Working together in a stability-oriented union actually means to regain sovereignty at a higher level.

FT They’ve lost it to the markets?

MD Yes. And sharing common rules for them actually means to regain sovereignty in a shared way rather than pretending to have sovereignty they’ve lost a long time ago. That’s the point.”

5. The definition of monies

This brings us to the definition of monies: what is it? NO, that is the wrong question. The right question is: which aspects of monies and debt are important for economic analysis? Don’t expect a new, concise definition. But several ideas can be discussed. People are used to the ‘money is a means of exchange, store of value and unit of account’ triad. We have already seen that we have to differentiate between the ‘means of exchange’ and the ‘means of payment’, while, in a modern economy, the *means of payment* is designed and guaranteed by the state and largely created by chartered MFIs who are allowed to do so (or not) by accepting (or refusing) new private debts. At the same time, everybody with the right reputation can emit debts which lead to the creation of *exchange money* - we should not have a definition of money, but a definition of ‘monies’. Additionally, thinking in terms of the ‘essential’ properties of money can put us on the wrong track. Money as it is used (including accepting a ‘payables’ debt) has historical characteristics which evolve over time – ‘payables’ used to be hugely important in small groceries but not in modern supermarkets (although you can use a credit card to pay). Also, in our present system, money has a kind of matter/anti-matter connection with debt.

On this basis let us look at the definition used by the ECB. Or perhaps we should say: the definitions used by the ECB as there seems to be some confusion. Sometimes, the ECB seems to define money as an *exogenous* means of payment (ECB, 2012 C; ECB, 2012 D) which cannot be produced by economic agents and which can be ‘transformed’ into consumption. The monetary statistics are however *endogenous* to their core (Bê Duc and le Breton, 2009). This paradox can be resolved when we examine the definitions more closely. The first, exogenous definition is highly influenced by neo-classical models which define our wage labor/profit/tax economy as a basically moneyless system on which money (‘cash-in=advance’) is superimposed. This sounds quite unreasonable and bizarre; however, let us quote Wikipedia on this since Wikipedia is often a good source of received ‘wisdom’:⁴⁶

*“The **cash-in-advance constraint** ... is an idea used in economic theory to capture monetary phenomena. In the most basic economic models (such as the Walras model or the Arrow-Debreu model) there is no role for money, as these models are not sufficiently detailed to consider how people pay for goods, other than to say everyone has a budget constraint. To be able to say anything about the money supply, inflation or monetary policy and so on,*

⁴⁶ http://en.wikipedia.org/wiki/Cash-in-advance_constraint

*economists must therefore introduce additional assumptions into their models. One possibility, and the more popular one, is to introduce a **cash-in-advance constraint** i.e. a requirement that each consumer or firm must have sufficient cash available before they can buy goods. An alternative assumption would be a 'Money-in-the-Utility-Function' assumption, which states that people have a tendency to hold a certain amount of cash because they derive utility from holding it. Without these (or similar) assumptions economic theory would find it difficult to explain why people carry around a good (money) which takes up space in their wallet, can't be consumed and does not earn any interest."*

Money as an 'additional assumption'... Anyway, the cash-in-advance theory and other neo-classical theories do not explain where money comes from, nowadays, or even where the possibility to 'buy' something comes from. But when somebody tries to use this theory to explain where cash comes from an odd thing happens. According to Hellwig, (2003, p. 36):

*"While the previous section discussed the existence and uniqueness of a fiat money Cash-in-Advance equilibrium as an evolutionarily stable steady-state, it does not consider the emergence of fiat money. Existing search-theoretic models also remain silent about this question, since they consider steady-state equilibria, where fiat objects have been around forever in the past, and are valued, because they are expected to be valued forever into the future. The purpose of this section is to illustrate how fiat money may come into circulation in a "free banking" equilibrium, and to further discuss the conditions under which a fiat object becomes a generally accepted medium of exchange. **For this purpose, I adapt the model by enabling intermediaries to issue debt certificates on which they promise to pay a unit of physical goods in the future**" (emphasis added)*

This still does not resolve the problem of where the possibility to 'buy' something comes from. But it does show that even the 'cash-in-advance' ideas surreptitiously pre-suppose the relation between money and debt – money exists because people (plural) emit and accept transferable debts *stated in a unit of account*, a unit of account which in our system is of course designed and guaranteed by the government. Money is a lot of social contracts - literally. In reality, these debt certificates are receivables or, when issued by MFIs, Euros and the conceptual confusion at the ECB can be explained by assuming that numerous non-statistical economists do not gauge that the way money is created is essential to the definition of the thing – they were simply never taught to ask the question. Defining money as 'exogenous' is useful to analyse situations such as the market for ice cream at the beach, where money creation is not important (unless you can pay with a credit card, which is increasingly possible). But it is unfit to analyse an entire economy. Debts are as essential to monetary statistics, and therewith to the definition of money, as the Pounds and the Renminbi. This means we can leave cash-in-advance ideas behind us and move fast forward from the definition of the ECB economists to the implicit definition of the ECB statisticians. (I am not talking about the operational definition, which is clear enough (ECB 2012 A), but about the conceptual definition). When they actually measure money, they use a system which has as its core (some) economic agents who (sometimes) *can* create money in a unit of account called the Euro. Considering the fact that MFIs have the right to emit legal tender, this leads to the conclusion that legal tender is ultimately backed by debt, the euro as an element of the 'Menge' of all endogenous monies. Using the concept of endogenous money in combination with the idea that loans create deposits while loans are based upon the

acceptance of a debt of people or even entire countries, in combination with the difference between exchange money and payment money, enables us to present seventeenth century households, Eurozone debt problems and ECB monetary statistics in one paradigmatic framework – Eurozone periphery debts are not accepted by Eurozone core banks as collateral anymore. The mill cannot be sold. Monetary statistics on debt and money must show this.

6. A new statistical system.

With all these ideas in mind, what should a new statistical system look like?

- a. **Instead of a system focusing upon a single metric it will become a rather complicated system focused upon multiple metrics. The system has to show national per sector per item debt with a demarcation between MFI-owned debt and debt owned by other financial institutions**, i.e. for instance, French mortgage debt owed by households owed to MFIs on the one hand and to pension funds and the like on the other hand.
 - I. *This information is already available* as shown by graph 3.4 and 3.5.
 - II. *Increases in mortgage debt (graph 3.2) can be compared with data on house prices* as available in the MIPS balance scorecard
 - III. *Debts accepted by MFIs, adjusted for securitisation, can be used for the calculation of the M-3 aggregate*
 - IV. This is not an argument against aggregate Eurozone data: those are important too. But – as recent history shows – national differences are at the heart of the Eurozone problems.
 - V. As a complement to this, house price inflation has to be published, preferably based upon a hedonistic measure which, for new houses, enables an estimate of implicit land prices.⁴⁷ House prices can be obtained from the Macro Economic Imbalance Procedure data as published by Eurostat.
 - VI. House prices and credit deserve additional attention since, according to Borio, *'Arguably, the most parsimonious description of the financial cycle is in terms of credit and property prices ... across the seven economies covered... the average length of the financial cycle is 16 years'* (Borio, 2012). For a long time the USA cycle has been identified to last, surprisingly precisely, 18 years (Gaffney, 2012).
- b. **The 'national contribution' to the stock of money in the Eurozone has to be redefined.** At the moment, this national contribution consists of lending by domestic MFIs in a certain country. In the future, it has to be redefined as borrowing by resident households and non-financial companies, from 'national' banks as well as from other banks. At the moment, this will not make much of a statistical difference. But it is the idea that counts. Households and non-financial companies have to take centre stage instead of MFIs.

⁴⁷ Theoretically, land prices can be easily measured in a direct way. Actual prices paid in building projects are however difficult to come by.

- c. **The ‘national contribution’ to the M-3 stock of money has to be supplemented by a ‘national contribution’ to the stock of debt.** This is not entirely equivalent to the change in M-3 money as M-3 also changes due to shifts between posts on the liability side of the balance sheet of the MFIs and debt includes debts from non-MFI financial institutions.
- d. **The ECB must publish *debt growth targets*** alongside money growth targets. It does not seem wise to state these as a growth percentage or something similar to this. But they can be stated as a percentage of net sectoral disposable income or a comparable variable.
- e. **The system will have to pay attention to foreign debts.** A high foreign debt (including debt owed between Eurozone countries) is estimated to be *the* tipping point variable for sovereign default (Joy, 2012). The central bank might also track foreign owned private and public debts and the flow of credit and interest, specifically when the treasury is the de facto ‘collateral of the last resort’ for privately owed foreign debts.⁴⁸
- f. **Non-legal tender debts like ‘receivables’ and ‘payables’ might be estimated, too.**

At the moment, of the systems I have seen the Central Bank of Ireland publications are the closest to this system (and surely the most user friendly). This system is however MFI orientated, as is shown by a comparison of the data in the monthly financial statistics with the Irish national accounts (graph 4.4).

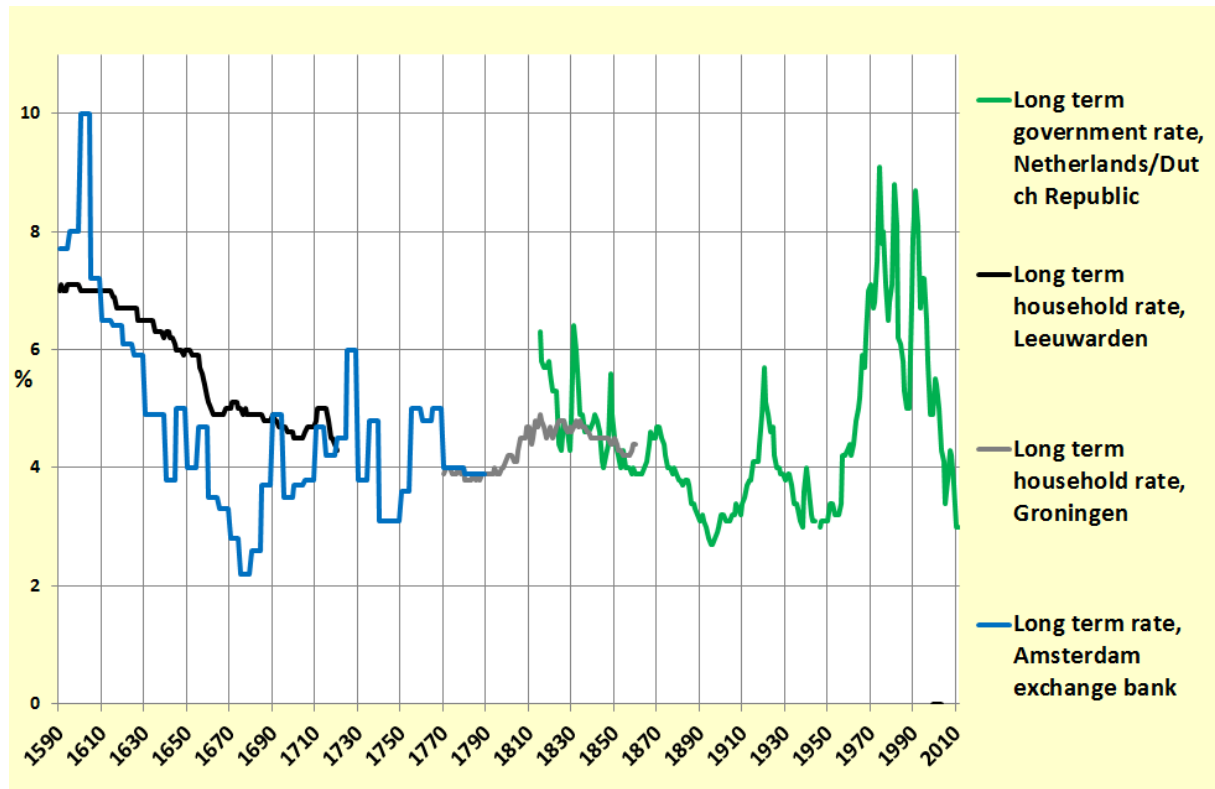
Annex I. How representative is the example of the mill?

Commercial lending and borrowing to obtain a capital good were common in Tietjerksteradeel. The mill from our example was not the only mill to be sold and its price can therefore be considered representative. According to the same mortgage books, on April 4, 1621, Feye Andries and Trijntje Hares stated that they had sold a mill etc. for 1532 guilders and 14 stuivers. This sum had to be paid in a number of instalments running to 1628 – but Gerke Kornelis and his wife were still 515,-- in arrears (they paid 100,-- of this sum by taking over a debt which Feye had to pay). Feye and Trijntje by the way bought a bakery, probably with the debt owed by Gerke Kornelis as collateral. Another mill was bought in 1626 by Geert Linses and Grietje Gerbens, for 1588,-- while Ritske Siebes and Tetje Tijs bought a mill in Giekerk for 1335,--. Harm Luijtjes and Geertje Eisma built a mill themselves in 1620, obtaining all kinds of building materials (wood, blacksmith etc.) on credit from hundreds of guilders at times, while the mill also served as collateral for commercial credit which was used to buy grains. This serves to prove the point that the transaction used in the text was by no means (price, means of exchange, a couple, debts which had a degree of liquidity) out of the ordinary.

⁴⁸ “More precisely, while measures of external and fiscal solvency may offer important signalling information on the susceptibility of a country to default, the ... anticipatory strength of these signals are inconsistent and more consistent signals ... are offered by flow variables: the budget deficit and interest payments on external debt (Joy, 2012, p. 3). Ireland had of course a large budget surplus when the crisis came.

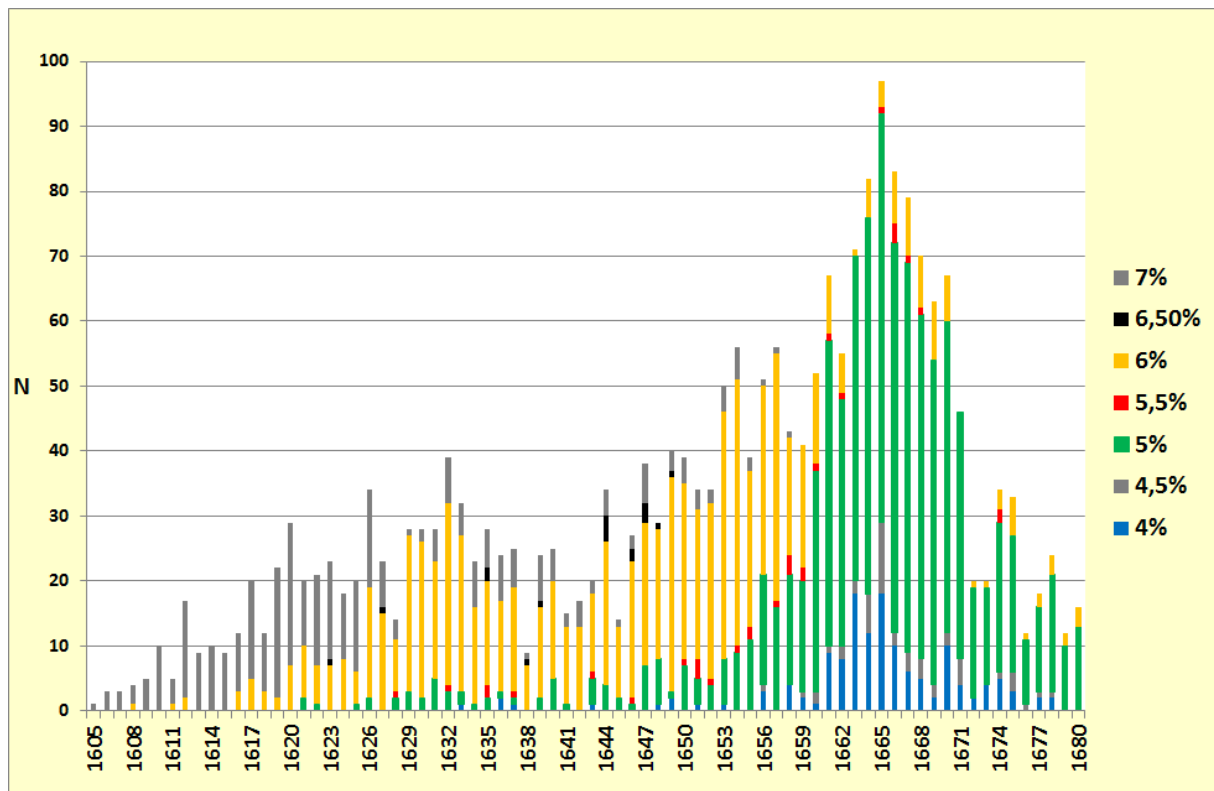
Money was everywhere in Tietjersteradeel. This was not a semi-subsistence society. There was a capital market and interest rates (remember: interest had only been legal since 1580) clearly had an influence on the capital market, although the county of Tietjerksteradeel was clearly a price taker: the average interest rate moved by and large in accordance with the (low!) Amsterdam rate. Not everybody paid the same rate however. Tietjerksteradeel, the county where the couples selling and buying the mill lived, is situated east of Leeuwarden, the capital of Friesland. Nijboer (2007) has analysed the mortgage books of Leeuwarden and distilled an interest series from them (graph I-1). This shows that the interest rate in Leeuwarden moved in accordance with interest rates in Amsterdam. Does the same hold for the interest rate in rural Tietjerksteradeel? According to graph I.1 it does, just as was the case in the rural north of Groningen between 1760 and 1830. There is no doubt that the Dutch capital market at the time was quite integrated, which means that money in rural Tietjerksteradeel as well as debts were nominated and valued with regard to some kind of common coin. Debt contracts cannot be understood as entirely private contracts (of which the mortgage books themselves are of course another form of proof). Graph I.2 shows how on the one hand increasingly more people were able to borrow against lower rates, a development which parallels the decline of rates in graph I.1 in the same period, but it also shows that rates differed considerably between lenders. Warning: the graph cannot be used as an indicator of economic activity for numerous reasons! It also 'lags' a little as not all contracts were immediately inscribed in the books.

Graph I.1 Historical interest rates in Amsterdam, Leeuwarden, Groningen and the Netherlands



Sources: Paping, 1995; CBS, 2001; Dehing and 't Hart, 1997; Dehing, 2012, Nijboer, 2007; Centraal Bureau voor de Statistiek.

Graph I.2 Number of lending contracts and interest rate, Mortgage books Tietjersteradeel

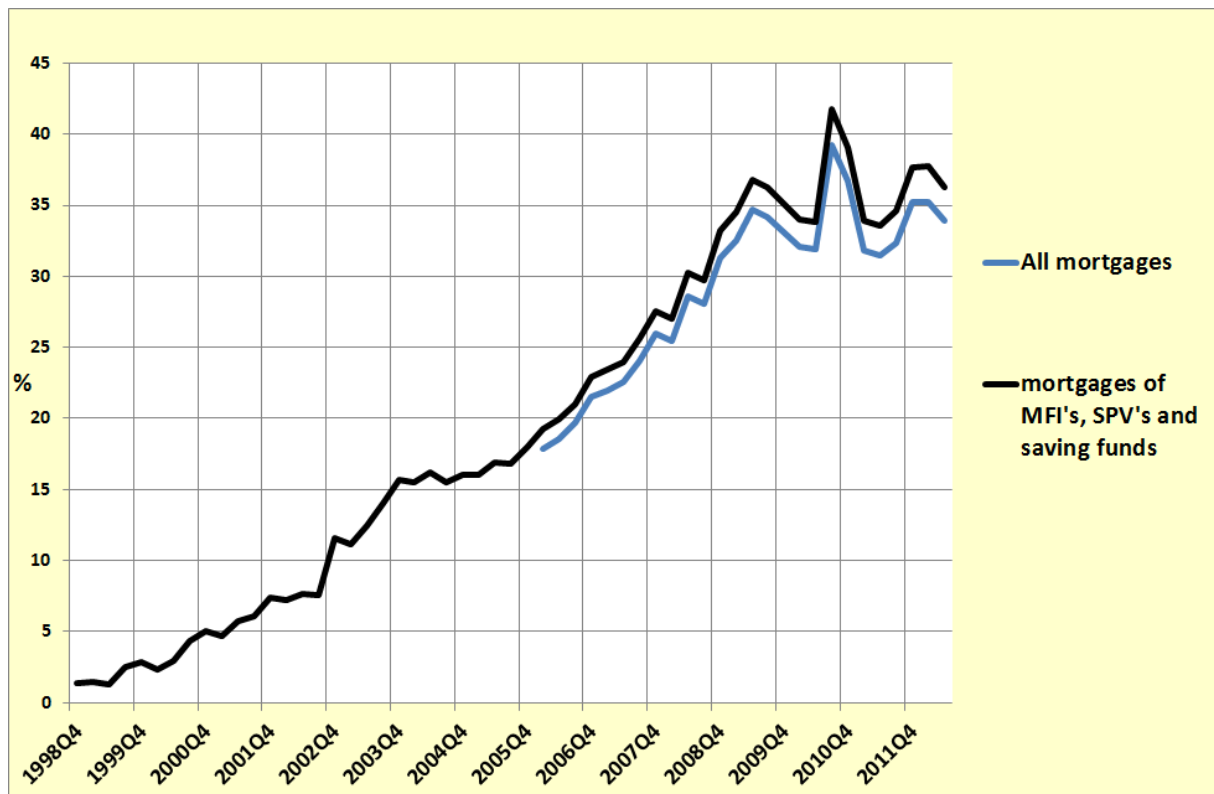


Source: Tresoar

Annex II. Are the present economic statistics up to the task of creating household- and non-financial company centred national monetary statistics?

Are the ECB debt and money growth data dependable? At best only since June 2010 as it is only since then that monthly 'lending for house purchase' data, based upon the consolidated balance of MFIs, have been systematically adapted to take account of securitisation (i.e. mortgage loans which are sold to 'special purpose vehicles', or so called shadow banks which are in fact normal banks taking advantage of shadow regulation and shadow statistics). As graph II.1 and II. 2 show, this is not a trivial difference for the Netherlands this time.

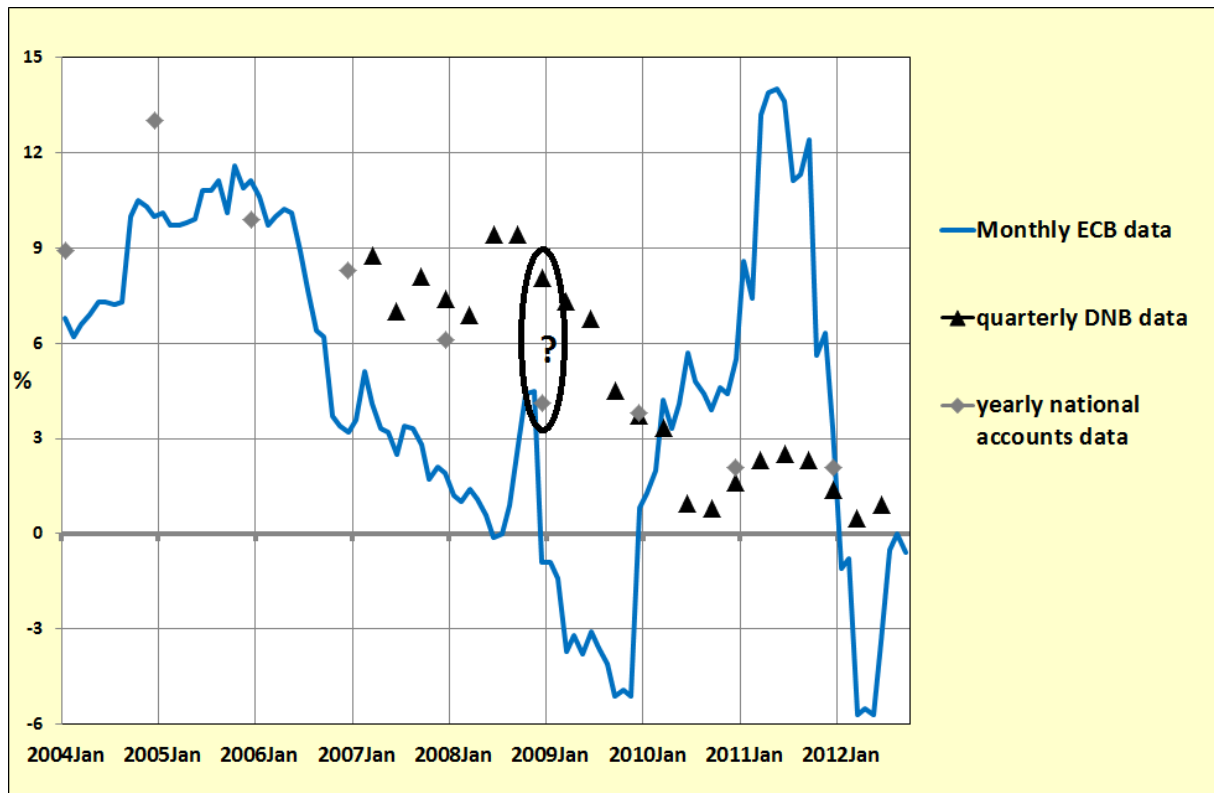
Graph II.1 Percentage of mortgages which are securitized, Netherlands



Source: De Nederlandsche Bank

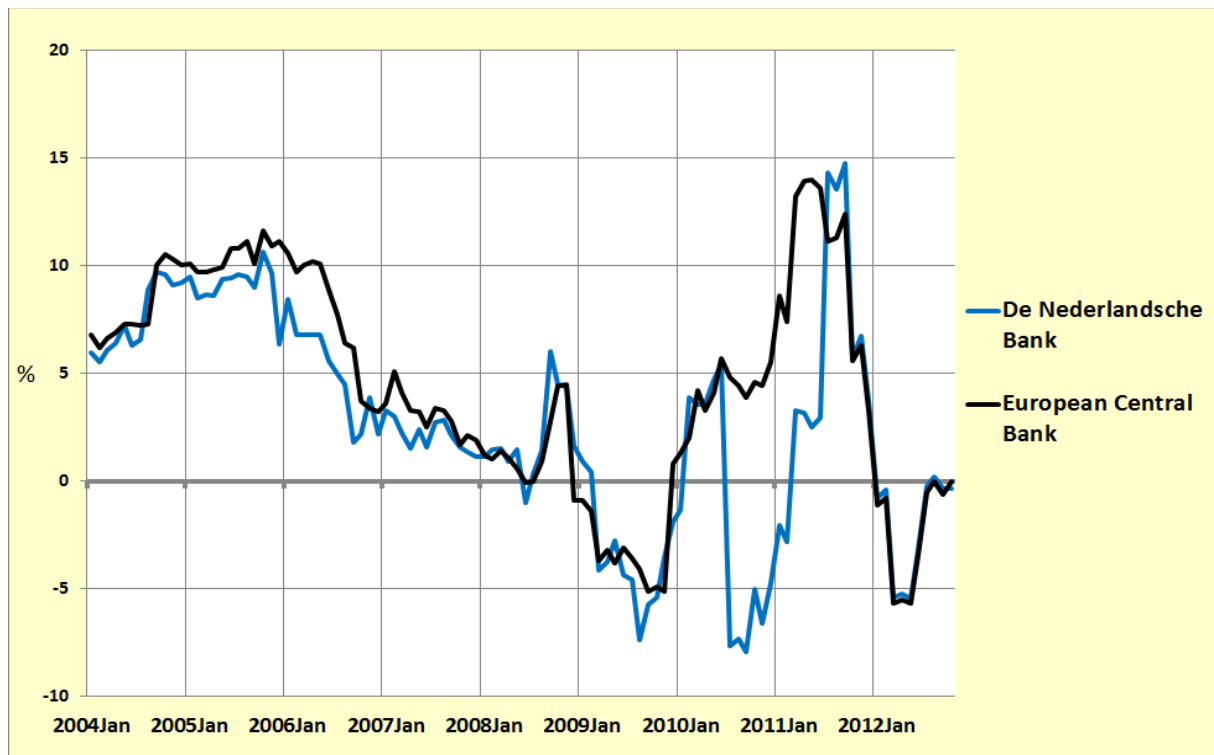
Furthermore, I am not entirely sure about the post 2010 data, at least as far as the Netherlands are concerned. The data from De Nederlandsche Bank (DNB) show a very large gap compared to those provided by the ECB, specifically after 2010. I get the impression that the DNB data mistakenly left out a month, which was corrected by the ECB (graph II.3). But even then the data do not square with the national accounts data or even the data of (mortgage debt owed by Dutch households on (the balance sheets of MFIs + the balance sheets of SPVs) or even with the national accounts data. With the exception of one year, 2009, the growth of mortgage debt owed by households according to the national accounts, however, squares perfectly with the growth of mortgage debt on the balance sheet of MFIs + the balance sheet of SPVs (graph II.2).

Graph II.2 Mortgage debt of households, growth, different sources, the Netherlands



Source: De Nederlandsche Bank; Centraal Bureau voor de Statistiek

Graph II.3 Growth of mortgage debt owned by Dutch MFI's, ECB and DNB data



Sources: De Nederlandsche Bank; European Central Bank

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