

# Looking at the right metrics in the right way: a tale of two kinds of models

Merijn Knibbe [Wageningen University and Research, Netherlands]

Copyright Merijn Knibbe, 2013  
You may post comments on this paper at  
<http://rwer.wordpress.com/2013/03/25/rwer-issue-63/>

## 1. Introduction

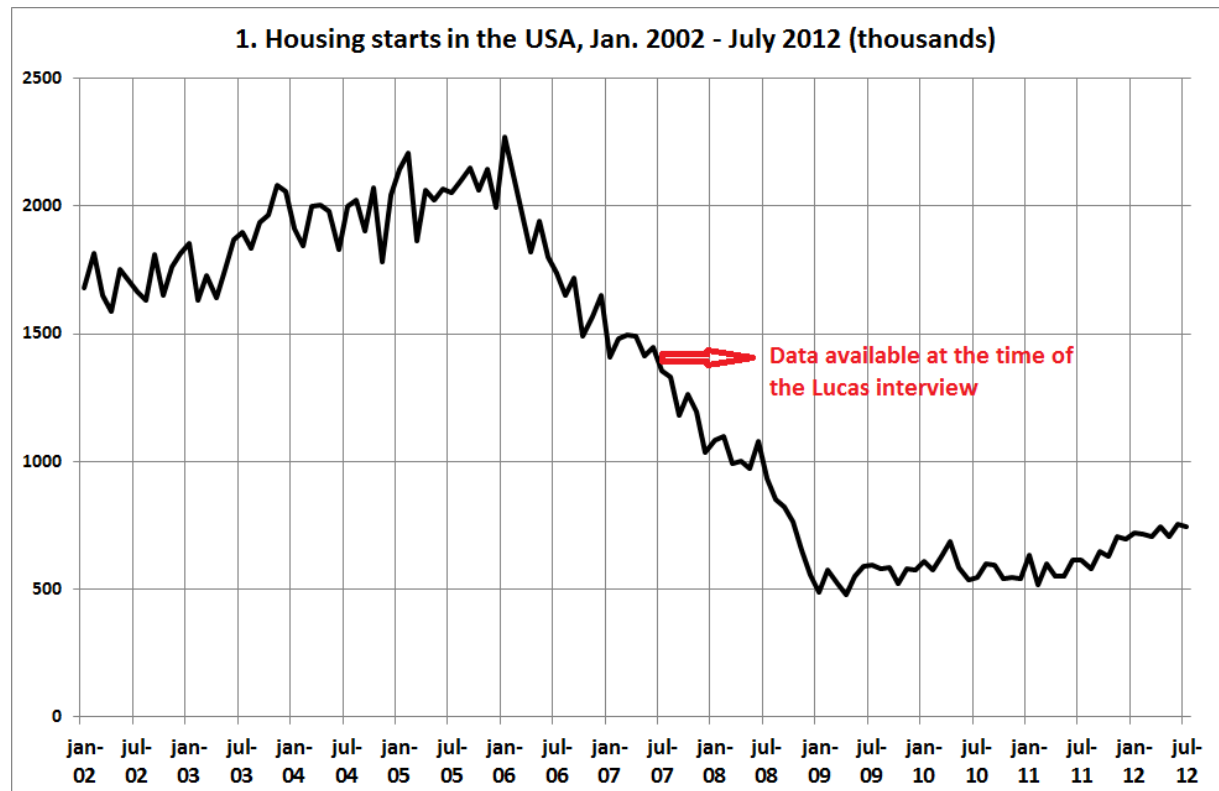
### 1.1 Two kinds of models

Are we looking at the right metrics in the right way? The track record of economists when it comes to predicting, anticipating or even analysing the consequences of the Great Financial Crisis is not impeccable. As late as September 19, 2007, the famous economist Robert Lucas stated in *The Wall Street Journal*:

*“It... is all too easy for easy money advocates to see a recession coming and rationalize low interest rates. ... [But] I am skeptical about the argument that the subprime mortgage problem will contaminate the whole mortgage market, that housing construction will come to a halt, and that the economy will slip into a recession. Every step in this chain is questionable and none has been quantified. If we have learned anything from the past 20 years it is that there is a lot of stability built into the real economy”.*

Wow. The main lesson from the past 20 years was... wrong! As an aside: an over 30% decrease of housing starts in the USA had already been quantified, at that moment (graph 1).

Graph 1. Housing starts in the USA, 2000-2012



Source: USA census bureau.

But the point of the quote: apparently some economists *did* see it coming, in 2007, and Lucas knew what they were telling – and actively denounced their views, despite all evidence to the contrary. Which leads to the question why economists choose to ignore such information. Shouldn't their models in fact tell them when the data go awry? Well, it should. But as a fact of matter many of the models have been constructed to do the opposite and to tell that the system is basically stable. The ideas of Robert Lucas were no doubt inspired by the equilibrium models developed in the seventies and eighties by economists like himself and Sargent which stated – or which led economists to believe – that if the Central Banks kept inflation low, by being 'credible', a deregulated economy would, despite occasional exogenous disturbances, tend towards a rather stable optimum. And it would do this, according to this vision, quite fast, within a couple of years.<sup>1</sup>

If anybody might be excused for being wrong because of his personal involvement with the models which led him astray it's of course Robert Lucas. But he was not the only economist to be fooled. A large organization like the European Central Bank [ECB] was led astray, too. The question is: why? Like Lucas, the ECB *did* see the possible problems – but at the same time made it explicit that they chose to ignore these problems. What made them do this? Was this at least to some extent because the use of Lucas-style thinking and the modern neo-classical so-called Dynamic Stochastic General Equilibrium (DSGE) models as well as the basic vision behind these models led them to ignore the possible problems?<sup>2</sup> It's telling that some other economists were not fooled and, importantly, according to Dirk Bezemer, the success of these economists was not just due to good luck or the predictive power of a broken clock which is right twice a day. It was also due to looking at the right data in the right way:

*“accounting (or flow-of-fund) macroeconomic models helped anticipate the credit crisis and economic recession. Equilibrium models ubiquitous in mainstream policy and research did not”.*<sup>3</sup>

Wow. 'Models ubiquitous in mainstream policy and research' actually led people astray! There was method to the madness. But the point of the quote: the accounting and flow-of-fund macroeconomic models, which did not lead us astray, are not just another kind of macroeconomic model. They did not just highlight increasing risks, unlike the neo-classical models, because they more or less accidentally modelled some bottlenecks not incorporated in the DSGE models. The fundamental differences are deeper. They even go back to the core of scientific thinking. The accounting models are also the framework used to estimate financial and economic data on a macro scale.<sup>4</sup> And the neo-classical models aren't. The

---

<sup>1</sup> This is arithmetically embedded in the models by 'cherry picking' ('calibrating') values of crucial parameters to enable this. Many of these models investigate the reaction of the economy to a shock and assume that the economy will *by definition* return to equilibrium in the future after such a shock. The crucial parameters of the models are *set* to enable this after this shock, as can easily be seen from the graphs portraying this and the cherry picking of the value of the parameters. See for instance p. 44 and pp. 50–51 of: Gerali, A., G. Neri, L. Sesa and F.M. Signoretto (2012), "Credit and banking in a DSGE model of the Euro area", *Temì di discussione 740*, Banca d'Italia.

<sup>2</sup> At the same time the Irish and Spanish and Baltic and USA housing bubbles had already popped and unemployment and the dropping of people out of the labour force altogether in Spain and Ireland had already started its swift and relentless increase which continues until the present day, more than five years after the popping of the bubble.

<sup>3</sup> Bezemer, D. (2009), "No One Saw This Coming": Understanding Financial Crisis Through Accounting Models", MPRA Paper No. 15892, [http://mpra.ub.uni.muenchen.de/15892/1/MPRA\\_paper\\_15892.pdf](http://mpra.ub.uni.muenchen.de/15892/1/MPRA_paper_15892.pdf).

<sup>4</sup> An overview and discussion of the flow-of-fund statistics of the ECB, including a discussion of the relation between the national accounts and the flow-of-funds, can be found in Bê Duc, L. and Le Breton

accounting models are based upon extensive registers of companies and transactions used to estimate basic data, as well as coherent and, as far as possible, complete statements about the financial structure of (sectors of) the economy. To quote an European Central Bank (ECB) study about one kind of accounting model: “*Financial account statistics are the main source used to compile financial fragility indicators for the non-financial sectors*”.<sup>5</sup> And the neo-classical (macro-)models are not used to estimate data. These, to the contrary, often abstract from empirical information and assume relations between sectors instead of estimating them, while core concepts, like utility, are not estimated at all.

A serious science of course needs congruence between the models used to estimate the data and the models used to analyse them. In economics, however, this congruence is largely absent. The financial sector, or the government, is for instance often left out of the neo-classical models, which of course disables a consistent and coherent analysis of the circular flow of money so crucial in the accounting models. Also, the accounting models treat money as the means to settle transactions, implying that any IOU like for instance the bills of exchange of yonder or the receivables on the balance sheets of companies can or have served as a kind of means of payment. Money is not, by definition, some government created entity which happens to be easily ‘transferred’ into consumption (see below). Which leads us right to the very core of the social sciences. The accounting, more chartalist view of money is related to a ‘social’ view of humans in which humans interact with each other like brain cells: the connections between them define the individual cells as well as the pattern of cells – one of these connections being (the possibility of!) credit and debt relations. When debts go bad, financial assets go bad which as the Eurozone is experiencing at the moment affects the entire economy. The neo/classical view to is the contrary related to the ‘atomistic’ view of humans, which are not changed by the temporal relations with other ‘atoms’, money in the end just being ‘another good’. The first point of view is nicely covered by Hyman Minsky in the next quote (emphasis added)<sup>6</sup>:

*‘Modern capitalist economies are intensely financial. Money in these economies is endogenously determined as activity and asset holdings are financed and commitments of prior contracts are fulfilled. **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’*

The neo classical view is summarized in an ECB article about the concept of international liquidity (emphasis added)<sup>7</sup>:

*‘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*

---

(2009), G., “Flow of fund analysis at the ECB. Framework and applications”, ECB occasional paper 105, <http://www.ecb.int/pub/pdf/scpops/ecbocp105.pdf>

<sup>5</sup> Bê Duc and le Breton (2009)

<sup>6</sup> Hyman, M. (1990), ‘Sraffa and Keynes: Effective Demand in the Long Run’ in: *Essays of Piero Sraffa: Critical Perspectives on the Revival of Classical Theory* (edited by Krishna Bharadwaj and Bertram Schefold).

<sup>7</sup> ECB, ‘Global liquidity: concepts, measurements and implications from a monetary policy perspective’ in: ECB Monthly Bulletin October 2012, pp. 55-68.

*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: short-term bank deposits are an obvious example’.*

The concepts could not differ more. The first sees money as a social construct – for instance created when a company accepts a ‘receivable’ as *payment* for its products, as happens all the time. It’s not created by a single individual – but as part of a transaction between individuals, or organizations, for instance when a bank creates money to lend to somebody wanting to buy a house. And the creation of money leads to monetary ties (contracts, debts) which define the status of somebody in a market economy. The other view sees money as – well, as something which happens to exist, created by a central bank. And which happens to be liquid. The differences between the two kinds of models are profound.

### *1.2 Despite the differences both kinds of models are used for policy analysis*

Both kind of models are used for policy, for instance at central banks. These often use accounting models to estimate data – debts, lending, the amount of money – while neo-classical models are used to analyse the data. This raises the question of inconsistencies. Are the data analysed in an inconsistent way in the sense that essential aspects of the data, like the accounting identities and the interrelation between ‘agents’ which in effect create a new kind of ‘agent’ consisting of the two parties of a contract, are ignored; and does this lead to faulty results? Was the run up in Eurozone household debt before 2008 connected to money creation and balance sheets of sectors (in the accounting models: yes. In the analytical models: no). Do the models used to analyse the economy take due account of interrelated balance sheet developments and ‘trust’, i.e. of the very core of the Eurozone crisis? Are the definitions used in the accounting models consistent with the definitions used in the models used to analyse the economy? Do the models incorporate the possibility of interactions between different entities in the economy? These questions will be the subject of this paper. It will investigate which models are used at central banks (especially the ECB) and for which purpose and if the ‘clash of models’ leads to a misunderstanding of the data. As, at this moment, the situation at the ECB is in flux, the situation described will be valid for the Trichet/period. An epilogue will describe how, after Trichet left the bank, the ECB started to recognize the flaws in its thinking – but reacted to this with a long term strategy aimed at social-engineering the Eurozone into an economic space more in line with its neo-classical pre-occupations.

### *1.3 A more in depth look at the different kinds of models*

Before looking at how the models are used at central banks, a more extensive description is needed. What are their main characteristics? Let’s first take a look at the Robert Lucas style neo-classical models. These are based upon deductive reasoning, are mainly engineered by academic economists who depend on publication to get tenure and they consist of a limited number of, in the end, ad hoc variables which are defined in a way which enables easy mathematical modelling instead of scientific empirical observation, the Cobb-Douglas shaped ‘macro’ indifference curves which act as a starting point for almost all these models being a case in point. Many of the variables used are either not well defined or not even measured (utility!) while monetary relations – necessarily including debt! – are at best only modelled in a

partial way in the sense that the models as a rule abstract from liquidity constraints, lending and balance sheets and the, at the macro level, *integrated nature of these variables – an emergent property of any monetary economy*.

Even when attention is paid to balance sheets and the like, one of the most remarkable aspects of our economy, money creation by the combination of lenders and borrowers, is not embedded. Technically: lending is based on the 'loanable funds' idea, the idea that banks can only lend savings of existing money and do not create money. And even money itself, in its various shapes, is often absent, up to the extent that the models often use a 'representative consumer' to populate the economy. And which individual makes monetary transactions with himself ?<sup>8</sup> There is indeed a deep lesson about the nature of money in the fact that non-monetary models have to assume that there is only one consumer-producer! An arithmetical aspect of the models is also *the assumption* that they have to be calibrated in a way that ensures that they by definition will tend to equilibrium, after a shock. Summarizing: one so-called 'macro' neo-classical DSGE model may, while sticking to the notions of utility and equilibrium, use an entirely different set of definitions or relations than another model.<sup>9</sup> Concepts like indifference curves are still not well-defined, let alone operationalized in a meaningful way. Variables are added or left out at will. There just is not any kind of coherent statistical system which tries to estimate the variables used in the models. Instead of this crucial variables are 'calibrated' (i.e. set at an arbitrary value in an arbitrary way) while the metrics used are grabbed, rather incoherently, from the accounting models, without giving due attention to accounting identities and definitions. Also, the VAR procedures (VARs are in essence multi-dimensional running averages) often used to analyse the metrics often have little to do with the theoretical set up.

The accounting and flow-of-funds models, to the contrary, are based on 'quadruple' entry accounting. A transaction involves by definition always more than one agent. Changes in the assets and liabilities of one party to a transaction (shown by the double entry accounting of A) are matched with equal but opposite changes in the liabilities and assets of the other party of a transaction (the double entry accounting of B). When I borrow money from a bank I get a debt as well as money, while the bank gets an asset (my debt to them) as well as a 'liability' which shows the amount of money they created. As people and organizations make transactions with multiple counterparties (C, D, E...) while these in their turn make transactions with even more counterparties, some of whom in the end also make transactions with A and B, this means that the models need to map the entire economy to be consistent. When households borrow from banks to finance expenditure, the assets of the banks have to increase by the same amount while the increase in expenditure (plus a possible increase in cash holdings) also has to match the borrowing. And, as expenditure of households in the income for non-financial companies who sell, this also has to match, i.e. the famous accounting identities. Unlike in many main stream models, you can't for instance leave out the financial sector if you want to explain total monetary expenditure. It is also important to note that for instance lending and borrowing not only create long term ties between different agents (and therewith in fact creates a new unit: when I can't pay my debts to you, your liquidity or even solvability is in question) but also influences the (economic) reputation of the agents in the eyes of the others.

---

<sup>8</sup> Van der Lecq, F. (1998), *'Money, coordination and prices'*. Groningen.

<sup>9</sup> Compare the differences between the New Area Wide Model (NAWM) of the ECB with the model of Gerali et al cited in footnote 1.

Also, economic models actually used to measure and estimate a complex phenomenon like our modern monetary economies, need sound concepts, smart definitions, nifty operationalization and extensive measurement. Measurement has to be consistent between periods, sectors of the economy and, preferably, between countries. A metric like unemployment, which is estimated every month and the estimation of which requires the cooperation of hundreds of people has to be based upon well designed and stable estimation procedures. The model itself has also to be consistent in many ways – think of periods (months), units (in the case of unemployment individuals instead of, for instance, households), whatever. Hard thinking, extensive discussions, learning by doing and correcting many, many mistakes have led to models which provide such consistency. The accounting models need to be consistent in the sense that the stocks and the flows have to ‘match’, historically as well as in a contemporary sense, which mean that the variables also have to ‘add’. Summarizing: the accounting models are based on a systematic, coherent system of concepts, definitions, operationalization and measurement. No variables or transactions can be left out or defined ‘at will’ as the economy is like a large arterial system with money streaming through the veins in an incredible complex way – but in the end the amount which enters the system must equal the amount which leaves it. The flow-of-fund statistics capture these changes in money and debt *in the entire* economy while the same holds for the national accounts and production. You can’t leave out the financial sector at will, for instance, as often happens in the DSGE models. Which means that these models do not suffer from the ad hoc style of reasoning and modelling inherent in DSGE models. Also and in stark contrast to neo-classical models the definitions of the variables need to be precise as well as mutually consistent and designed to capture real life.<sup>10</sup> Unlike neo-classical models the accounting models are guided by discipline imposed upon them by the visible hand of empirical estimation. And, important, decades of measurement and hard thinking have led to a situation in which the accounting models are meticulously designed to show the circular flow of money *between the sectors of the economy*. Leaving out crucial parts of the economy or of transactions will show up as inconsistencies.

To state this simpler: by accounting identity, “a penny spent (by you) is a penny earned (by somebody else)”. If somebody earns something – somebody else must have spent it. Even if it isn’t recorded, for instance it is a black market transaction, this will leave a gap in the ‘circular flow of money’ which enables indirect estimation. And even “a penny saved” shows up in the income account, the liquidity sheet and the balance sheet as well as in the expenditure account, the liquidity sheet and the balance sheet of the person or entity which paid this penny to you. Saving is just another way of spending (though this kind of spending, unlike ‘final demand’ spending, does not lead to additional production, income and employment). The streams of money have to match, which forces statisticians to use complete models as well as complete information or which at least requires them to search for missing data. Flow-of-fund models and the modern national accounts do not allow you to neglect ‘debt’ (or even money!) as a variable – it’s part and parcel of the model as the estimation of the financing of the flow of expenditure by accounting necessity also involves tracking the change in debt.<sup>11</sup> And this is not only about expenditure: debts, income, production, balance sheets, liquidity sheets and loans are well defined, estimated and have to match. An increase in mortgage debt of households has to match with an offsetting increase on the asset side of the balance sheet of the banks (corrected for securitization). These

---

<sup>10</sup> As they are transaction based, ‘shadow banks’ have to be included too, something which Central Bank economists are starting to understand, too. See: ECB (2012), *Central bank statistics as a servant of two separate mandates – price stability and mitigation of systemic risk*. Frankfurt.

<sup>11</sup> See Knibbe, M., <http://rwer.wordpress.com/2012/03/29/keen-krugman-and-national-accounting/> .



models are as a description of the economy complete, as well as consistent, as well as estimated and as well as based upon well-defined variables. In stark contrast to the neo-classical macro models – which for instance still use ill-defined and unmeasurable indifference curves with their ad-hoc shapes. This of course leads to intellectual trouble for neo-classical thinkers: to an extent the agenda of the “rational expectations” school of economics can even be described as a conscious attempt to circumvent the accounting identities inherent in a monetary economy by using concepts like Ricardian equivalence and ‘intertemporal optimization’ and leaving money out of the models.

This is not to say that the accounting models are perfect. To name only a few imperfections: Bos points out that in times of high inflation prices can’t be used as weights for the total value of production anymore.<sup>12</sup> The shadow banking system is not yet fully incorporated in the flow-of-funds and has to be estimated from the liability side instead of the lending side.<sup>13</sup> Decisions about ‘quality changes’ of products can decisively influence our estimate of production and the price level (and these decisions might well be influenced by non-scientific considerations).<sup>14</sup> ‘Imputed rents’ of owner occupied dwellings are a useful concept – but distract from the accounting identities and also hide real costs of owner occupied dwellings. But the accounting models at least aim at estimating the real world in a consistent, coherent and systematic way – and quite something has been accomplished in this regards. While the same can not be told for the neo/classical models. Benoît Couré, member of the executive board of the ECB, recently even had to state about the DSGE models: “*what made Christiano, Eichenbaum and Evans (2005) and Smets and Wouters (2003) so important is that, whilst motivated by theory, they didn’t sacrifice the empirical side. Short cuts were taken: habits in consumption, investment adjustment costs, indexation etc. Such frictions have and can be micro-founded but the crucial, not to say bold, step was to incorporate them in the first place*”.<sup>15</sup> Incorporating metrics in a model in a way not consistent with the theoretical model is a ‘bold step’... guess where these data came from in the first place!<sup>16</sup> But the authors mentioned do, alas, not provide any rationale for why many of the thousands of series and even entire sectors in the national accounts and flow-of-fund are left out. It’s all quite incoherent and ad-hoc. And note that to incorporate metrics in the model the authors had to compromise the DSGE framework. Wow.

#### 1.4 The two kinds of models belong to two kinds of scientific worlds

The differences between the models are not just intellectual. They are institutional, too. The groups of economists using and developing them are rather distinct, with other peer groups and other publications and journals and quite a different culture. The work of the economic

---

<sup>12</sup> Bos, F. (2009), *The National Accounts as a Tool for Analysis and Policy in View of History, Economic Theory and Data Compilation Issues*, Saarbrücken.

<sup>13</sup> A critique of the Taylor rule along these lines, which spells out that focusing on the Taylor rule caused central banks to miss out on billions of dollars and euro’s which were funding asset bubbles – billions which were readily visible in the flow-of-funds statistics: Biggs, M. and Mayer, T. (2012) ‘How central banks contributed to the financial crisis’, <http://www.voxeu.org/article/how-central-banks-contributed-financial-crisis>. See also Gorton, G. and A. Metrick (2012), ‘Who ran on repo?’, <http://faculty.som.yale.edu/garygorton/documents/whorancompleteoctober4.pdf>

<sup>14</sup> Häring, N. and D. Douglas (2012), *Economists and the powerful. Convenient theories, distorted facts, Ample rewards*. London, New York.

<sup>15</sup> Couré, B. (2012), “Which models do we need in times of crisis?”, [http://www.ecb.int/press/key/date/2012/html/sp121026\\_2.en.html](http://www.ecb.int/press/key/date/2012/html/sp121026_2.en.html)

<sup>16</sup> The first time I encountered this habit of neo classical economics was way back when I read Salters ‘productivity and technological change’. The first part is a concise oversight of the neo-classical theory of the firm, the second part a useful exposition of productivity statistics which taught me how large differences between co-existing firms can be. The two parts are not combined in any meaningful way. Salter, W. (1969), *Productivity and technological change*, Cambridge.

statisticians is, for instance, often published anonymously. It's as a rule a joint effort and even when published non-anonymously it should not be dependent on individual brilliance or insight. The results transcend and have to transcend the individual and there is no scientific pecking order. Academic economists, to the contrary, are taught to become famous and well known and to do everything to rise in the pecking order – the sure road to the holy grail of tenure.<sup>17</sup> Failure 'to make a name' leads to being expelled from the tribe. To an extent this is the opposite of the situation of the economic statisticians, who are for a number of reasons not encouraged to speak out about their achievements. Sadly, this rift often causes 'academic' economists to be unaware of the work of the statisticians and the concepts, methods and insights developed by the economic statisticians.

During the education of academic economists, and in stark contrast to other sciences, less than due attention is paid to the craft of gathering basic data. Extensive training in how to measure the sequence of DNA, how to gather archeological evidence or medical or historical facts often occupies a large part of a university education of biologists, archeologists and the like. Not so in economics. Internships at statistical institutes are (to my knowledge) non-existent in the curricula. Thorough discussions of the interrelationship between concepts, definitions and operationalization and measurement are absent. And, important, *economists are, as a rule, not aware of the basic differences between the models used to estimate and map the data – and the models used to analyse them.* Which, when you think about it, is rather bizarre: scientists-to-be are not encouraged to acquaint themselves with how the very stuff they are supposed to analyse is measured. With as a 'meta message' of course that such kind of work is not too interesting and important. 'Measuring' and developing the concepts and definitions needed to enable measurement does not make you famous. Empirical breakthroughs are even often hardly noticed, again unlike the situation in other sciences. While the discovery of the Higgs particle was a mayor media event, the recent publication by Eurostat of the data needed to estimate U-6 unemployment for the EU countries hardly received any public attention, aside from an obscure econoblogger.<sup>18</sup> In other sciences, such an achievement might have earned you a Nobel. But in economics, to the contrary, it's often not difficult to encounter a sense of disdain for the tedious, anonymous, precise work of the 'bean counters'. To be honest, the lack of knowledge of economic measurement is not entirely the fault of academic employees, however. The extremely important United Nations SNA guidelines (the *what?*) are not a very enticing read, to say the least. There is a reason why Paul Krugman – who knows a thing or two about the subject – calls economic statistics 'a particular boring kind of science fiction'. Read these SNA guidelines, which contain the rules of National Accounting, and you'll understand.<sup>19</sup> But at the same time these guidelines are in the 'foundations of macro-economic measurement' – and to really understand such data you do have to know how these are defined and assembled. To understand this information – to understand economics – one has to know the definitions. Take the sector households: are hospitals included in this sector? And jails? Are amateur sport clubs included in the sector households? You can find it in the SNA – it should be required reading for students of economics (including micro-economics). But it isn't.

---

<sup>17</sup> There are always exceptions to a rule, like the S&P/Case-Shiller home price index, which is even named after an academic economist. Note, however, that Shiller credits his wife, a psychologist, for at least part of his interest in measurement.

<sup>18</sup> A google search on "U-6 unemployment EU" (august 9, 2012) yielded only one obscure blogger mentioning this magnificent event: <http://rwer.wordpress.com/2011/11/13/finally-u-6-unemployment-in-europe-chart/>

<sup>19</sup> See: United Nations (2003), Department of Economic and Social Affairs, Statistics Division, Studies in Methods Series F, No.85, *Handbook of National Accounting, National Accounts, a practical introduction*, New York. [http://unstats.un.org/unsd/publication/SeriesF/seriesF\\_85.pdf](http://unstats.un.org/unsd/publication/SeriesF/seriesF_85.pdf).



### 1.5 Advances are visible – but we're not there yet

Surely, economics as a science has made progress when it comes to what's sometimes called 'material and methods'. The internet makes data as well as guidelines better accessible than ever before: earlier, faster, enhanced comparability and in easy to use formats (though not always in accessible language). At the same time, on the same internet, the 'econoblogosphere' increasingly acts as some kind of purgatory for famous economists ignorant of important data or concepts. And the quality of our measurement and understanding of for instance average house prices, balance sheets of households and companies as a sector or U-6 unemployment has increased quite a bit during the last decade. But there still remains a large gap between the two groups of economists. Even the fact that I call the statisticians 'economists' may raise some eyebrows. And methodological inquiries are still often published within the walls of statistical institutes or by independent, 'heterodox' think tanks – called heterodox even when what they do is little more than using common sense or that most basic of all economic models, double entry accounting.<sup>20</sup> Ignorance about this work and these methods might have grave consequences for economics as a science, even to the extent that clear signs of looming crises are misunderstood.

This leaves us with at one side ad hoc deductive and (as the variables are ill-defined) incoherent models which performed badly – and on the other hand complete, self-correcting and estimated accounting models using well defined variables, which did well. One can of course state that many neo-classical models are estimated, too. But to 'fit' the deductive models to reality, metrics consistent with the second kind of models and not with neo-classical models are often used. Money is a case in point. An essential aspect of the flow-of-funds data, which measure the flow and creation of debts and money, is that 'loans create deposits'. And these loans are created 'at will' by a borrower and a lender. Lenders which in the case of the MFI's, the Monetary Financial Institutions, even have the right to emit money (as a counterpart of the debts which they accept as collateral) which by law can be exchanged into legal tender at a 1:1 rate (the MFI sector is by the way defined in the SNA).<sup>21</sup> Neo-classical models however abstract from debts – or even use the idea of '*deus ex machina*' money, money which (though with quite some leverage via bank reserves) is created by the central bank and which is only *allocated* by MFIs. Using money out of its debt and social context makes economists using these models overstate the power of central banks and monetary policy as well as to neglect debt (an example is the work of Milton Friedman). Such 'out of model-context' analysis often leads to incoherent thinking.<sup>22</sup> At least, that's the idea. Below, I

---

<sup>20</sup> Schmitt, J. and Jones, D. (2012), 'Down and out. Measuring long-term hardship in the labour market', Center, for Economic and Policy Research, Washington; Rothbard, M.N. (1978), 'Austrian Definitions of the Supply of Money', in: Spadaro, M., *New Directions in Austrian Economics*, edited with introduction. Kansas City. pp. 143–156; Knibbe, M.T., "Bronnen en methoden voor het samenstellen van een maandstatistiek van de productie in de bouwnijverheid", internal CBS publication 232-90-KI.E8, Voorburg, 1990; <http://blogs.forbes.com/michaelpollaro/austrian-money-supply/>.

<sup>21</sup> Interestingly, MFI's are not defined as wholesalers of savings but as '*those financial intermediaries through which the effects of the monetary policy of the central bank are transmitted to the other entities of the economy*' and therewith in a sense as a de facto sector of the government! (ESA, 1995, sector 2.41) The ECB '*Manual on MFI balance sheets statistics*', <http://www.ecb.europa.eu/pub/pdf/other/manualmfibalancesheetstatistics201204en.pdf>, starts with this definition, but is not complete as it links to the ESA (1995) guidelines, <http://circa.europa.eu/irc/dsis/nfaccount/info/data/esa95/en/een00074.htm> which themselves are based upon the 1993 SNA.

<sup>22</sup> An example is Hans-Werner Sinn who, when he first analyzed the Target2 imbalances, did this using only the current account part of the balance of, which led him to misunderstand the fast increase of the imbalances. Paul de Grauwe, to the contrary, did use the entire balance of payments as the framework for his analysis, which led to conclusions which were about the opposite of these of Sinn. Sinn, H.W. (2011), "Germany's capital exports under the euro", <http://www.voxeu.org/article/germany-s-capital->

will use the example of the European Central Bank to argue that this indeed often is the case. Which, of course, leads to the follow-up question 'how come'? This will be the subject of investigation, too.

## **2. Both kinds of models are used to design central bank policy – but not always in a model-consistent way**

As we know, or as the ECB wants us to know, the prime objective of the ECB is officially to keep inflation low and stable. This leads to the questions what inflation actually is – and how the ECB tries to influence the rate of inflation. The inflation target and the economic theory behind it will be the subject of the following paragraph. It will discuss ECB policy, the economic theory and philosophy behind this policy and (in)consistencies between this policy and the target.

### *2.1 The ECB inflation target*

On 4 January 2012, 11.00 Luxembourg time, Eurostat, the statistical bureau of the European Union, published completely according to schedule the 'flash' estimate of Eurozone consumer price 'HICP' inflation in December 2011: "*Euro area inflation, December 2011, estimated at 2,8%*", down a notch from the 3,0 % of November 2011. This preliminary estimate "*usually includes early price information representing approximately 95% of the euro area total consumption expenditure weight*". The 'flash' estimate is published for a reason. The European Central Bank (ECB), is, by EC-treaty and therewith (at least indirectly) approved by 17 national parliaments, responsible for "*maintaining price stability*" in the Eurozone. It obviously wants 'fast' as well as dependable information about the (in)stability of prices. It has, as the treaty leaves defining inflation to the ECB, defined 'HICP'-inflation as its yardstick of choice and has agreed with Eurostat that Eurostat will produce this 'flash' estimate. This 'flash'-estimate is according to Eurostat a pretty accurate prediction of the real thing, i.e. Eurozone wide 'HICP'-inflation published two weeks later.

But the publication of the 'real thing' is too late for the crucial monthly monetary policy meeting of the board of the ECB, about one week after the 'flash' estimate and which therefore bases its decisions upon, among many other things, this estimate. The 'flash' estimate is also officially published by Eurostat before this meeting as, in the philosophy of the ECB, central banks not only have to be independent but also have to be as transparent and as 'credible' as possible. Which means that the public has to know which variables they track. And which means that they have to have a clear goal which in this case, following the lead of the Banque de France, means an inflation target of "*moins de 2%, proche de 2%*" in the medium run – and have to make clear which information they use to decide.<sup>23</sup> The reason behind this is the idea that, when central banks are 'credible' and show 'credible' behavior and have 'credible' goals, rational people will, consequently, act as if inflation indeed will be "*moins de 2%, proche de 2%*", adapt their behavior accordingly and, voila, "*moins de 2%*,

---

[exports-under-euro](#), De Grauwe, P. and Y. Yuemei (2012), "What Germany should fear most is its own fear",  
<http://www.voxeu.org/article/how-germany-can-avoid-wealth-losses-if-eurozone-breaks-limit-conversion-german-residents>.

<sup>23</sup> Francois Trichet, in a speech: "Je note que notre définition de la stabilité des prix est exactement la même que celle qu'avait la Banque de France avant l'euro",  
<http://www.ecb.int/press/key/date/2011/html/sp110905.fr.html>.  
Interestingly, the first Monthly Bulletin of the ECB does not mention a target level but a maximum level.

*proche de 2%*“ inflation will result. In the medium run. At least, according to this philosophy. Note the number of high level organizations mentioned above, as well, explicit as well as implicit, the amount of economic theory and models used to organize the information – and the amount of money needed to make it all happen. Economic metrics clearly are a high stakes game. Important, powerful actors play a large role in their design, which means that to understand the design of these statistics we have to understand, among other things, why these actors want to use which indicators. To be more explicit about the economic theory part: ‘HICP’-inflation is largely based upon the system of national accounts while the ‘credibility’-idea is based upon hard core neo-classical thinking.

## 2.2 Is the HICP a ‘credible’ inflation metric?

At first sight the use of the pan-European HICP-metric seems all right and common sense. There are subtle and not so subtle differences between national inflation metrics of different countries, which makes them difficult to compare and a more homogenous metric like the HICP enhances comparability between countries. And the weights used to calculate HICP inflation are based upon the consumption data of the National Accounts.<sup>24</sup> But the ‘HICP consumption concept’ consciously differs from the definition of consumption the national accounts guidelines of the United Nations. Unlike the consumer price index, the HICP is therewith not model-consistent and basically an ad-hoc variable. No big deal, as this bias is supposedly limited, as the ‘sector’ households is indeed the same sector as defined in the national accounts while differences between the concepts are limited? Possibly. But when we look more closely at the national accounts, a much larger bias shows. Consumption is part of final expenditure. The well-known formula:

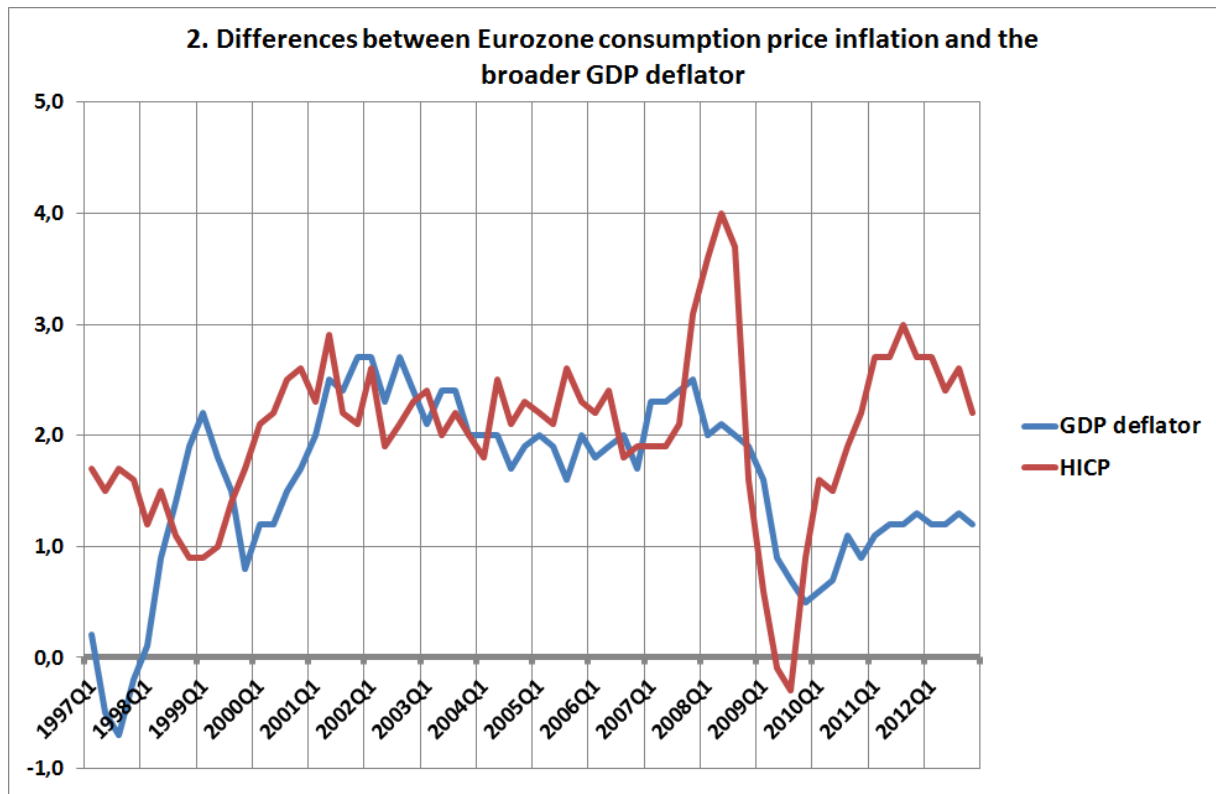
$$Y + Im = C + I + G + Ex$$

shows that total final expenditure in the economy is equal to consumption C (more or less household spending minus household investment in houses), investments I, government spending G plus Exports Ex. This spending is used to by domestic production Y plus imports Im. Consumption is therefore only a limited part of total spending. And consumption prices are therefore only part of all prices paid in the economy. The GDP deflator (‘Y deflator’ when we use the formula) is therefore, theoretically, a broader and, as investment prices might show another pattern of behavior than consumer prices, better metric to gauge inflation than just the consumer price index. This is not trivial. Graph 2 shows three inflation metrics: HICP-inflation, core inflation (excluding energy and seasonal foods) and GDP inflation. Differences can be large, *especially in times of crisis when a good compass is needed most*. And differences can persist for years, as recent experience shows.<sup>25</sup> Economy wide inflation has been below the 1.9% ECB for four years now. Which of course means that ECB policy is less accommodative than indicated by a comparison of HICP inflation and the official interest rates.

### Graph 2.

<sup>24</sup> <http://unstats.un.org/unsd/nationalaccount/>

<sup>25</sup> See also the graph showing the differences between USA CPI inflation and PCE inflation shown by Tim Duy (2012), CPI inflation (based on household expenditure) being consistently higher than PCE inflation (which also includes medical costs and the like covered by insurance and is the favorite of the Fed): <http://economistsview.typepad.com/timduy/2012/10/the-disingenuous-james-bullard.html>. For the differences between CPI and PCE indexes: Moyer, B.C., “Comparing price measures. The CPI and PCE price index”, [http://www.bea.gov/papers/pdf/Moyer\\_NABE.pdf](http://www.bea.gov/papers/pdf/Moyer_NABE.pdf).



Source: Eurostat

Clearly, this rather ad-hoc use of economic metrics is not an example of 'best practice' economic policy. During the first eight years of the Euro it didn't matter as differences between the two metrics were limited – *but it did start to matter after 2008*, when good metrics were more important than ever. Tracking a more model consistent inflation metric might have prevented policy mistakes like the 2008 and 2011 interest hikes. And these are only the problems of the GDP-deflator versus HICP-inflation. Another model used by the ECB, to estimate money growth, is the 'flow-of-funds'. The national accounts track the genesis of and interrelations between monetary production, income and expenditure – basically the production of new goods and services. Money is however not just used to buy new things – it's also used to buy 'second hand' goods, like existing houses or stocks. And the flow-of-funds does not only show the use of borrowing to buy new production – but also the (net) amount of borrowing to buy existing houses. And indeed, a considerable part of total M-3 money growth (remember: one of the targets of the ECB) is not caused by money lend to invest or consume (i.e. the expenditure categories of the national accounts) but is caused by 'lending for house purchase'. And though the construction of new houses counts as investment the purchasing of existing houses is not part of final demand (only the fees of the notary and the seigniorage/interest profits on the mortgage are). Which means that if you want to understand the relation between money growth and changes in prices one does not only have to look at 'HICP'-inflation or even GDP-inflation but at prices of existing houses, too. Which, again, makes a difference. Including house prices in the HICP does lead to a higher estimate of inflation in the epoch up to 2008 – whatever kind of weights are used to do this.<sup>26</sup> These differences of course cast doubt upon the clarity and even the credibility of the

<sup>26</sup> Makaronidis, A. and K. Hayes (2006), "Eurostat D4. OECD-IMF workshop. Real estate price indexes paper 18. Owner occupied housing for the HICP-concepts and latest perspectives"; <http://epp.eurostat.ec.europa.eu/portal/page/portal/hicp/documents/Tab/Tab/OECD->

'HICP'- inflation goal of the ECB. The ECB of course looks at more prices than just consumer prices; the reader might consult the valuable ECB Monthly Bulletin (though they do not seem to be too interested in GDP-inflation and house prices....).<sup>27</sup> *But the development of these prices is analysed in a framework aimed at tracking the influence of these prices on the HICP-index* – and not in a framework consistent with the estimation of these prices, like the national accounts and the flow-of-funds. It's like looking at the movements of a bird's wings to gauge if the bird is going up or down.

Summarizing: the HICP is not a credible inflation metric. Broader metrics, more consistent with economic models which we use to estimate the economy, exist. This means that even when, most of the time, the HICP tracks these broader metrics quite well there might be circumstances when this correlation breaks down. Which means that even when a choice is made to target the HICP, a regular comparison of the HICP and these broader metrics is needed. Which, according to my knowledge, does not happen. Not in the Eurozone and not at the Fed.<sup>28</sup> But this is not the only problem with the HICP-target. The question is why the ECB targets such a biased variable at all – and how this variable affects the results of the analytical framework that made them target such a limited variable in the first place.

### 3 Why do central banks track the wrong metrics?

#### 3.1 *The 'rational expectations economics' origins of ECB policies*

Where do such policies, which target biased variables, come from? It's not that we do not have any other metrics – the GDP-deflator, to name only one, is readily available from the national accounts. And, decades ago, an institution like De Nederlandsche Bank did look at GDP-inflation, too.<sup>29</sup> Just like the Fed. Remarkably, scrutinizing the Fed annual reports since 1979, which contain the minutes of the board meetings, yields that less and less attention is paid to 'broad' inflation metrics like the GDP-deflator. And more to consumer prices. Which brings us directly to the role which economic theory plays in this game. Here, we meet the model-dichotomy again. The flow-of-fund estimates of the stock of money used by the ECB are based upon well-founded, coherent and consistent models. The 'philosophy' behind its policy, however, is not founded upon these models. It's in fact rooted in 'Rational Expectations' economics as well as DSGE models. To the innocent: this kind of economics might, when it comes to monetary policy, be called: 'Ballroom economics'. Its adherents see monetary policy as a kind of dance, with the ECB in the male, leading role, as shown by Thomas Sargent quoting Paul Samuelson back in 1982.<sup>30</sup>

---

[IMF%20WORKSHOP%20OOH%20HICP-REVISED-WEB.pdf](#). Eurostat (2012), "Technical manual on owner occupied housing for HICP", Draft, march 2012 - v2; [http://epp.eurostat.ec.europa.eu/portal/page/portal/hicp/documents\\_meth/OOH\\_HPI/Draft\\_technical\\_manual-v2.pdf](http://epp.eurostat.ec.europa.eu/portal/page/portal/hicp/documents_meth/OOH_HPI/Draft_technical_manual-v2.pdf). Bryan, F.M., S.G. Cecchetti and R. O'Sullivan (2001), 'Asset prices in the measurement of inflation', *De Economists* 149 pp. 405-431.

<sup>27</sup> <http://www.ecb.int/pub/pdf/mobu/mb201209en.pdf>

<sup>28</sup> Word-searching the 2010 annual report of the Board of Governors of the Fed, which contains the minutes of their meetings, with the words 'GDP' and 'deflator' did not yield a single instance where the GDP-deflator was mentioned. The 1980 annual report did, which was important as the difference between the consumer price index and the GDP deflator was about 4%-point. After 1980, more and more attention was paid to 'expectations', while monetary aggregates and, yes, real life inflation got less and less attention.

<sup>29</sup> The annual reports of De Nederlandsche Bank written by Jelle Zijlstra do pay attention to GDP-inflation, the annual reports written by his successor as the president of the bank and the future president of the ECB, Duisenberg, don't.

<sup>30</sup> Sargent, T.J. (1981), 'The end of four big inflations', working paper158, PACSfile 2700, Federal reserve board of Minneapolis and University of Minnesota, second footnote. For the 1981-1983 Volcker disinflation, Samuelson was quite right.



Paul Samuelson has aptly summarized the rational expectations view: "I should report that there is a new school, the so-called 'rational expectationists.' They are optimistic that inflation can be wiped out with little pain if only the government makes credible its determination to do so. But neither history nor reason tempt one to bet their way." (*Newsweek*, April 28, 1980). The second sentence of this quote is probably as shrewd a summary of the rational expectations view as can be made in a single sentence. However, it is difficult to agree with the third sentence: as for "reason," no one denies that logically coherent and well-reasoned models underly the claims of the "rational expectationists." As for history, the evidence summarized in this paper is surely relevant.

When the government – i.e. the central bank – leads in a 'credible' way, people will follow (a tempting thought for a Central Banker, of course). And 'credible' means that a central bank will do everything – including wrecking the economy – to obtain its aim. But to be 'credible', a precise definition of 'inflation' has to be used, to have but also to *show* a clear destination. That's where the metrics fit in. *It does not matter which metric is used* – as long as the direction is clear. It's not about the specific metric – it's about the expectations of your partner. A Tango or a Waltz – it doesn't matter, as long as you are dancing. The essential element of central bank policy is that it has to show that the government will do whatever it takes to get inflation down. In a predictable way. Which of course implies that inflation targeting is not really about inflation targeting – it's about bridling the government! So, the exact inflation metric does not matter.

To quote a more recent variant of the Sargent-vision (emphasis added):

*"it is apparent that inflation targeting could play an important role. For example... agents need to disentangle whether a given inflation outcome reflects a shift in the inflation target or a transitory disturbance. This provides a rationale for a monetary framework that is transparent and credible, as well as for effective communications by the central bank. Agents would then find it easier to recognise the inflation target more quickly, **thus reducing the persistence of inflation and output.**"<sup>31</sup>*

Indeed: it takes two to tango – but it always helps when the man takes the lead and does not stray when his partners flounder. It's all about managing expectations and perceptions / not just about the level of inflation but also about the prominence of the inflation target above all other targets. At least, according to the 'rational expectations' theory. And, consistent with the rule book, the ECB does communicate its goals and does have a clear goal (or so it seems) – just read the speeches of the board. It's all according to the model, life imitates the art of the neo-classical models. These models are even more enticing to boards of directors of central banks as – the main cornerstone of the ideas behind design of the Euro! – they also imply

---

<sup>31</sup> Moreno, R. and A. Villar (December 2009), 'Inflation expectations, persistence and monetary policy' in: BIS papers 49, Monetary policy and the measurement of inflation prices, wages and expectations, pp. 76-91, 78. Basel.

that the main way to prevent financial disorder is to keep inflation low, predictable and stable. And the main way to keep inflation low, predictable and stable is to be serious about the intent to wreck the economy when inflation becomes too high, a seriousness which will prevent the necessity to actually wreck the economy. A seriousness which is embedded in the person of the head of the bank. He's the master of the economic universe. According to rational expectations economics.

However, the careful reader will have noted that none of the economists cited took care to define inflation in any serious way.<sup>32</sup> And when one reads the articles of leading rational expectation economists, it baffles the mind that no explicit conceptual definition of inflation is ever given.<sup>33</sup> According to this strain of thinking – it doesn't matter which metric is taken. As long as people believe that it's a serious metric. And people will believe that it's a serious metric when the central bank treats it like a serious metric. Or, to state this in rational expectations parlance: *"agents inside the model assume the model's predictions (i.e. the central bank target, M.K.) are valid"* which implicitly of course includes the choice of the metric.<sup>34</sup> One lamppost or another – it does not really matter. And indeed, searching the 2010 annual report of the Board of Governors of the Fed, which contains the minutes of their meetings, the words 'GDP' and 'deflator' did not yield a single instance where the GDP-deflator was mentioned. The 1980 annual report did, which was important as the difference between the consumer price index and the GDP deflator was about 4%-point. After 1980, more and more often attention was paid to 'expectations', while monetary aggregates and, yes, real life inflation got less and less attention. If the bank is credible, people will know what's going on – and adapt their behaviour in a rational way. Life imitated art – or, well, at least some economic models. Also, another aspect of these models, clearly shown in the quotes above, stability will prevail as people will believe in stability.

Summarizing: it seems that neo-classical, rational expectations economics at least provided a rationale to increasingly neglect broader definitions of inflation. Here, it's not the place to investigate why this happened. But it is the place to note that the existence of a theory which did not pay due attention to broader measures of inflation was instrumental in bringing this about. A theory which also stated that 'financial stability' was in fact the very same thing as low and stable inflation and which stated that inflation would remain low as long as people believed that it would remain low. Central Banks just had to target inflation. And all would be fine. Whatever the metrics told.

### 3.2 How did 'rational expectation economics' influence patterns of thought and policy at the ECB?

---

<sup>32</sup> Thomas Sargent does not take any effort to discuss his consumption prices inflation metric, the Consumer Price Index. See Sargent, T.J. (1999), *The conquest of American inflation*. Princeton; Sargent, T., N. Williams and T. Zha, (2008), 'The conquest of South-American inflation'. Part of the rhetoric's of his articles is that alternative metrics are not even mentioned, which leads to a 'there is no alternative' idea. [http://www.ssc.wisc.edu/~nwilliam/swz\\_hyper.pdf](http://www.ssc.wisc.edu/~nwilliam/swz_hyper.pdf)

<sup>33</sup> There is a literature on inflation expectations which sometimes uses the GDP-deflator. Differences between this variable and the Consumer Price Index are not discussed in any serious way. Two papers which show that inflation expectations largely behave like a moving average of actual inflation: De Negro, M and S. Eusepio (2010), 'Fitting observed inflation expectations', New York Fed draft, [http://www.newyorkfed.org/research/economists/eusepi/fitting\\_observed.pdf](http://www.newyorkfed.org/research/economists/eusepi/fitting_observed.pdf); Mankiw, N.G., R. Reis and J.W. Wolfers (2003), 'Disagreement about inflation expectations', Harvard institute of economic research discussion paper no 2011, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=417602](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=417602).

<sup>34</sup> [http://en.wikipedia.org/wiki/Rational\\_expectations](http://en.wikipedia.org/wiki/Rational_expectations), consulted 16/9/2012.

But what did these rational expectation economists really think? What was the vision which led them to develop these models in the first place? To quote the 2007 Robert Lucas *Wall Street Journal* interview again (emphasis added):

*"In the past 50 years, there have been two macroeconomic policy changes in the United States that have really mattered. One of these was the supply-side reduction in marginal tax rates, initiated after Ronald Reagan was elected president in 1980 and continued and extended during the current administration. The other was the advent of "inflation targeting," which is the term I prefer for a monetary policy focused on inflation-control **to the exclusion of other objectives.**"*

"Other objectives" are of course economic growth, a stable economic development, low unemployment *and even financial stability*. The government had to be bridled. And models which showed that low and stable inflation in combination with a deregulated, 'low marginal rates' economy would enable economic growth and the other goals without the help of the government were developed to enable this, even at the cost of ruling out that financial bubbles could even exist! Not everybody agreed with this view, however. Hyman Minsky stated, as far back as 1972 when money targeting instead of inflation targeting was all the rage,

*"Theory, which ignores the existence of financial instability, can lead to rules that the authorities should control the growth of the money supply to the well-nigh exclusion of other considerations. Once financial instability is recognized as being at times a significant threat, then such an unconditional posture becomes untenable. Money supply control is at best a conditional desirable policy posture."<sup>35</sup>*

Also, according to the ECB economists Ulrich Bindseil and Adalbert Winkler, in a recent ECB study:

*"History provides ample illustration that the regular occurrence of liquidity crises is an inherent feature of modern market economies and that addressing the associated policy challenge is decisive for prosperity and stability"*

and:

*"finding the best central bank policies toward liquidity crises remains the most important challenge of modern central banking".<sup>36</sup>*

Wow. That seems a surprising remark from two ECB economists - until we look at the title of their study: *"Dual liquidity crises under alternative monetary frameworks. A financial accounts perspective"*. There they are again, the accounting models. But the points of the quotes: they show that a 'neurotic' focus on an inflation target, rationalized by models which *assume* financial stability, *ignore* historical experience and proceed by using *ad hoc metrics* and which are based upon variables and assumptions *not consistent* with the models which are used to map and estimate our historical experience may lead to biased assessments of reality. And,

---

<sup>35</sup> Minsky, H. P., "An Evaluation of Recent U.S. Monetary Policy - I: Can and Should the Money Supply Be Controlled?" (1972). *Hyman P. Minsky Archive*. Paper 236.  
[http://digitalcommons.bard.edu/hm\\_archive/236](http://digitalcommons.bard.edu/hm_archive/236)

<sup>36</sup> Bindseil, U. and A. Winkler (2012), 'Dual liquidity crises under alternative monetary frameworks. A financial accounts perspective', ECB working paper series no. 1478, pp. 44-45.

at times, even may induce the very instability which the models assume away. Which makes rational expectations models tragic in the classical sense. Even when people act to the best of their knowledge and ability and with all good intentions this, in the end, leads to results so frightful and terrifying that nobody even dears to think about them – i.e. to include them in the models.

This can be shown by analysing the reaction of the ECB when more and more disturbing signs about the increase of private debts surfaced, in the twenty-first century. Already before the Great Financial Crisis, debt-data got an increasing amount of attention from economists and economic statisticians<sup>37</sup> as well as institutions, among them the ECB<sup>38</sup>. There surely was a change in 'Zeitgeist' in this regard. And the results of these endeavours of the ECB and others were clear: an undeniable and even exponential increase in private debt (expressed as a % of GDP) in the entire western world – including the EU. In the framework of this paper the more remarkable thing was, however, the reaction of for instance the ECB when they started to analyse these series, an analysis that showed that this increase was clearly inconsistent with econometric models which tried to explain the level of debt with the help of variables like household income and the interest rate. The ECB however stated, led astray by Lucas style thinking:

*"assessing the historical pattern of household loan developments purely on the basis of the macroeconomic determinants of loan demand remains to some extent inconclusive, given that loan developments over the past two decades are also likely to reflect a number of structural influences, such as financial innovation and changes in mortgage market regulation, as well as the shift to a low-inflation and credible monetary policy environment in the euro area in the context of EMU"<sup>39</sup>*

Wow. Income and interest rates could not explain the run up in debt, but, no problem, as it was clearly caused by 'easy credit' and 'financial innovation' in combination with 'credibility' and 'financial stability'. Exactly the benign situation which, according to for instance Alan Greenspan in 2007, led to ever more economic prosperity!<sup>40</sup> Or, exactly the toxic brew which, according to economists like Hyman Minsky, will lead to ever more risk taking, ever more debt and in the end: an unavoidable crisis of the kind which, according to Reinhart and Rogoff, has plagued monetary market again and again in the past?<sup>41</sup> Well, now we know. A thunderstorm was brewing – but the ECB decided that, well, it wasn't as inflation was low (house price inflation wasn't – but that's not another story) and monetary policy was 'credible' – which by definition meant that the financial situation was stable.

But the point of the quote: the Robert Lucas style worldview and self-perception of the ECB made it misunderstand the story the metrics told. And this is or was not just an ECB problem.

<sup>37</sup> Reinhart, C.M. and K. Rogoff (2009), *This time is different. Eight centuries of financial folly*, Princeton University Press, Princeton. Though published after the 'Lehmann moment' the basic research for this book which led to the 'regime changing' database must have started years earlier.

<sup>38</sup> 'Box 1. New Euro area series on MFI loans to households and non-financial corporations' in: ECB monthly bulletin October 2007 pp. 17-19 (to see the exponential growth add the series on household and company debt); ECB, 'Long-term developments of MFI loans to households in the Euro area: main patterns and determinants' in: ECB monthly bulletin October 2007 pp. 67-84.

<sup>39</sup> ECB, 'Long-term developments', p. 67.

<sup>40</sup> Greenspan, A.(2007), *The age of Turbulence. Adventures in a new world*, New York. To his defence it can be stated that he mentions the problem of debts quite a view times and also that already in the fifties people stated that the run up in debts could not go on forever but that these people were wrong all the time. Well, it could indeed go on for about sixty years (1946-2006)!

<sup>41</sup> Minsky, H.P. (1986), *Stabilising an unstable economy*. Yale.

It's interesting to analyze the reactions of economists to the pivotal work of Reinhart and Rogoff. Their work, based on a new database spanning the centuries as well as the globe, to me clearly shows the inherent unstable tendencies of monetary market economies – with 'debt', one of the quintessential aspects of a monetary system, being singled out as one of the main destabilizing variables.<sup>42</sup> One of their basic findings was for instance that they could not identify *any* 'developing' economy which, during development, did not default at least once. Which, to me, shows that financial crises are endemic to the monetary market system we have. The same pattern shows from IMF studies.<sup>43</sup> To me, the fact that Reinhart and Rogoff showed the same endemic instability mentioned by Bindseil and Winkler was crystal clear. But – and this really was a surprise to me – this was not clear to quite a lot of other economists.

Some economists either saw this book as a (right wing) treatise aimed at teaching economists and politicians the virtues of balanced budgets or as a clear vindication of the idea that we'll just have to balance the government budgets – and everything will be fine. Quod non.<sup>44</sup> But it's even more telling how the ECB uses its own statistics. The flow-of-funds data of the ECB do not only enable one to estimate the total amount of debt but they also clearly show (indeed, they are based upon) the matter/antimatter relation between money and debt. Debt and money is not the same thing. But when banks lend money to households, companies or the government the result is: 'new money' as well as 'new debt'. Banks do not create money out of thin air – but banks and borrowers together do. But when it comes to the official ECB money growth target – 4,5% growth of M-3 money in the medium run - nothing of the kind comes to the fore anymore. Not even closely. While we might have as well a 4,5% growth of debt target! And neither so in macro-economic textbooks from people like Ben Bernanke, Olivier Blanchard or Greg Mankiw. Magically, 'debts' disappear from the screen – even when these textbooks try to define money. This all is a clear example of the kind of thinking noticed by Buiter:

*“In both the New Classical and New Keynesian approaches to monetary theory (and to aggregative macroeconomics in general), the strongest version of the efficient markets hypothesis (EMH) was maintained. This is the hypothesis that asset prices aggregate and fully reflect all relevant fundamental information, and thus provide the proper signals for resource allocation. Even during the seventies, eighties, nineties and noughties before 2007, the manifest failure of the EMH in many key asset markets was obvious to virtually all those whose cognitive abilities had not been warped by a modern Anglo-American Ph.D. education. But most of the profession continued to swallow the EMH hook, line and sinker”*

---

<sup>42</sup> Reinhart and Rogoff (2009); Graeber, D. (2011), *'Debt. The first 5,000 years'*, Melville House Publishing, Brooklyn; ECB, Koo, R. (December 2011), "The world in balance sheet recession: causes, cure, and politics", *real-world economics review*, issue no. 58, pp.19-37, <http://www.paecon.net/PAERreview/issue58/Koo58.pdf>

<sup>43</sup> Laeven, L and F. Valencia (2008), 'Systemic banking crises, a new database', IMF working paper wp/08/224; Abbas, SM Ali, Nazim Belhocine, Asmaa El-Ganainy, and Mark Horton (2011), "[Historical Patterns and Dynamics of Public Debt – Evidence From a New Database](#)", IMF Economic Review, 59(4):717-742.

<sup>44</sup> To avoid misunderstandings: Reinhart and Rogoff is not just about government debt. To quote Reinhart: "You can't just focus on a single indicator, you have to look in conjunction. Our book is not about a bubble in housing or a bubble in the equity market. You look at pricing in these markets in conjunction with what is happening with capital inflows and the current account deficit. What is happening in conjunction with indebtedness. When several of these indicators start running off the charts simultaneously, you have a vulnerable situation." <http://blogs.wsj.com/economics/2009/10/12/reinhart-and-rogoff-on-the-crisis-the-mother-of-all-moral-hazard/>, accessed 18-12-2011.



and:

*“New Classical and New Keynesian complete markets macroeconomic theories not only did not allow the key questions about insolvency and illiquidity to be answered. They did not allow such questions to be asked. A new paradigm is needed”*<sup>45</sup>

Wow – according to this kind of thinking house prices and financing could not be ‘fragile’ as fragility is assumed non-existent.<sup>46</sup> As long as inflation is low and stable. At the same time, the results of the accounting models were clear and written on the wall – by the very statisticians employed by institutes like the ECB. But these results did not fit into neo-classical view of the world. So they were rationalized and dismissed.

### 3.3 *Twaas: There Was An Alternative*

Sadly, it did not have to be like this. When an economist influenced by Minsky, like Steve Keen, at about the same time also started to look at the data on debt (which was possible because the Bank of Australia published the flow-of-funds data) and discovered the same exponential debt/GDP increase for Australia and, later, the USA his reaction was the opposite of the ECB reaction. He panicked. And started to cry wolf. Wrongly, of course, as it turned out that there was no wolf but a pack of bears at the gate.<sup>47</sup> But the important thing is why he panicked: unlike the ECB *he did not deny the possibility of financial instability and did not take the debt data out of scientific context but looked at them in a model-consistent way* – the national accounts model clearly spells out that household consumption (including change in assets) is funded by income plus lending and leads to changes in the balance sheet of households and banks – changes which of course will become untenable when debt increases exponentially, as a % of income. Somewhat comparable analysis, alarmism and timing can be found in works of Georgist economists.<sup>48</sup> And these are not isolated examples – the idea that ‘money’ and ‘credit’ can destabilize an economy is of course endogenous to Post-Keynesian as well as Austrian thinking as well as of the thinking of economic statisticians. It’s clearly important which metrics are available – but it’s also important how to look at them. We need the right historical knowledge and the training and knowledge of the models used to estimate them, models which do not allow ad-hoc assumptions and which do not allow you to define variables away at will, to really understand the story told. Consider this quote, from a recent article with as a title “Fact checking financial recessions” (emphasis added):

*“However, one concern is that the recent US credit boom is not fully captured by banks’ loan books; bank assets ignore the shadow system, and could understate the true “credit treatment” needed for our out-of-sample prediction. To attempt to measure the shadow system loans we go to the Fed Flow of Funds and compute the change in total loan instruments in the US economy for the expansion. This variable, **on the liability side of nonfinancial***

---

<sup>45</sup> Buitter, W. (2009), “The unfortunate uselessness of most ‘state of the art’ macro/economics”, [http://www.bresserpereira.org.br/terceiros/cursos/Buitter\\_Willem.pdf](http://www.bresserpereira.org.br/terceiros/cursos/Buitter_Willem.pdf).

<sup>46</sup> In the often quoted Gernaly e.a. study “Credit and banking in a DSGE model” this still is the case as money is assumed to be exogenous (loanable funds model) while the stock of houses is assumed to be exogenous too. No sub-prime mortgages out of thin air and no Irish/Spanish/Baltic/USA housing bubbles in this model.

<sup>47</sup> <http://www.debtdeflation.com/blogs/>

<sup>48</sup> Bezemer, ‘No one saw this coming’; Foldvary, F. (2007), The Depression of 2008, Sept. 18, Gutenberg Press; Foldvary, F. (1997), “the Business-Cycle: a geo-austrian synthesis”, the American Journal of economics and Sociology 56-IV, 521-524.

*sectors, rose by +5.0 percentage points of GDP per year, well above the +1.75 percentage points per year for just bank loans, and an excess of +2.75 percentage points relative to the historical mean*<sup>49</sup>

Wow... what did I state about the importance of mapping the *entire* economy and using models which consistently show the relations between sectors of the economy? And ECB statisticians again more or less state the same thing in a 2009 paper:

*“The paper illustrates how flow-of-funds data enable portfolio shifts between money and other financial assets to be assessed and trends in bank intermediation to be monitored, in particular. Based on data (and first published estimates) on financial wealth over the period 1980-2007, the paper analyses developments in the balance sheet of households and non-financial corporations in euro area countries over the last few decades and looks at financial soundness indicators using flow-of-funds data, namely debt and debt service ratios, and measures of financial wealth. Interactions with housing investment and saving are also analysed. In addition, the paper shows how flow-of-funds data can be used for assessing financial stability.”*<sup>50</sup>

Wow. It's 2009 and the ECB finally admits the possibility of financial instability. But the point of the quotes: it can be done. There is another paradigm, we don't have to develop this from scratch. And too bad that the ECB did not do this earlier. And too bad that they still do not look enough at the national scale but only at the Eurozone scale as the largest imbalances were of a national kind (Ireland, Spain). It's clear that we need better models. But these are available. The new paradigm is out there. And it is rooted in the idea that we should not allow that models (macro-economic models, that is) can leave out variables at will, can use variables which are ill defined, can set ad-hoc values for crucial parameters and do not take due account of accounting identities, but that we have to require that these models are based upon concepts which are logically and organically intertwined with definitions and operationalizations which enable measurement. Even these have to be used in a historical, institutional setting as shown by another ECB study – which however also shows that this is entirely possible, using financial accounts.<sup>51</sup>

Summarizing: Central Banks use and publish the estimated flow-of-funds models which – among many other things – clearly showed the toxic exponential increase in private debt in the post WW-II western world. But as thinking at the top of these bank (and probably also the ideas of the bureaucrats designing the Euro) was heavily based on neo-classical 'rational expectations' idea of the role of Central Banks, which basically stated that low, stable and predictable inflation was financial stability as (financial) markets are stable by nature and can only go astray by bad monetary policy, these banks consciously choose to ignore the data shown by their own models. Models, and the concepts and ideas behind these models, shape the way economists see the world and how they 'understand' the patterns revealed by data. And this, in turn, shapes policies of – among other institutions – Central Banks. Considering the state of the economic art: possibly for worse.

### 3.4 *But are the metrics themselves biased?*

---

<sup>49</sup> Schularick, M and A. Taylor (October 2012), “fact checking financial recessions”, <http://www.voxeu.org/article/fact-checking-financial-recessions>

<sup>50</sup> Bè Duc, *Le Breton* (2009).

<sup>51</sup> Bindseil and Winkler (2012).

There might, however, be another reason why these models prevented economists from seeing what happened right before their eyes: the design of the metrics and variables embodied (or not!) in these models. Economic theory and economic models do not always tell us at exactly which metrics we have to look at. We've seen that the ECB is very concerned about its credibility, a state of mind which is clearly founded upon Rational Expectation economics. But how credible is this wish to be 'credible'? At first sight, the ECB appears to be a skilled dancer. Its goals are clear and transparent. It wants to limit money growth, clearly defined as the increase of "M-3" money, to 4,5% over the medium run. It wants to restrict inflation, clearly defined as the increase of the Harmonized Index of Consumer Prices (HICP), to "less than but close to 2% over the medium run". Whatever one can say about the ECB – everybody who checks its website and reads the speeches of the members of its board must admit that the inflation goal is repeated 'ad nauseam'. And the ECB really, really tries to attain them, too, it's not just lip service.

To give an example: the cumulative (at the time of writing still positive but rapidly dwindling) deviation of M-3 money growth from the ECB 4,5% medium run growth target is explicitly shown in the Monthly Bulletin, while the speeches of former ECB head Trichet again and again mentioned that the 'hangover' of 'excess liquidity' as shown in for instance 2009, 2010 and 2011 by exactly these graphs had to be 'soaked up' by the ECB. That was the reason why the ECB tightened monetary policy in the summer of 2011, despite the economic situation, 'to stay ahead of the curve'.<sup>52</sup> Be credible, be predictable. Even when events show that this credibility was one of the causes of the largest post war financial crisis of the western world. To be fair, it has to be added that in his last speech to the European Parliament Trichet mentions the possibility of a 'flight into cash' which altered the relation between the stock of money, expenditure and inflation – but this did, of course, not change his policy.<sup>53</sup> The estimated stock of money had to be brought down to the required level, crisis or not. Period.

The lack of consistency and coherence also shows in the way different central banks look at and even define money and inflation. The unsuspecting reader might think that for instance central bank economists use well-defined metrics of money, and inflation, or at least more or less the same metrics of money and inflation, adapted to local circumstances. We've already seen that the ECB is quite precise when it comes to defining money and inflation. It looks at 'M-3' money and the HICP price index. But when we take a look at the other side of the Atlantic we're in for a surprise – the Fed doesn't even calculate M-3 money. Which is important, as M-3 money did not, unlike M-1 and M-2 money (or, for that matter, the Austrian definition of 'True money'), show any significant increase after 2008. Even to the contrary, as is shown from ECB data and the USA M-3 data provided by 'shadow statistics', an activist blog. For quite some time, the M-3 amount of money even decreased after 'Lehmann', *despite* large increases in M-1 and M-2 (which are constituents of M-3)<sup>54</sup>! Which, of course, does give one a totally different idea about the inflationary risks post 2008 than looking at M1 or M2.<sup>55</sup>

---

<sup>52</sup> It is of course a good question why they allowed the stock of money to increase so fast before 2007.

<sup>53</sup> See for instance the November 2011 Monthly Bulletin, charts 15 and 16, <http://www.ecb.int/pub/pdf/mobu/mb201112en.pdf>

<sup>54</sup> M-1 money is mainly cash and deposits, M-2 is M-1 plus 'liquid' savings, M-3 is M-2 plus slightly less liquid savings which only can be transferred to a checking account after some time, or at a price.

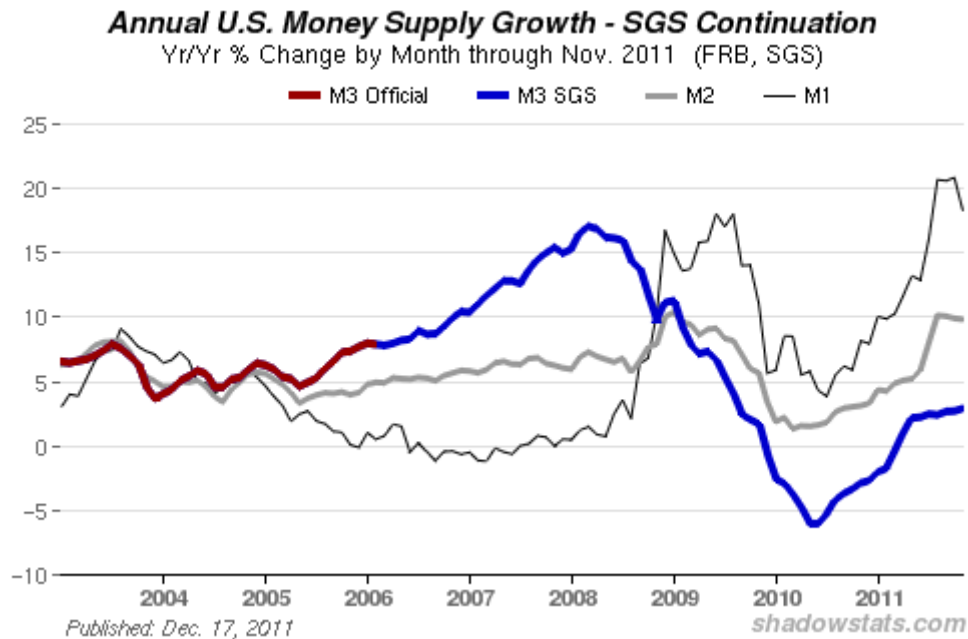
<sup>55</sup> ECB data:

[http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=BSI.M.U2.Y.V.M30.X.I.U2.2300.Z01.A&](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=BSI.M.U2.Y.V.M30.X.I.U2.2300.Z01.A&)

Shadow Statistics data on USA M-3: [http://www.shadowstats.com/alternate\\_data/money-supply-charts](http://www.shadowstats.com/alternate_data/money-supply-charts)

Austrian 'True money supply': <http://mises.org/content/nofed/chart.aspx>

Graph 3. The increase of the money supply in the USA



Be that as it may – it is quite surprising that a *core target variable of the ECB is not even estimated by the Fed!* The Fed and the ECB also have quite another take on the essence of inflation. The ECB is bound to the EC treaty, but states that:

*“Although the EC Treaty clearly establishes maintaining price stability as the primary objective of the ECB, it does not define what “price stability” actually means. With this in mind, in October 1998, the ECB announced a quantitative definition of price stability. This definition is part of the ECB’s monetary policy strategy”*

and:

*“In October 1998 the Governing Council of the ECB defined price stability as ‘a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2%’ and added that price stability ‘was to be maintained over the medium term’. The Governing Council confirmed this definition in May 2003 following a thorough evaluation of the ECBs monetary policy strategy. On that occasion, the Governing Council clarified that “in the pursuit of price stability, it aims to maintain inflation rates below but close to 2% over the medium term.”*

This is clear and transparent. The ECB choose to do it, this way. But is this also: ‘credible’? The Fed, for instance, has a wholly different (and, one might say, more subtle and flexible) approach.<sup>56</sup>

*“Inflation occurs when the prices of goods and services increase over time. Inflation cannot be measured by an increase in the cost of one product or service, or even several products or services. Rather, inflation is a general increase in the overall price level of the goods and services in the economy.*

<sup>56</sup> [http://www.federalreserve.gov/faqs/economy\\_14419.htm](http://www.federalreserve.gov/faqs/economy_14419.htm)

*Federal Reserve policymakers evaluate changes in inflation by monitoring several different price indexes.... The Fed often emphasizes the price inflation measure for personal consumption expenditures (PCE), produced by the Department of Commerce, largely because the PCE index covers a wide range of household spending. However, the Fed closely tracks other inflation measures as well..."*

Wow. Two of the most important Central Banks of the world seem to have entirely different concepts of 'money' and 'inflation', which also shows by the variables they are targeting, a consumer price index by the ECB and a (broader) personal consumption expenditure which also for instance includes medical costs covered by insurance, by the Fed.<sup>57</sup> But the point of these quotes: this of course means that metrics which are used to define a target, like HICP-inflation, might not be fit for the job. The Fed definition seems to be more practical than the ECB definition, for one thing because house prices are not included in the HICP. *Which means that the very definition of an economic variable might influence economic policy.* As house price developments in many countries differ from the inflation of the consumer price index, for instance the OECD argues that there are reasons to include an assessment of the development of house prices in our assessment of inflation.<sup>58</sup> The Fed is able to do this. But the ECB has ruled this out. The ECB of course looks at house prices – but has disabled itself to deal with it. With predictable consequences. In a number of Eurozone countries, house prices after 2000 clearly showed signs of a prolonged inflationary rise – enabled by a fast growth in mortgage-debt and the money created when banks accepted these debts. Paying more attention to these rises might have led to responses which dampened the housing bubbles which wrecked the economies of Spain and Ireland and which played havoc with financial stability. I mean, we did know about unsustainable housing prices increases and they did know about the role of mortgage credit in fuelling these increases. The OECD study mentioned above, which investigated the relation between house prices and inflation, dated already from 2005, which means that the problem was obvious at the latest in 2004... Should the ECB have targeted a more fuzzy, but also more credible target?

The same confusion results when we look at the M-3 money growth target – the Fed doesn't even estimate M-3 money. In this case, however, it's the ECB which seems to score a point, as M-1 and M-2 (as well as the Austrian 'True money' supply) showed high growth post 2008, while inflation remained moderate to low.<sup>59</sup> Again: the definition of the metrics matter! And the confusion even increases when we consult neo-classical economists: as one of the defenders of the neo-classical approach, Apostolis Serlesti, states about monetary statistics while musing about the GFC and why neo-classical models didn't predict it:

---

<sup>57</sup> To my knowledge, one of the other main Central Banks of the world, the Bank of India, targets (volatile but somewhat less regionally biased) wholesale prices. A whole bunch of other targets for South-Africa, the Czech Republic, Chile, South-Korea, Hungary, Hong-Kong, Brazil and Saudi-Arabia are mentioned in BIS papers 49 (Basel, December 2009).

<sup>58</sup> Cournède, C. (2005), 'House prices and inflation in the Euro area', *OECD Economics Department Working Papers*, No. 450. Also: Kim, J.C., Y.W. Kim and S.Y. Lee (2009), 'Measures of core inflation in Korea' in: *BIS papers 49, Monetary policy and the measurement of inflation prices, wages and expectations*, pp. 233-247.

<sup>59</sup> A clear comparison between M-1, M-2 and two definitions of the True Money supply can be found here: <http://globaleconomicanalysis.blogspot.com/2010/03/true-money-supply-tms-vs-austrian-money.html>



*“The problem is that the Federal reserve and other Central Banks have not been producing data consistent with neo classical micro-economic theory”.*<sup>60</sup>

Wow. After about 130 years of neo-classical economics, the neo-classical project still has not been able to design a meaningful set of monetary statistics consistent with neo-classical concepts... But let's come to the rescue of Serlesti and Barnett. They give it a try and we can only agree with them that it's a farce that the Fed (and also the ECB) do not use a model consistent metric of money in their analytical models, which indeed might have been caused by the failure of neo-classical economics to produce and estimate a well-defined monetary metric.<sup>61</sup> This however only underscores the basic problem which is encountered by the Central Banks: “what is the right concept, definition and operationalization of money, not just for statistical purposes but also for political purposes?”.

Fortunately – and amazingly – it is again the ECB *statistics* which come to our rescue when we try to solve this question. And again, this shows a fundamental difference between the two kinds of models. Every month the ECB publishes a press release on monetary developments in the Euro area, based upon flow-of-funds data and showing the asset, as well as the liability side, of the balance of the money emitting banks. This statistic is based upon the idea that ‘loans create deposits’ – and shows different kinds of loans (mortgages, consumer loans, company loans) as well as different kinds of money (cash, deposits, different kinds of saving accounts). It is a net-statistic (it does not show gross flows or flows between different kinds of money and different kinds of loans). But the main idea behind the statistic is that not all money is created equal. ‘Loans create deposits’, but some of these loans are mortgages which are used to buy existing houses while in other cases money is borrowed by non-financial companies to invest in new houses. In these cases the counterparties as well as the effects of money creation on the economy are quite different. And the influence of money creation on for instance the price level is quite different, too. ‘Money creation’ should be understood as the creation of money as well as a debt and different kinds of ‘money-debt’ arrangements are possible. An increase of 10% in money caused by an increase in mortgages is not the same thing as the same increase caused by an increase of business loans (or, to please more conservative readers: the 3% Euro-money growth in May and June 2012 was entirely caused by an increase in lending by governments to banks – not the same thing as lending by businesses).<sup>62</sup> Money is a multi-dimensional variable and should be estimated and analysed in a multi-dimensional way. Accounting models enable this. Surprisingly, the very institutions which estimate and publish these accounting models do not use them as an analytical tool.<sup>63</sup> The DSGE models used by them, based upon ‘exogenous’ money instead of, like the statistics, endogenous money, do not enable this. Which leaves us with the question: why not?

#### 4 Epilogue

---

<sup>60</sup> Serletis, A. (2012), ‘Foreword. Macro-economics as a science’ in, Barnett, W.A. (2012), *Getting it wrong. How faulty monetary statistics undermine the Fed, the financial system and the economy pp. , XXI*. MIT

<sup>61</sup> Their Divisia money is a kind of weighted average of the different kinds of money which together comprise M-3 money. This is a nifty idea. But it's, alas, a neo-classical nifty idea. It means that the accounting identities and therewith the debt relations between lenders and borrowers and the endogenous nature of money are lost.

<sup>62</sup> Changes between posts on the liability side of the consolidated balance sheet of the banks can of course also lead to changes in M-1, M-2 and M-3.

<sup>63</sup> Monetary developments are mentioned by the head of the ECB in his monthly press ritual. In the ECB models, like the NAWM-model, money is however still treated as an exogenous variable.

After September 2011, when Mario Draghi replaced Trichet as head of the ECB, things started to change. The most important change was that the ECB stopped pretending that the Eurozone was a kind of unified economic space and lots of attention was given to monetary dynamics between countries as well as dynamics between banks, debts and governments. From September 2011 on, the 'flash' estimate of inflation started to include, next to headline inflation, information which enables calculation of core inflation. In press conferences, Draghi mentions balance sheet problems. Official documents have not yet changed, but a member of the governing board has stated that the ECB targets the interest rate, instead of money growth. These are all mayor as well as intellectually positive differences with the Duisenberg-Trichet epoch. However – one thing did not change. Or in fact it did. Clearly crossing the boundaries of its mandate, the ECB started to aggressively push policies aimed at changing the Eurozone as much as possible into something resembling the neo-classical economic zone it was supposed to be, advocating austerity and financial savings instead of investments. But the accounting models tell us that you will only get real savings when you invest – financial savings as such leads according to these models only to transferring claims on the production of new goods and services from today to the future. Which isn't a smart thing to do when unemployment is almost 12% and people need work and income to pay back their debts. We still have some way to go.

**Author contact:** [merijn.knibbe@wur.nl](mailto:merijn.knibbe@wur.nl)

---

**SUGGESTED CITATION:**

Merijn Knibbe, "Looking at the right metrics in the right way: a tale of two kinds of models", *real-world economics review*, issue no. 63, 25 March 2013, pp. 73-97, <http://www.paecon.net/PAEReview/issue63/knibbe63.pdf>

You may post and read comments on this paper at <http://rwer.wordpress.com/2013/03/25/rwer-issue-63/>  
/