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The veil of deception over money: how central bankers and textbooks distort the nature of banking and central banking

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> *"The study of money, above all over fields in economics, is one in which complexity is used to disguise truth or to evade truth, not to reveal it."* John K. Galbraith

Introduction

This paper will argue that we are being intentionally and systematically mislead about the nature of money and about the role of central banks and commercial banks in the monetary system. We are led to believe by central bankers and by textbooks, like the ones of Krugman and Wells (2009) and Mankiw and Taylor (2011), that central banks have always been government institutions acting in the public interest. In reality, central banks' historical origin and role had more to do with the desire of private bankers to control and coordinate the process of private sector money creation. That most money is created in the private sector is something that central bankers like to gloss over and textbooks "explain" in a distorted and unnecessarily convoluted way.

While governments have increased their influence over central banks over time, these still fulfill functions which are mostly in the interest of the banking industry. They coordinate private sector money creation and act as lenders of last resort for commercial banks. It is far from clear, whether central banks will side with commercial banks or with the public at large, if their roles as protector and coordinator of the former and their role of promoting the interest of the latter are in conflict. The desire of central bankers to hide the lucrative role of commercial banks in the process of money creation and their distorted account of central bank history give reason to be suspicious in this regard.

This is particularly relevant today, as during the financial crisis central banks have emerged as the most powerful agents in economic policy. An examination of the disclosed calendar of US Treasury Secretary Tim Geithner by the research institute Bruegel revealed that the President of the European Central Bank was the person Geithner called most often in Europe, with a big margin to the runners up. Between January 2010 and June 2012, 58 out of 168 calls of Geithner to European officials went to the president of the ECB (Pisany-Ferry 2012)[2].

In Europe, the ECB is involved as a member of the so called "Troika" (with the EU-Commission and International Monetary Fund) in drawing up and enforcing reform and austerity programs for crisis countries like Greece, Portugal and Ireland. These Memoranda of Understanding go into almost all areas of economic, labor market and social policy and are

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[2] http://www.bruegel.org/nc/blog/detail/article/934-tim-geithner-and-europes-phone-number/#.UUsNr1ceWy0

very detailed. The ECB is taking their decisions in complete independence from governments and parliaments. Other major central banks are also independent from government, even though not in such an extreme way. If there is an important element of central banks serving the interests of the financial industry, this unchecked power should be regarded as highly problematic.

I will examine the rhetoric of two central bankers, Jens Weidman and Otmar Issing, regarding the process of money creation, inflation and the role of central banks. Weidmann is Präsident of Deutsche Bundesbank and member of the Governing Council of the European Central Bank (ECB). Otmar Issing was a former board member (Until 2006) of the European Central Bank in charge of economics. I use the rhetoric of these two German central bankers, because, due to the tradition of the Bundesbank to give prominence to monetary aggregates, German central bankers are more inclined to explicitly talk about money than the average European central banker.

I will also examine how two widely used economics textbooks by Krugman and Wells and by Mankiw and Taylor treat the subject. Drawing on Häring and Douglas (2012) I will juxtapose this rhetoric of central bankers and textbooks with the historical and current evidence. I will argue that this rhetoric frames the minds of central bankers, other policy makers, academics and - through economic journalists educated with the same textbooks - the general public, in a very unfortunate way. This prevents them from understanding the current financial crisis and from drawing the right policy conclusions from it.

The narrative of Jens Weidmann and Otmar Issing

According to the central bankers' narrative, governments created central banks to use and abuse fiat money creation for the financing of government expenditure, crating runaway inflation in the process. In a widely reported speech in Frankfurt in September 2012 entitled Money Creation and Responsibility,[3] Bundesbank-President Jens Weidmann (2012a) made references to Goethe's drama Faust II to take a swipe at government controlled fiat money.

In Faust II, Mephisto (the devil) talks the Emperor, who is in dire straits financially, into signing an IOU, which Mephisto copies many times to issue it as paper money for the benefit of the Emperor. Soon, however, money issuance gets out of hand. It ends with runaway inflation.

Weidmann interprets Goethe's scene as an impressive rendering of the dangers of creating fiat money for financing government expenditure. He argues that the government's power to create money from nothing brings with it the temptation to create too much money to get extra financial leeway, and he asserts that governments have historically more often than not given in to this temptation. "If we look back in history, we see that government-owned central banks were often created with the purpose of giving those governing the country free access to seemingly unlimited financial means." He proceeds to say that governments control over the central bank in combination with governments need for money often resulted in too much money and runaway inflation.

[3] http://www.bundesbank.de/Redaktion/EN/Reden/2012/2012_09_20_weidmann_money_creaktion_and_responsibility.html

The goal is clear and explicit. Weidmann wants to drive home the lesson that you cannot entrust government with managing the monetary system and that you therefore have to guard the central banks' independence from government.

In another speech, given a few days later (available here[4] in German), Weidmann gives the example of the first known paper money system of the Chinese-Mongolian Emperor Kublai Khan and his successors. "Off course, the Chinese Emperors recognized the importance of the invention and made much use of it. They produced more and more money bills – unfortunately without taking the old ones out of circulation. The result is hardly surprising. There was inflation. At the end of the 13th Century, one bill was worth 1000 copper coins, almost 150 years later it was worth less than one."

In his speeches on money and inflation, Jens Weidmann does not utter a single word about money creation by commercial banks; he does not even mention commercial banks. Even though he is not explicitly saying so, all his remarks give the impression that only the Government via a government owned and controlled central bank issues money, and only for the benefit of the government.

Otmar Issing, who talked at the same event in Frankfurt, made it even more obvious that money creation by commercial banks is a taboo subject in public. The former Chief Economist of the Bundesbank and later of the ECB talked about paper money, government finances and inflation. A focus of his talk was the free-banking alternative favored by Friedrich August von Hayek, which involves no central bank but has commercial banks issue their own banknotes in competition with each other. Even while discussing this proposal, Issing manages to entirely avoid the words bank and banknote, rather making it seem as if he was talking about different (national) "currencies", rather than about domestic money issued by commercial banks.

While this speech is not publically available, Issing gave a very similar speech in 2003 upon receiving the Hayek-Prize, which is available in German[5] on the ECB's website. The word bank does not appear, other than as "central bank".

Weidman and Issing are the rule rather than the exception. Western central bankers rarely, if ever, make it explicit that commercial banks create money.

Historical evidence and current practice[6]

Before we look at the treatment of the subjects: central banks, banks and money creation by leading textbooks, we will first take a look at the history of important central banks, to see if Weidmann's narrative is correct. We will see that it is not. Neither did or do governments have a monopoly on money creation, nor did they routinely abuse any power they had in this regard. The insinuation of Weidmann and Issing that it is only central banks who create money will turn out as just as wrong.

[4] http://www.bundesbank.de/Redaktion/DE/Reden/2012/2012_09_27_weidmann_markenverband.html
[5] http://www.ecb.int/press/key/date/2003/html/sp031012.de.html
[6] This section draws on Chapter 2 of Haering and Douglas (2012)

Paper money in early China

It is no coincidence that Weidman goes back to 13th Century China to give us an historical example of government-controlled money creation that went wrong. He has to do so because, contrary to his claim, the important central banks in the west historically were created by private bankers for private gain. It is true that bankers created them in cooperation with the government as a new scheme to give credit to the government. This usually involved privileges conferred on these commercial banks, notably the privilege that their notes would be accepted for payment of taxes and duties. But still, central banks were not government controlled entities, issuing money on behalf of the government. The bulk of the seignorage, i.e. the direct monetary gain from printing money, usually went to private bankers. There was a lot of political controversy, historically, about whether commercial banks or the government should issue money, and for a long time, the commercial banks prevailed in this fight even as far as banknotes are concerned. As far as deposit money is concerned, the largest part of the money supply, banks have prevailed until today. So Weidmann is clearly giving a badly distorted account.

Not even the Chinese example that Weidmann chooses is a good one to make his point. Contemporary reports about the economy of Kublai Khan's empire and of his successors stress how wealthy and well organized it was. China was far ahead of Europe at that time. The system of paper money might or might not have been instrumental, but it is far from straightforward to argue that this monetary system was a failure. The devaluation of this paper money over 150 years, that Weidmann alludes to, amounts to a hardly spectacular five or six percent inflation annually. According to Werner (2007), this paper money system worked well for decades, if not centuries, as all available research reports the Chinese economy as flourishing during that time.

The Bank of England

The Bank of England was founded in 1694 as a private enterprise. A consortium led by the Scottish businessman William Paterson had suggested the scheme. It would afford King William and Queen Mary a large loan. The consortium was granted the right to found the privately owned Bank of England and to create money by issuing banknotes. They lent those "Notes of the Bank of England" and some gold to the crown against interest of 8%. (Rothbard, 2008). The Bank of England was awarded the monopoly of issuing banknotes in London by the Bank Charter Act of 1844. Only in the 20th century did the Bank of England move away from commercial endeavors. It was nationalized in 1946. Until then it was a private institution working mostly for the financial benefit of its private shareholders.

No evidence here for the theory of central banks as creatures of governments over issuing money for the benefit of the government.

The US Federal Reserve and its predecessors

The merchant banker Alexander Hamilton, the first United States Secretary of the Treasury, successfully promoted the chartering by Congress of the privately owned First Bank of the United States in 1791, a bank with special money creation privileges. He staunchly opposed the idea that the government itself should issue the money needed to fund manufacturing and the settling of the west. He wanted commercial banks to do it, but they should have the strong

backing of the government. This backing consisted, among other privileges, in accepting the notes of the First Bank in duties and taxes (Nettels, 1962).

The bank faced stiff political opposition. The fight was not about fears of over-issuance, though. It was about the constitutionality of outsourcing the regulation of money to a private company and about the privileges conferred to private bankers at the expense of farmers and other producers and the public at large.

Private bankers' highly privileged role remained a source of political controversy for more than a century. After its 20 year charter ran out in 1811, a bill to recharter the First Bank of America failed. Five years later, the banker Alexander Dallas, in his other capacity as Secretary of the Treasury, initiated the chartering of the Second Bank of the United States. He endowed the – again – predominantly privately owned bank with the same privileges as the First Bank had had (Rothbard 2008).

President Andrew Jackson eventually was successful in his campaign to take away the privileges of the Second Bank in 1836. Jackson insisted that it was improper for Congress to pass the important task of creating money and regulating its value to a private corporation.
Thus, the predecessors of the Federal Reserve offer nothing in evidence for the theory of central banks as creatures of governments, over-issuing of money for the benefit of the government.

For eight decades the US would not have a central bank. Banknotes were still printed and circulated in the economy, though. They were printed by a multitude of competing commercial banks. As Issing pointed out in this speech, such a system has the potential advantage that competition of banks might prevent over-issuance in such a system and the palpable disadvantage that transaction costs are very high, if notes of more than a thousand banks with different discounts from their nominal value are circulating.

In 1862, Salmon Chase, who had been installed as Treasury Secretary by banker and financier Jay Cooke and his newspaper owning brother, pushed through Congress a national banking law that alleviated the competitive limit to money creation that banks had faced in the absence of coordinating central bank (Rothbard 2008).

The new layered system had New York City based national banks at the top, designated as central reserve city banks. They could give loans and thus create deposit money as a multiple of the amount of Treasury bonds, gold and silver they held. Other nationally chartered banks in big cities, the reserve city banks, could hold their reserves in the form of deposits at central reserve city banks or in Treasury bonds. They could create a multiple of these reserves as checking accounts. National banks in smaller places called country banks, could hold more modest reserves also at reserve city banks to back up the loans they gave (Champ 2007; Rothbard 2008).

One can see that money creation in the national banking system was driven mostly by the interests of the banking community in the early United States. While it is true that the idea behind the national banking laws was, besides creating a national currency, to help the government finance the civil war. However, the money that the government created was only a fraction of the money that commercial banks were allowed to create on top of the government bonds that they were forced to hold. The result of the new system from which initiator Cooke benefitted very handsomely, was a great expansion of the number of banks

and of deposits and also a series of severe financial crises in fairly short order. There were panics and bank runs in 1873, 1884, 1893 and 1907, because banks, notably those in New York at the top of the money issuing pyramid, repeatedly had difficulty to meet demand for redemption of their deposits (Champt 2007; Rothbard 2008).

As a reaction to these crises, the Federal Reserve System was created in 1913, again upon private bankers' initiative. At a secret meeting at Jekyll Island, Georgia in December 1910, they hammered out the essential features of the new Federal Reserve System. Bankers representing the interests of Rockefeller, JP Morgan and Kuhn, Loeb & company, the most powerful institutions of the time, dominated the meeting. The continental European, notably the German system served as a model for the basic structure. The idea was to make the process of money creation more disciplined and orderly and to have a deep pocketed institution to bail out the banks if the public lost confidence in the notes they had issued. The bankers wanted the government only as paymaster, though. Otherwise, it was supposed to have as little influence over the process as possible (Rothbard 2008).

To this day, the twelve regional Federal Reserve Banks, which are in charge of regulating banks, are owned and governed by their member banks. Before the subprime crisis, this fact was never advertised and often concealed by the pretense that the Federal Reserve System was a public institution.

The Federal Reserve Bank of New York is the one in charge of regulating, overseeing and bailing out Wall Street banks with public money. Wall Street banks chose the President of the New York Fed and charged him with regulating and controlling them. A board chosen and dominated by bankers makes sure he does it right. Only during the subprime crisis did the Federal Reserve give up the pretence of being a public institution. The New York Fed, managing US$1.7 trillion of emergency lending programs for banks and brokerages, was called upon to inform the public of the whereabouts of the public funds going to Wall Street. At this point, the Federal Reserve of New York insisted – ultimately in vain – that as a private institution it is not bound by the Freedom of Information Act.

Central banking in Germany

In Prussia, the political powerhouse of mid-19th Century pre-unification Germany, a central bank called Preussische Bank was created in 1846 as a hybrid institution, which was run by government representatives but with a capital base which was mostly provided by wealthy businessman and private bankers, who would have a right to a dividend as long as the bank was profitable (Lichter 1999).

The reason for founding the central bank was a dearth of money in circulation in a period of beginning industrialization. There were coins circulating and small denomination treasury obligations, but not enough. In stark contrast to Weidman's account, the Prussian bureaucracy under-issued the debt certificates that served as small denomination paper money rather than over-issuing them and the Royal Bank was stingier with credit than the business community in the commercial centers wanted them to be.

The Prussian bureaucrats were loath to give commercial banks the freedom to emit currency, because they feared that too much money would be issued. Their mistrust was fuelled by the fact that none of the bankers' proposals for the licensing of private note-issuing central banks had a provision of unlimited liability of the banks' owners as prevailed in the Scottish free

banking system. The contemporary US-system with private note issuing banks and correspondingly many different notes trading at varying discounts was regarded as a bad example to be avoided (Lichter 1999).

The fight in Prussia over the right to issue notes had an important political dimension. The fact that private shareholders were invited to provide the capital for the Preussische Bank was a compromise between the preference of Prussian bureaucrats like Minister Christian von Rother, who wanted to keep note emission in public hands and mistrusted profit oriented private bankers in this respect, and the King's perceived need in pre-revolutionary times to appease a dissatisfied moneyed citizenry, which was pressing for the right to issue banknotes (Lichter 1999, p. 89f).

From 1871 to 1876 the Prussian Bank would serve as the central bank of the newly unified German Reich and eventually would become the Reichsbank, which was also run by the government and owned by private shareholders.

The German model of giving a (near-)monopoly of note issuance to a government run central bank was considered highly successful and would later, together with the Bank of England, become the blueprint for the Federal Reserve System.

Money creation by commercial banks today

We have seen that for much of history, government was only indirectly involved in issuing banknotes, and had nothing like a monopoly on it. Over time, most governments took over the responsibility for central banks and the issuance of banknotes, which functioned as means of payment. (Some of that control they have relinquished again recently by deciding to let independent technocrats, often with commercial banking backgrounds make the relevant decisions.) However, even where the government had or has this monopoly to issue notes, this is far from being a monopoly to issue *money*. Today, only a fraction of the money which circulates in the economy consists in cash issued by the central banks. M3, the preferred definition of money of the European Central bank is 11 times larger than the sum of currency in circulation and reserves of commercial banks at the central bank, i.e. base money. We make by far the largest part of our payments without using any government issued banknotes. We pay by transferring deposits at commercial banks to someone else and we receive our paychecks in the form of deposits in the bank, i.e. in electronic money, created by commercial banks.

This money is created any time a commercial bank gives credit to a non-bank or buys an asset from a non-bank. If I take a mortgage loan from a bank of €100,000, the bank will credit my account with a deposit of €100,000 in exchange for my obligation to pay back, say €150,000 over time. €100,000 in new deposits has been created by a few keystrokes and signatures. It might soon leave my bank account, as I pay my house with it, but it will remain in the banking system, as I will transfer the money to somebody else's account at another bank. (The money market, on which commercial banks exchange liquidity, will in normal times make sure that my bank will be able to obtain the central bank deposit needed to make the transfer.)

This deposit money created by commercial banks is equivalent to legal tender for all practical purposes. The government accepts a transfer of this deposit money as taxes and everybody is obliged to accept it for payment in normal business. That these deposits created by

commercial banks are “money” is also recognized by the fact that all major central banks, like the Federal Reserve, the European Central Bank and the Bank of England count them as money in the monetary statistics they compile.

Even when commercial banks were refused the privilege to issue banknotes in 19th Century Prussia, they were able to create money by issuing fungible deposit slips on current account balances of their customers. Whoever presented these deposit slips had the right to have the balance paid out in cash. This enabled commercial banks to lend out much more money than they had in deposits, since most customers would leave the deposits in the bank and transfer the deposit slips to pay their bills (Lichter 1999).

The Reserve Position Doctrine (RPD), also called Monetarism, which was first propagated by the Federal Reserve (Bindseil 2004) and later also by the Deutsche Bundesbank and, for a few years, by the ECB, rests on the assumption that central banks control the process of money creation. They issue so-called base money in the form of currency and bank deposits at the central bank, i.e. reserves. Banks use this base money to give credit and thus create a more or less fixed multiple of the monetary base in deposits, according to the money multiplier (see next section).

In reality even central banks ostensibly adhering to the Reserve Position Doctrin, have not been steering the monetary base, but have been occupied with setting an interest rate on the money market, with which they try to influence and smooth short-term interest rates in the economy in general. Goodhart (2001) claims that the Fed continued to use interest rates as its fundamental modus operandi, even if it pretended to pursue monetary base control. He talks of play-acting and even deception in this regard.

Ulrich Binseil (2004) who used to be head of liquidity operations of the ECB and currently is Deputy Director General of financial market operations, makes it clear that interest rate targeting, which has long been the norm for all major central banks, and control over base money are incompatible: “Today, there is little debate, at least among central bankers, about what a central bank decision on monetary policy means: it means to set the level of short term money market interest rate that the central bank aims at in its day-to-day operations.” And he quotes Goodhart (1989, p. 293) a renowned academic economist with central banking experience, saying “Central bank practitioners, almost always, view themselves as unable to deny setting the level of interest rates, at which such reserve requirements are met, with the quantity of money then simultaneously determined by the portfolio preferences of private sector banks and non-banks.” In other words: the central bank will normally feel obliged to provide whatever demand for monetary base is created by the interaction of private borrowers and banks, because otherwise, short term interest rates would gyrate wildly.

Thus, according to this view prevailing among central banking practitioners, central banks fulfill the task of supporting money creation by commercial banks by providing reserves as needed and disciplining the process in such a way that runaway inflation does not erode the public’s trust in the money thus created.

Even if one should be of the opinion that the central bank is able in our current monetary system, to control the amount of money that commercial banks create, it is certainly not justified to give the impression, as Mr Weidmann and Mr Issing do, that only (government owned) central banks create money and that all money creation is for the benefit of the government. Even if the central bank were to control commercial banks’ money creation, it

would still be done by commercial banks for the benefit of commercial banks (and at the risk of taxpayers who have to bail them out, if it goes wrong). Central bankers never, ever talk about the hugely profitable privilege that the ability to create legal tender means for commercial banks.

The textbooks' narrative

> *"The essence of the contemporary money system is creation of money, out of nothing, by banks often foolish lending."* Martin Wolf, Financial Times, November 9, 2010
>
> *"It proved extraordinarily difficult for economists to recognize that bank loans and bank investments do create deposits."* Joseph Schumpeter (1954, p.1114)

There is very little on the history of central banks in the textbooks of Krugman and Wells and of Mankiw and Taylor, and what there is, is distorted. Thus, students who happen to find out about private ownership and control of central banks must regard it as an oddity, given that they have been led to believe that it is part of the nature of a central bank to be a public institution serving only the interest of the general public.

Mankiw and Taylor report that the Bank of England was created in 1694, but without giving any background. Then they proceed to claiming that "(a)rguably the most significant event in the Bank of England's 300-year history was when the UK government granted it independence in the setting of interest rates in 1997" (p.625-6). This wrongly implies that until then the Bank was taking its orders from government and could not set interest rates independently. However, this was only the situation for a few decades in this 300-year history. It is noticeable that for Mankiw and Taylor the granting of the monopoly to issue banknotes for Greater London in 1844 or the nationalization in 1846 are less important than the decision to partially reverse the nationalization by granting the Bank partial independence from the government.

Of the Federal Reserve, Mankiw and Taylor note the year of creation and that the president appoints the seven governors. They mention that the decision making body Federal Open Market Committee includes the Presidents of the regional Feds, but fail to mention that these are private institutions owned and controlled by the banks in the respective region.

Krugman and Wells are silent about the Bank of England, but are a little more explicit on the Fed. They let us know (p. 812) that "… the legal status of the Fed is unusual: It is not exactly part of the U.S. government, but it is not really a private institution either." What do they mean by "not exactly" part of the government, and "not really" a private institution, a description taken from the websites of the Federal Reserve System? Students are left in the dark. They mention that the Board of Governors is appointed by the President and approved by the Senate, but remain silent on who appoints the Presidents and boards of the twelve regional Federal Reserve banks. While earlier versions of the textbook only stated that the regional Federal Reserves have a board of directors, the 2009 version is at least hinting at the truth by adding that the board of directors is "chosen *from* the local banking and business community" (my italics). This is somewhat misleading. Two thirds are chosen *by* the local banking community, one third by the Board of Governors in Washington. Most members indeed come

from the local financial community, but they don't have to. The point is: banks control the regional Federal Reserve Banks that are supposed to control them. You would not know from reading Krugman and Wells?

Without explaining the "unusual legal status", Krugman and Wells (p. 813) arrive at the surprising conclusion that "the effect of this complex structure is to create an institution that is ultimately accountable to the voting public, because the Board of Governors is chosen by the president and confirmed by the Senate." Had they given the complete picture they would risk being laughed at for this apologetic conclusion.

The equally apologetic treatment of commercial banks' money creation by the textbooks is also highly misleading. Mankiw and Taylor only start talking about where money comes from after page 600 under the unlikely headline "Money and Prices in the Long Run". That is: explaining our monetary system is relegated to near the end of the book and reduced to its impact on prices in the long run.

Krugman and Wells introduce the "hypothetical market for loanable funds" on page 678 to explain how savings are used to finance investment. Banks as intermediaries channel money from savers to investors. The interest rate is the price that equates saving and investment, just like it does in the market for potatoes. No money creation by banks at this point, actually no money at all. It might as well be a generic good like grain that is being saved and passed on to investors who need grain to pay workers until they can sell their product. Money in the modern sense appears only on page 804 under the equally unlikely header "Stabilization Policy". Again, money is relegated to the near-end of the book and does not deserve its own chapter.

In wording, Krugman and Wells continue to follow the loanable funds doctrine in the section on money. They pretend that banks are mere financial intermediaries, collecting deposits, from a multitude of savers and passing them on as loans to companies, households and government. This is very odd in a chapter in which they explain how banks *create* deposits. It is a clear contradiction. A banking system that creates deposits in the process of lending does not have to wait for deposits to come in, in order to intermediate them.

In order to hide the contradiction, both textbooks stubbornly insist that the process of money creation starts with cash being deposited in a bank. Deposits are created in the textbook examples, but they remain in the background. The textbooks rather focus on cash that is deposited in the bank and then is being lent out again as cash (with a small fraction retained in reserve), redeposited and lent out again. Thus, the rhetoric of loanable funds can in a superficial way still be used. Rather than individual banks creating money they only intermediate the cash that has been deposited. It just so happens that the banking system overall intermediates the same cash many times.

But why should banks limit themselves to creating money in this roundabout way? In reality, the process typically will start with a bank giving credit to someone and in the process crediting this person's bank account with the respective sum of deposit money, thus *creating* deposits, not *intermediating* them. If someone deposits €1000 in the bank, as in Krugman/Wells example, the bank can just deposit the whole €1000 at the central bank as reserves and – given a reserve requirement of 10% as in the US, or 1% in the euro area – be entitled to lend out €10,000 or €100,000 respectively, without having to wait for any further

deposits. They will routinely do just this, rather than lending out €90 or €99 (depending on the reserve requirement) and then wait for new deposits to come in before lending more.

Mankiw and Taylor (p. 629) explicitly tackle the possible amazement of students that might arise from the fact that banks can create money out of nothing: "At first, this creation of money by fractional-reserve banking may seem too good to be true, because it appears that the bank has created money out of thin air", they concede. Then they try to appease their readers' minds by alerting them to the fact that no wealth is created by this creation of deposits, because "… as the bank creates the asset money, it also creates a corresponding liability for its borrowers."

Here the explanation ends, even though here it would only start to get interesting. The bank creates "the asset money" for itself in the sense that the bank can demand interest on it. This is real wealth that the banks derive from their money creation. In the process they create a debt for someone else. For society, no wealth is created, that is true. But for themselves, their shareholders and managers, banks have created wealth and the rest of society has the debt.
In the pre-crisis version of their textbook, Krugman and Wells (2005, p. 969) had a box, in which they explicitly defended banks against the possible charge of being dishonest, because they promise to pay back deposits in full upon demand, while they know they will not have the liquid funds to do so, if many customers require it at the same time. Krugman/Well's (2005) answer was negative, and they offered a bizarrely out of place comparison to justify this. They equated the expectation of the bank's customers being able to take out their money in the bank at any time they want to the expectation of (potential) customers of car rentals to be able to rent a car any time they want. If too many (potential) customers want to do this at the same time, not enough cars will be available, they remind us. Everybody accepts that, and equally, everybody should accept the risk of losing their money in a bank run, is their conclusion. The fact that banks have entered into a contractual obligation with somebody who entrusted their money to them, while car rentals have not taken any money from potential customers and have not legally promised anybody to give them a car at any time, plays no role in their comparison.

The extensive space that most major textbooks afford to the money multiplier is a relic of the monetaristic Reserve Position Doctrine, which claims that central banks control base money and, through the money multiplier, overall money. ECB policy maker Ulrich Bindseil (2004) is puzzled by the stubbornness with which influential textbook authors teach an outdated doctrine. He blames it on the interest of central bankers to avoid responsibility about unemployment:

> Overall, the 20th century thus seemed to have witnessed in the domain of monetary policy implementation a strange symbiosis between academic economists stuck in reality-detached concepts, and central bankers who were open to such concepts, partially since they allowed them to avoid explicit responsibility. Masking responsibility seemed to be of particular interest whenever the central bank's policies were strongly dis-inflationary and thus causing recession and unemployment.

This kind of deception is not the topic of this paper. Bindseil is quoted here to show that even seasoned policy makers, intimately involved in the interaction of the central bank with commercial banks, considers the money multiplier fetish of economic textbooks an aberration.

Capture by financial interests

The interest of central banks in making their influence on the economy less clear cut might go some way in explaining this aberration. However, there is also the interest of commercial banks in having something hidden. And this interest could be even more influential. There is a complete absence in all major textbooks of any mention of the pecuniary benefit, which banks derive from their role in "the money multiplier". This points to a taboo imposed by the interest of a very powerful group. If you present the money multiplier in the distorted way textbooks do, with banks appearing to be mere intermediaries, it is very hard to see this profitable privilege. Money gets somehow multiplied, but you do not see anybody directly claiming the value of this newly created money.

If you were to describe the process in the less convoluted, direct way, as it really happens, it would be obvious who gets to claim the value of the new money. The borrower who takes a loan of €1000 from the bank gets credited 1000 in deposit money in exchange for the promise to pay back €1000 plus interest. The bank gets interest on deposit money, which it can create out of nothing and which will disappear again from the banking system as the loan is paid back. All it costs the bank is the (usually lower) interest rate it has to pay on the small fraction of reserves required (or necessary) to give a loan of €1000.

The authors of the most influential textbooks are highly recognized economists with very close ties to central banks and to the financial elite. There is no dearth of opportunity in which members of these groups could tell them about perceived anti-finance biases or mistaken thinking, if they had passages in their textbooks, which could be construed as anti-finance or having some perceived bias.

Recently an intense discussion has started about the close ties of economists with the financial industry and about undisclosed conflicts of interest of this sort – a discussion that was almost completely absent until the latest financial crisis. Only in 2012 did the American Economic Association approved a code of conduct for its members. Economist Devesh Kapur (2009) was still a rarity when he spelled out these conflicts of interest in the *Financial Times* in June 2009. He noted that "there would be little chances of being invited to a lucrative talk at Citigroup if one were in favor of sovereign debt-forgiveness in the 1980s, against capital account liberalization in the 1990s or against stock options in the 2000s."

What is still lacking is a serious discussion of the even closer ties of many central bankers with the financial elite and about the undisclosed and unfettered conflicts of interest that arise from them. It is standard for influential central bankers to obtain highly paid jobs in the financial industry after they leave their public office. ECB-board member and chief economist Otmar Issing caused a bit of an uproar, because he did not even obey the informal cool-off period of one year ususally observed by top-ranking ECB officials before taking a job with Goldman Sachs as an advisor after leaving office in 2006.

It would go beyond the scope of this paper to delve much further into this, but a look at a microcosm called Group of Thirty (G30) can serve to illustrate the overly cozy relationship of high finance, central banking and eminent economists.

According to its own website[7], the G30 is a private, nonprofit, international body composed of very senior representatives of the private and public sectors and academia, whose work impacts the current and future structure of the global financial system by delivering actionable recommendations directly to the private and public policymaking communities. One such set of recommendations was delivered in February 2013 in the form of a report called: "Long Term Finance and Economic Growth".[8] The report reads like a wish-list of the leading internationally active banks. Recommendations include more public-private partnerships, more capital market based (rather than pay-as-you-go) private pension saving, reviving loan-securitization, promoting international capital movements, toning down bank regulation, government guarantees to take away the risk of certain investments.

If you look at the membership of this lobby-group it turns out that it is packed with current and former central bankers with strong ties to the financial industry. Textbook-author Paul Krugman is also among the members, as is Mario Draghi (President of the ECB, formerly Golman Sachs), Mark Carney (President of the Bank of Canada – from July 2013 of the Bank of England – formerly Goldman Sachs), William Dudley (President of the New York Fed, formerly Goldman Sachs), Gerald Carrigan (Goldman Sachs, formerly President of the New York Fed), Axel Weber (UBS, formerly President of Deutsche Bundesbank), Jacob Frenkel (JP Morgan Chase, formerly Governor of the Bank of Israel), Paul Volcker (former Fed-Chairman), Jean Claude Trichet (former President of the ECB), Leszek Balcerowicz (former Governor of the National Bank of Poland), Jaime Caruana (General Manager of the Bank for International Settlements and former Governor of the Bank of Spain), Guillermo de la Dehesa Romero (Santander, formerly Deputy Director of the Bank of Spain), Roger Ferguson (TIAA-CREF, formerly Swiss Re and formerly Vice-Chairman of the Fed), Stanley Fisher (Governor of the Bank of Israel, formerly IMF and formerly Citigroup), Arminio Fraga Neto (Gavea Investimentos, formerly Governor of the Central Bank of Brazil), Philipp Hildebrand (Blackrock, formerly Chairman of the Swiss National Bank), Mervyn King (Governor of the Bank of England until June 2013), Guillermo Ortiz (Grupo Financiero Banorte; formerly Governor of the Bank of Mexico), Masaaki Shirakawa (Governor of the Bank of Japan), Yutaka Yamaguchi (former Deputy Governor of Bank of Japan) and Zhou Xiaochuan Governor of the People's Bank of China).

This makes twenty current or former top-level central bankers of the most important central banks of the world, the majority of which are now holding or have held very senior positions in commercial financial institutions. While this might look like a convenient venue for central bankers to exchange views, it is important to note that active central bankers meet regularly at the Bank of International Settlements in Basel for gatherings which are behind closed doors but nonetheless official. The unofficial Group of Thirty is better characterized as a private sector pressure group dominated by those central bankers who are particularly inclined to straddle the narrow divide between public service and private gain in commercial financial endeavors.

The conflicts of interest arising for this are very relevant for the subject of this paper and might well explain, why leading central bankers and central banks seem to have tabooed talk and research about money creation by commercial banks. As a (rare) economic journalist writing about the workings of the monetary system occasionally, I have routinely been confronted with two reactions in the general public: outrage or disbelief. Since the privilege of having your

[7] http://www.group30.org/
[8] http://www.group30.org/rpt_65.shtml

debt declared legal tender is extremely unusual, this sector has a very big interest in avoiding the first of these two reactions by the public. Pretending that central banks are the only ones "printing" money is a probate strategy to achieve that. Central bankers seem to play along, for reasons that are not too hard to fathom, if you consider the history of important central banks and the typical career path of influential central bankers as evidenced by the membership of the Group of Thirty.

A consequence of the taboo: policy failure

Given the long-standing taboo to talk about money creation/credit creation by commercial banks in a reasonable way even in textbooks, it is no wonder that central bankers and other policy makers did not have the frame of mind to understand what was going on in the credit booms in the run ups to the Asian crisis and the dotcom bubble and the subprime crisis. In the run-up to the most recent financial crisis, banks were pumping massive amounts of credit into the real estate market in the US and in parts of Europe. In the Euro area as an aggregate, this led to many years of double digit growth in credit volumes and in monetary aggregates, including M3, to which the ECB long pretended to pay special attention. Real estate credit increased with excessive rates of up to 30% for years in several countries like Ireland, Greece and Spain. There was a similarity strong lending boom in the US which also was ignored.

The money flowing into real estate created a self-reinforcing bubble of rising prices, a booming economy and even more credit, until the bubble finally burst. According to a large empirical study of Schularick and Taylor (2012) on many historical financial crises, this episode was typical. They characterize most financial crises of the last five decades as "credit booms gone bust".

Even after this failure to understand the role of finance in producing boom and bust cycles was exposed, the intellectual situation has not improved much, if any.

US Secretary of the Treasury Tim Geithner, who had been President of the New York Fed in the run-up to the crisis, said in written testimony to the Financial Services Committee of Congress on September 23, 2009 (quoted from Petifor 2013): "The purpose of the financial system is to let those who want to save, save. It is to let those who want to borrow, borrow. And it is to use our banks and other financial institutions to bring savers' funds and borrowers' needs together and carefully manage the risks involved in transfers between them." No wonder the Fed could not see the credit bubble building that the banks were blowing up, if the President of the most influential Federal Reserve Bank can see banks exclusively as intermediator of pre-existing funds.

Vitor Gaspar, in his capacity as Portuguese Minister of Finance, came to Frankfurt in January 2013 to praise his country's adjustment program. He diagnosed the excessive build-up of debt by households, government and companies as the underlying cause of the Portuguese crisis. This built-up of debt had happened partly while he had been working in Frankfurt for the ECB as head of Economic Research. Commercial banks had provided that excessive credit refinancing with funds from the ECB. It had showed up in double digit growth of the money aggregate M3, which the ECB ignored. However, debt buildup or debt in general was not part of the research program of the ECB. Asked if he would draw any lessons from the diagnostic failure of the ECB and its failure to do anything about this debt buildup, he said: "I

am embarrassed, because this is an important question and I have to admit that I have not thought about it. I cannot answer out of hand", (Haering 2013).

The situation in the ECB's economic research department did not improve post Gaspar. A paper in which one could have expected some lengthy and explicit analysis of money and credit creation by commercial banks is the ECB's October 2012 "Report on the first two years of the macro-prudential research network" (European Central Bank 2012).[9] It aims to answer questions like: "How does widespread financial instability affect the real economy? How can the leverage cycle be described theoretically and empirically? How can these models help understand the causes and features of the recent financial crisis.

You would not easily infer from reading this 80 page review of the state of knowledge by the ECB that this is about a crisis produced by a credit boom. The tabooed expressions credit creation or money creation do not appear. The expression "credit boom" is used twice in a rather cursory way, barely enough to include the paper by Schularick and Taylor (2012) in the reference list. The work of Minsky on financial instability, which focuses on cycles in credit creation is mentioned once, but not at all discussed. Neither is the work of scholars, who do not obey the loanable funds doctrine but rather have included credit creation in their models and were able to predict the latest crisis on that basis, like Robert Shiller, Nouriel Roubini, Steve Keen, Michael Hudson, Dean Baker and Wynne Godley. The list is from Bezemer (2009). None of these are included in the references.

In the rhetoric of this ECB report, banks do not create and destroy credit and money. All they do is increase or decrease their leverage, which is defined in the report as the ratio of debt to equity.

In its Monthly Report of October 2012 (European Central Bank 2012, p.56), the ECB's economics department makes the fallacious thinking behind this explicit: "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." As Knibbe, Mahé and Schrijvers (2013) point out, this refusal of the ECB economics department to accept the fact that private agents can create money is in direct contradiction to the very monetary statistics that the ECB assembles and presents. These are based squarely upon the idea that banks can create money and even legal tender.

Conclusion

This paper aimed to give substance to the claim that central bankers and prominent textbook authors share a desire to let us think that the creation of the vast majority of our means of payment by commercial banks for their own benefit is normal, harmless, without alternative and under the control of the central banks. Central bankers do so by avoiding any mention of private money creation or credit creation, and by pretending instead that central banks have a monopoly to create money. Textbook authors do so by distorting the process of money creation, using the rhetoric of the inappropriate loanable funds model. Their account of the role and legal status of central banks is highly selective and biased. Alternative monetary systems are hardly ever seriously discussed.

[9] http://www.ecb.int/pub/pdf/other/macroprudentialresearchnetworkreport201210en.pdf

The result is that even five years into the financial crisis brought about by a long and pronounced credit boom, economists working for central banks and most prominent economist outside central banks still seem to lack a frame of mind that would allow them to understand credit cycles.

The look into the history of central banks and the mechanisms by which commercial banks create money has revealed that there is indeed an important element in the nature of central banks of serving the interests of the banking community. We have seen that leading textbook authors and central bankers are actively trying to disguise this. This should be kept in mind then assessing the appropriateness of letting independent central banks, which do not have to answer to the electorate or their representatives, wield wide ranging powers in economic policy and banking supervision.

A suggestion for further research is to examine, how the major scholarly journals, notably finance journals, deal with these issues. Cursory observation suggests that credit creation or money creation are taboo words in the leading journals. The strong role of economists very closely related to the Federal Reserve System in the leading finance journals might go pretty far in explaining any such finding.

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Ultra easy monetary policy and the law of unintended consequences[1]

William R. White[2,3] [OECD, Paris]

Abstract
In this paper, an attempt is made to evaluate the desirability of ultra easy monetary policy by weighing up the balance of the desirable short run effects and the undesirable longer run effects – the unintended consequences. The conclusion is that there are limits to what central banks can do. One reason for believing this is that monetary stimulus, operating through traditional ("flow") channels, might now be less effective in stimulating aggregate demand than previously. Further, cumulative ("stock") effects provide negative feedback mechanisms that weaken both supply and demand over time. It is also the case that ultra easy monetary policies can eventually threaten the health of financial institutions and the functioning of financial markets, threaten the "independence" of central banks, can encourage imprudent behavior on the part of governments, and can worsen income distribution as well. None of these unintended consequences is desirable. Since monetary policy is not "a free lunch", all it buys is time. Governments must use this time to set the policy levers they control to support strong, sustainable and balanced growth at the global level.
JEL codes: E52, E58

> "This *long run* is a misleading guide to current affairs. *In the long run we are all dead*. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is long past the sea is flat again". John Maynard Keynes

> "No very deep knowledge of economics is usually needed for grasping the immediate effects of a measure; but the task of economics is to foretell the remoter effects, and so to allow us to avoid such acts as attempt to remedy a present ill by sowing the seeds of a much greater ill for the future". Ludwig von Mises

1. Introduction

The central banks of the advanced market economies (AMEs) [4] have embarked upon one of the greatest economic experiments of all time – ultra easy monetary policy. In the aftermath of the economic and financial crisis which began in the summer of 2007, they lowered policy rates effectively to the zero lower bound (ZLB). In addition, they took various actions which not only caused their balance sheets to swell enormously, but also increased the riskiness of the assets they chose to purchase. Their actions also had the effect of putting downward pressure on their exchange rates against the currencies of Emerging Market Economies

[1] An earlier version of this paper was first presented as Working Paper 126 of the Globalization and Monetary Policy Institute of the Federal Reserve Bank of Dallas. The views in this paper are those of the author and do not necessarily reflect the views of organizations with which the author has been or is still associated, the Federal Reserve Bank of Dallas or the Federal Reserve System

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[3] The views expressed here are personal. They do not necessarily represent the views of organizations with which the author has been or still is associated

[4] It is important to note that, in spite of many similarities in the policies of various AME central banks, there have also been important differences. See White (2011)

(EMEs). Since virtually all EMEs tended to resist this pressure[5], their foreign exchange reserves rose to record levels, helping to lower long term rates in AMEs as well. Moreover, domestic monetary conditions in the EMEs were eased as well. The size and global scope of these discretionary policies makes them historically unprecedented. Even during the Great Depression of the 1930s, policy rates and longer term rates in the most affected countries (like the US) were never reduced to such low levels[6].

In the immediate aftermath of the bankruptcy of Lehman Brothers in September 2008, the exceptional measures introduced by the central banks of major AMEs were rightly and successfully directed to restoring financial stability. Interbank markets in particular had dried up, and there were serious concerns about a financial implosion that could have had important implications for the real economy. Subsequently, however, as the financial system seemed to stabilize, the justification for central bank easing became more firmly rooted in the belief that such policies were required to restore aggregate demand[7] after the sharp economic downturn of 2009. In part, this was a response to the prevailing orthodoxy that monetary policy in the 1930s had not been easy enough and that this error had contributed materially to the severity of the Great Depression in the United States.[8] However, it was also due to the growing reluctance to use more fiscal stimulus to support demand, given growing market concerns about the extent to which sovereign debt had built up during the economic downturn. The fact that monetary policy was increasingly seen as the "only game in town" implied that central banks in some AMEs intensified their easing even as the economic recovery seemed to strengthen through 2010 and early 2011. Subsequent fears about a further economic downturn, reopening the issue of potential financial instability[9], gave further impetus to "ultra easy monetary policy".

From a Keynesian perspective, based essentially on a one period model of the determinants of aggregate demand, it seemed clearly appropriate to try to support the level of spending. After the recession of 2009, the economies of the AMEs seemed to be operating well below potential, and inflationary pressures remained subdued. Indeed, various authors used plausible versions of the Taylor rule to assert that the real policy rate required to reestablish a full employment equilibrium (and prevent deflation) was significantly negative. Such findings were used to justify the use of non standard monetary measures when nominal policy rates hit the ZLB.

There is, however, an alternative perspective that focuses on how such policies can also lead to unintended consequences over longer time periods. This strand of thought also goes back to the pre-War period, when many business cycle theorists[10] focused on the cumulative

[5] This phenomenon was not in fact confined to EMEs. A number of smaller AMEs, like Switzerland, have also resisted upward pressure on their exchange rates.
[6] See Bank for International Settlements (2012) Graph 1V.8
[7] See in particular Bernanke (2010). The reasons for conducting QE2 seem to differ substantially from the reasons for conducting QE1.
[8] Bernanke (2002)
[9] The catalyst for these fears was a sharp slowdown in Europe. This was driven by concerns about sovereign debt in a number of countries in the euro zone, and associated concerns about the solvency of banks that had become over exposed to both private and sovereign borrowers. Also of importance were fears of the "fiscal cliff" in the US. This involved existing legislation which, unless revised, would cut the US deficit by about 4 percent of GDP beginning in January 2013. As discussed below, this prospect had a chilling effect on corporate investment and hiring well before that date.
[10] For an overview, see Haberler (1939). Laidler (1999) has a particularly enlightening chapter on Austrian theory, and the main differences between the Austrians and Keynesians. He then notes (p.49) "It would be difficult, in the whole history of economic thought, to find coexisting two bodies of doctrine which so grossly contradict one another."

effects of bank-created-credit on the supply side of the economy. In particular, the Austrian school of thought, spearheaded by von Mises and Hayek, warned that credit driven expansions would eventually lead to a costly misallocation of real resources ("malinvestments") that would end in crisis. Based on his experience during the Japanese crisis of the 1990s, Koo (2003) pointed out that an overhang of corporate investment and corporate debt could also lead to the same result (a "balance sheet recession").

Researchers at the Bank for International Settlements have suggested that a much broader spectrum of credit driven "imbalances[11]", financial as well as real, could potentially lead to boom-bust processes that might threaten both price stability and financial stability[12]. This BIS way of thinking about economic and financial crises, treating them as systemic breakdowns that could be triggered anywhere in a system overstretched by credit, also has much in common with insights provided by interdisciplinary work on complex adaptive systems. This work indicates that such systems, built up as a result of cumulative processes, can have highly unpredictable dynamics and can demonstrate significant non linearities[13]. The insights of George Soros, reflecting decades of active market participation, are of a similar nature.[14]

As a testimony to this complexity, it has been suggested that the threat to price stability could also manifest itself in various ways. Leijonhufvud (2012) contends that the end results of such credit driven processes could be either hyperinflation or deflation[15], with the outcome being essentially indeterminate prior to its realization. Indeed, Reinhart and Rogoff (2009) and Bernholz (2006) indicate that there are ample historical precedents for both possible outcomes.[16] As to the likelihood that credit driven processes will eventually lead to financial instability, Reinhart and Rogoff (2009) note that this is a common outcome, though they also note that the process more commonly begins with a recession feeding back on the financial system than the other way around[17]. Reinhart and Reinhart (2010) document the severity and durability of downturns characterized by financial crisis, implying that this complication would seem more likely to shift the balance of macroeconomic outcomes towards deflation rather than inflation.

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[11] An "imbalance" is defined roughly as a "sustained and substantial deviation from historical norms", for which there is no compelling analytical explanation.

[12] See in particular the many works authored or coauthored by Claudio Borio, including Borio and White (2003). See also White (2006). The origins of this way of thinking go back to the work of Alexander Lamfalussy and possibly even before. See Clement (2010) on the origins of the word "macroprudential", whose first recorded use at the BIS was in 1979.

[13] There is a long history (although never mainstream) of treating the economy as a complex, adaptive system. It goes back to Veblen and even before. However, this approach received significant impetus with the founding of the Santa Fe Institute in the early 1990s. See Waldrop (1992). For some recent applications of this type of thinking see Beinhocker (2006) and Haldane (2012). From this perspective, an economy shares certain dynamic characteristics with other complex systems. Buchanan (2002) suggests the following. First, crises occur on a regular basis in complex systems. They also conform to a Power Law linking the frequency of crises to the inverse of their magnitude. Second, predicting the timing of individual crises is impossible. Third, there is no relationship between the size of the triggering event and the magnitude of the subsequent crisis. This way of thinking helps explain why "the Great Moderation" could have been followed by such great turbulence, and why major economic crises have generally emerged suddenly and with no clear warning.

[14] Soros has written prolifically on these themes over many years. For a recent summary of his views, see Soros (2010)

[15] In earlier publications, Leijonhufvud referred to the "corridor of stability" in macroeconomies. Outside this corridor, he suggests that forces prevail which encourage an ever widening divergence from equilibrium. See also White (2008)

[16] This helps explain the coexistence today of two schools of thought among investors about future price developments.

[17] See Reinhart and Rogoff (2009)p.145. "Severe financial crises rarely occur in isolation. Rather than being the trigger of recession, they are more often an amplification mechanism".

In this paper, an attempt is made to evaluate the desirability of ultra easy monetary policy by weighing up the balance of the desirable short run effects and the undesirable longer run effects – the unintended consequences. In Section 2, it is suggested that there are grounds to believe that monetary stimulus operating through traditional ("flow") channels might now be less effective in stimulating aggregate demand than is commonly asserted. In Section 3, it is further contended that cumulative ("stock") effects provide negative feedback mechanisms that also weaken growth over time. Assets purchased with created credit, both real and financial assets, eventually yield returns that are inadequate to service the debts associated with their purchase. In the face of such "stock" effects, stimulative policies that have worked in the past eventually lose their effectiveness.

It is also argued in Section 3 that, over time, easy monetary policies threaten the health of financial institutions and the functioning of financial markets, which are increasingly intertwined. This provides another negative feedback loop to threaten growth. Further, such policies threaten the "independence" of central banks, and can encourage imprudent behavior on the part of governments. In effect, easy monetary policies can lead to moral hazard on a grand scale[18]. Further, once on such a path, "exit" becomes extremely difficult. Finally, easy monetary policy also has distributional effects, favoring debtors over creditors and the senior management of banks in particular. None of these "unintended consequences" could be remotely described as desirable.

The force of these arguments might seem to lead to the conclusion that continuing with ultra easy monetary policy is a thoroughly bad idea. However, an effective counter argument is that such policies avert near term economic disaster and, in effect, "buy time" to pursue other policies that could have more desirable outcomes. Among these policies might be suggested[19] more international policy coordination and higher fixed investment (both public and private) in AMEs. These policies would contribute to stronger aggregate demand at the global level. This would please Keynes. As well, explicit debt reduction, accompanied by structural reforms to redress other "imbalances" and increase potential growth, would make remaining debts more easily serviceable. This would please Hayek. Indeed, it could be suggested that a combination of all these policies must be vigorously pursued if we are to have any hope of achieving the "strong, sustained and balanced growth" desired by the G 20. We do not live in an "either-or" world.

The danger remains, of course, that ultra easy monetary policy will be wrongly judged as being sufficient to achieve these ends. In that case, the "bought time" would in fact have been wasted[20]. In this case, the arguments presented in this paper then logically imply that monetary policy should be tightened, regardless of the current state of the economy, because the near term expected benefits of ultra easy monetary policies are outweighed by the longer term expected costs. Undoubtedly this would be very painful, but (by definition) less painful than the alternative of not doing so. John Kenneth Galbraith touched upon a similar practical conundrum some years ago when he said [21]

[18] This is discussed further in White (2004)
[19] White (2012b)
[20] Governor Shirakawa of the Bank of Japan has made this argument particularly forcefully. See Shirakawa (2012a and 2012b). It also resonates strongly in both Europe and the United States. Their respective central bank heads have repeatedly called on governments to take the necessary measures to deal with fiscal and other problems that are ultimately government responsibilities. See also Issing (2012) p3 and Fisher (2012). Both have stressed repeatedly that that there are clear limits to what central banks can do.
[21] Galbraith (1993).

> "Politics is not the art of the possible.
> It is choosing between the unpalatable and the disastrous".

This might well be where the central banks of the AMEs are now headed, absent the vigorous pursuit by governments of the alternative policies suggested above.

2. Will ultra easy monetary policy stimulate the real economy?

Stimulative monetary policies are commonly referred to as "Keynesian". However, it is important to note that Keynes himself was not convinced of the effectiveness of easy money in restoring real growth in the face of a Deep Slump. This is one of the principal insights of the General Theory.[22] In current circumstances, two questions must be addressed. First, will ultra easy monetary conditions be effectively transmitted to the real economy? Second, assuming the answer to the first question is yes, will private sector spending respond in such a way as to stimulate the real economy and reduce unemployment? It is suggested in this paper that the answer to both questions is no.

2.1 Ultra easy monetary policy and the transmission mechanism

When the crisis first started in the summer of 2007 the response of AME central banks was quite diverse. Some, like the ECB, remained focused on resisting inflation which was rising under the influence of higher prices for food and energy. Others, like the Federal Reserve, lowered policy rates swiftly and by unprecedented amounts. However, by the end of 2008, against the backdrop of the failure of Lehman Brothers and declining inflation, virtually all AME central banks were in easing mode and policy rates were reduced virtually to zero. This response showed clearly the capacity of central banks to act. At the same time, having lowered policy rates to or near the ZLB, these actions also implied a serious limitation on the further use of traditional monetary policy instruments. Further, as time wore on, doubts began to emerge about the effectiveness of some of the traditional channels of transmission of monetary policy.

An important source of concern was whether lower policy rates would be effectively transmitted along the yield curve to longer maturities. Due to the potentially interacting effects of rising term and credit spreads, long rates might fall less than normally (or indeed might even rise) in response to lower policy rates. This phenomenon has already been witnessed in a number of peripheral countries in the eurozone area. After years of declining long rates driven by "convergence trades", prospects of continuing slow growth (or even recession) in these countries raised concerns about the continued capacity of their governments to service rising debt levels. The European Central Bank took various steps to support the prices of sovereign bonds in the various countries affected, but these measures have not thus far proved wholly successful.[23]

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[22] See Keynes (1936). As noted below, however, this skepticism marked a fundamental change from his earlier thinking in The Treatise on Money.

[23] The ECB directly purchased such bonds in 2010 and 2011 under its SMP program. Subsequently, it extended LTRO facilities, with some of the funds provided being used by banks to purchase bonds issued by their national sovereigns. In mid 2012 the President of the ECB promised to "do whatever it takes" to ensure peripheral sovereigns would be able to service their debts and to eliminate fears of a breakup of the eurozone. This had a significant calming effect on markets although there are reasons to believe earlier concerns could still reemerge.

In contrast, for sovereigns deemed not to have counterparty risk, there has been no evidence of such problems. Indeed, long term sovereign rates in the US, Germany, Japan and the UK followed policy rates down and are now at unprecedented low levels. However, there can be no guarantee that this state of affairs will continue. One disquieting fact is that these long rates have been trending down, in both nominal and real terms, for almost a decade and there is no agreement as to why this has occurred.[24] Many commentators have thus raised the possibility of a bond market bubble that will inevitably burst[25]. Further, long term sovereign rates in favored countries could yet rise due to growing counterparty fears. In all the large countries noted above, the required swing in the primary balance needed just to stabilize debt to GNE ratios (at high levels), is very large[26]. Such massive reductions in government deficits could be hard to achieve in practice. In the US and Japan, in particular, the absence of political will to confront evident problems has already led to downgrades by rating agencies[27].

As for private sector counterparty spreads, mortgage rates in a number of countries have not followed policy rates down to the normal extent. In the United States in particular, as the Fed Funds rate fell sharply from 2008 onwards, the 30 year FNMA rate declined much less markedly[28]. In part, widening mortgage spreads reflect increased concentration in the mortgage granting business since the crisis began, and also increased costs due to regulation. However, it also reflects the global loss of trust in financial institutions, which has led to higher wholesale funding costs. In addition, costs of funds have risen in many countries due to the failure of deposit rates to fully reflect declines in policy rates[29]. A fuller discussion of the effects of low interest rates on the financial industry is reserved for later.

Spreads for corporate issues have also fallen less than might normally have been expected, even if the absolute decline has been very substantial. Nevertheless, these spreads could rise again if the economy were to weaken or even if economic uncertainties were to continue. Paradoxically, a rise in corporate spreads might even be more likely should governments pursue credible plans for fiscal tightening[30]. These plans might well involve tax increases and spending cuts that could have material implications for both forward earnings and companies net worth. This could conceivably increase risk premia on corporate bonds.

A further concern is that the reductions in real rates seen to date, associated with lower nominal borrowing rates and seemingly stable inflationary expectations, might at some point be offset by falling inflationary expectations. In the limit, expectations of deflation could not be ruled out. This in fact was an important part of the debt/deflation process first described by

[24] For a fuller analysis of the potential contributing factors, see Turner (2011)
[25] Perhaps the best known market participant to express this view was Bill Gross of Pimco, though he has subsequently changed his mind.
[26] For calculations indicating how large the needed swing might be, see Cecchetti et al (2010). Their calculations indicate the primary surplus must swing by more than 10 percentage points of GDP in the United Kingdom, Japan, and the United States. Generally speaking, the adjustments required in large continental European economies are smaller.
[27] The recent ratings downgrade of the US was not due to any change in the objective economic circumstances. Rather, it reflected an assessment that a dysfunctional Congress was increasingly unlikely to make the compromises necessary to achieve a meaningful reduction of the US deficit.
[28] Moreover, the average effective rate on outstanding US mortgages fell even less; homeowners with negative effective equity were unable to refinance their mortgages at lower rates, as in earlier cycles.
[29] On this general question of the increased cost of financial intermediation, see Lowe (2012).
[30] See Dugger (2011). Dugger introduces the concept of Fiscal Adjustment Cost (FAC) discounting. He contends that companies are already assessing the effects of fiscal constraint on their own balance sheets and earnings. In effect "they begin to treat long term fiscal shortfalls as present value off balance sheet (corporate) liabilities".

Irving Fisher in 1936. The conventional counterargument is that such tendencies can be offset by articulation of explicit inflation targets to stabilize inflationary expectations. Even more powerful, a central bank could commit to a price level target, implying that any price declines would have subsequently to be offset by price increases[31].

However, there are at least two difficulties with such targeting proposals. The first is making the target credible when the monetary authorities' room for maneuver has already been constrained[32] by the zero lower bound problem (ZLB). The second objection is even more fundamental; namely, the possibility that inflationary expectations are not based primarily on central banker's statements of good intent. Historical performance concerning inflation, changing perceptions about the central banks capacity and willingness to act, and other considerations could all play a role. The empirical evidence on this issue is not compelling in either direction[33].

Lower interest rates are not the only channel through which monetary conditions in AMEs might be eased further. Whether via lower interest rates or some other central bank actions, reflationary forces could be imparted to the real economy through nominal exchange rate depreciation[34]and the resulting increase in competitiveness[35]. However, an important problem with this proposed solution is that it works best for a single country. In contrast, virtually all the AMEs are near the ZLB and desirous of finding other channels to stimulate the real economy. Evidently, this still leaves the possibility of a broader nominal depreciation of the currencies of AMEs *vis a vis* the currencies of EMEs. Indeed, given the trade surpluses of many EMEs (not least oil producers), and also the influence of the Balassa-Samuelson effect, a real appreciation of their currencies might be thought inevitable.

The problem rests with the unwillingness of many EMEs to accept nominal exchange rate appreciation; the so called "fear of floating". To this end, they have engaged over many years in large scale foreign exchange intervention and easier domestic monetary policies than would otherwise have been the case. More recently, the rhetoric concerning "currency wars" has sharpened considerably, and a number of countries turned for a time to capital controls[36]. The principal concern about these trends in EMEs is that they might lead to a more inflationary domestic outcome[37] and/or the same kinds of "imbalances" seen in the AMEs. There are already clear signs of such contagion,[38]with developments in both the real and financial sectors. China is a focus of particular concern[39].

Another channel through which monetary policy is said to work is through higher prices for assets, in particular houses and equities. In effect, higher prices are said to add to wealth and

[31] This is very similar to the process that worked under the gold standard. Falling prices were expected to reverse, thus lowering the *ex ante* real interest rate and encouraging prices to rise.
[32] For an elegant description of this problem see Yamaguchi (1999). Even today, the Bank of Japan refuses to set a "target" for inflation, but rather espouses a less ambitious "goal"
[33] See Galati and Melick (2004). Also Galati, Heemiejer and Moessner (2011) which provides a survey of recent theory and the available empirical evidence.
[34] Svenson (2003)
[35] How long nominal depreciation results in a real depreciation is another highly debated issue. Inflation would presumably be less of a problem in countries with high levels of excess capacity. Experience of depreciation in Latin American countries over decades indicates this need not always be the case.
[36] Interestingly, the IMF now seems more willing than hitherto to accept both large scale intervention in foreign exchange markets and capital controls. See Ostry et al (2010)
[37] Recent efforts in China to raise domestic wages in order to spur domestic consumption work in the same direction.
[38] See Hoffman A (2012) and Brereton-Fukui (2012)
[39] Chancellor E and M Monnelly (2013)

this in turn spurs consumption. Before turning (below) to the latter link in this chain of causation, consider the former one. In those countries in which the crisis raised concern about the health of the banking system (eg; US, UK, Ireland, Greece, Spain) house prices began to decline sharply early in the crisis. Lower policy rates were not sufficient to reverse this trend. As for equity prices, stock indices in the AMEs did recovery substantially after policy easing began. However, it is also notable that these increases began to moderate in the summer of 2010 and again in the middle of 2011. In each case, the announcement of some "non standard" policy measure then caused stock prices to rise once again. More broadly, however, the very fact that a number of central banks felt the need to have recourse to such non standard measures indicates that standard measures had failed to produce the stimulative effect desired. The durability of "real" gains supported by the expansion of "nominal" instruments also seems highly questionable.

An evaluation is also needed of the effectiveness of the many "non standard" monetary policy measures that have been taken by central banks in large AMEs, pursuant to reaching the ZLB[40]. The highly experimental nature of these measures is attested to by various differences observed in what different central banks have actually done. As described by Fahr et al (2011) there are important differences between the practices of the Fed and the ECB.

Perhaps most important, the Fed seems to have treated its "non standard" measures as a substitute for standard monetary policy at the ZLB. In contrast, the ECB treats them as measures to restore market functioning so that the normal channels of the transmission mechanism policy can work properly. Second, while the Fed made increasingly firm pre commitments (though still conditional) to keep the policy rate low for an extended period, the ECB consciously made no such pre commitment Third, whereas the Fed has purchased the liabilities of non financial corporations as well as those of Treasury and Federal agencies, the ECB has lent exclusively to banks and sovereigns. Fourth, while the ECB conducted only repos, in order to facilitate "exit" from non standard measures, the Fed made outright purchases.

Many of the non standard measures taken to date are broadly similar to those undertaken earlier by the Bank of Japan. It is instructive therefore that the Japanese authorities remain highly skeptical of their effectiveness[41] in stimulating demand. Perhaps the most important reason for this is that the demand for bank reserves tends to rise to match the increase in supply; in short, loan growth does not seem to be much affected. If, in expanding the reserve base, the central bank also absorbs collateral needed to liquefy private markets, that too could be a negative influence. Finally, more technical considerations could also impede the effectiveness of non standard monetary instruments[42].

It is of course true that still more aggressive unconventional measures could be introduced that might have the effect desired. Indeed, in chastising the Bank of Japan for its timidity, Bernanke (2000) and (2003) explicitly suggested targets for long term interest rates, depreciation of the currency, a higher inflation target (say 3 to 4 percent) and fiscal expansion entirely financed by the central bank. Unfortunately, for each of these policy suggestions there is a convincing counterargument.

[40] For an early analysis see Borio and Disyatat (2009)
[41] Shirakawa (2012a, 2012b)
[42] For example, QE3 in the US promised more Fed purchases of mortgage backed securities to bring down mortgage rates. However, mortgage originators currently have such a backlog of originations, and relatively few staff to process them, that they have reduced mortgage rates only marginally.

Explicit targets for long rates hardly seem required with long rates already at record lows. As for the difficulties of achieving a currency depreciation, these have been discussed above. Recent suggestions for a higher inflation target[43] have also generated wide spread criticism, particularly since inflation in AMEs has stayed stubbornly and unexpectedly high to date. Finally, fiscal expansion entirely funded by monetary creation could, given AME sovereign debt levels generally thought of as "unsustainable", easily raise fears of fiscal dominance and much higher inflation. Perhaps the clearest indication of the force of these counter arguments is that Chairman Bernanke, having proposed these policies almost a decade ago, has not found it appropriate to reassert them more recently, in spite of the ongoing and (again) unexpected weakness of the US recovery[44].

2.2 Would private sector demand respond to easier monetary conditions?

Conventional thinking is that lower interest rates will encourage households to save less (and consume more) and will encourage companies to invest more. In both cases, spending is brought forward from the future, because the discount rate has been reduced. Even abstracting from the influence of cumulative stock considerations (both real and financial) on spending[45], this conventional thinking can be challenged in a number of ways.

A consideration that applies to both household and company spending is the message given by ultra easy monetary policy. To the extent that such measures are unprecedented, indeed smacking of desperation, they could actually depress confidence and the will to spend. Keynes references to "animal spirits" in the General Theory would seem appropriate here. Indeed, the greater the respect held by the public for the central bank in question, the more likely this outcome might be. Higher respect would increase the likelihood that the public would believe that the central bank had identified problems that they themselves had not foreseen.

A number of other considerations might affect household spending in particular. Perhaps the most important has to do with the assumed positive relationship between the interest rate and the desired rate of saving. While it is conventional wisdom that lower interest rates will stimulate consumption, Bailey (1992) and others have long argued that even the sign of this relationship is ambiguous. Suppose that savers have a predetermined goal for the minimum amount of savings they wish to accumulate over time. This would correspond to someone wishing to purchase an annuity of a certain size upon retirement, at a desired age. Evidently, a lower interest rate always implies a slower rate of accumulation. But, if in fact the accumulation rate becomes so low that it threatens the minimum accumulation goal, the only recourse (other than postponing retirement) will be to save more in the first place. As will be discussed below, a similar logic affects the behavior of those financial institutions (like insurance companies) who have committed to providing annuities or who offer defined benefit pensions.

[43] See Blanchard et al (2011)
[44] Ball (2012) rather attributes to a different cause the unwillingness of Bernanke to pursue his earlier policy prescriptions. Ball suggests that "group think" and a "shy" personality prevented Bernanke from speaking out forcefully at an FOMC briefing in 2003. At this meeting, his earlier suggestions were essentially ruled out by the Fed staff. I think it highly implausible that these character traits would have seriously conditioned BernankEs behavior over the next nine years, particularly after he became the Chairman of the FOMC.
[45] To be dealt with in the next section of the paper.

The distributional (income) implications of interest rate changes for aggregate household spending also receive too little attention. Very low rates imply less household disposable income for creditors and more disposable income for debtors. Should the marginal propensity to consume of creditors (say older, credit constrained people living off accumulated assets) exceed that of debtors, the net effect of redistribution could be to lower household spending rather than raise it[46]. This argument has in the past been invoked occasionally by central bankers in EMEs. More recently, Lardy (2012) and Rogoff (2011) have both recommended ending financial repression in China as a way to raise household consumption. The core of their argument is that higher interest rates would raise disposable income and consumption in turn.

There is a further reason to suggest that lower policy rates might actually reduce consumption rather than raise it. In recent years, commodities have taken on some of the characteristics of a financial asset class, moreover one that seemed to have relatively low correlation with other asset classes. If lower policy rates were responsible to some degree for increases in food and energy prices, this would reduce real incomes and consumption in turn. This effect would also be most marked for poor people who generally have little room for consumption smoothing.

Finally, the argument that higher "wealth" (generated by lower rates causing rising asset prices) will lead to more consumer spending also needs serious re-evaluation. While not denying the empirical robustness of this relationship in the past, the argument suffers from a serious analytical flaw. Lower interest rates cannot generate "wealth", if an increase in wealth is appropriately defined as the capacity to have a higher future standard of living[47]. From this perspective, higher equity prices constitute wealth only if based on higher expected productivity and higher future earnings. This could be a byproduct of lower interest rates stimulating spending, but this is simply to assume the hypothesis meant to be under test.

As for higher house prices raising future living standards, the argument ignores the higher future cost of living in a house. Rather, what higher house prices do produce is more collateral against which loans can be taken out to sustain spending. In this case, however, the loan must be repaid at the cost of future consumption[48]. No "wealth" has in fact been created. In any event, as noted above, house prices in many countries have continued to fall despite lower policy rates[49]. This implies that the need for "payback" can no longer be avoided by still further borrowing.

A number of counter arguments can also be made to the hypothesis that ultra easy monetary policy will raise corporate investment. First note the fact that investment, as a proportion of GDP, has been trending down in most AMEs in recent years. This has occurred in spite of generally solid corporate profits, healthy balance sheets, large cash reserves and very low interest rates over a number of years. A number of reasons have been suggested to explain the lack of investment response to these propitious financial conditions.

The first has been an environment of ever growing uncertainty about a number of important issues; future domestic demand in light of uncertainty about job prospects, future foreign demand given uncertainty about exchange rates and protectionism, and uncertainty as to how

[46] As Walter Bagehot put it over a century ago "John Bull can stand many things, but he cannot stand two per cent".
[47] See Bailey (1992) and Merton (2006)
[48] See Muellbauer (2007) and White (2006b)
[49] Some estimates indicate that US householders' equity in their houses fell from a peak of about $10 trillion to $6 trillion at the end of 2011.

the burden of fiscal restraint and possible sovereign debt reduction might affect the corporate sector. A second set of concerns is closely related. In many AMEs anti-business rhetoric is becoming more common and the political momentum seems to be shifting towards extremism. Moreover, growing concerns about rising income inequality (returned to below) and concerns about the ethical standards of the banking community could all too easily be converted into a broader anti-business agenda[50].

A third reason for continuing low investment seems to have been a secular trend on the part of corporate managements in AMEs to maximize cash flow. The incentive for this "short-termism" could be that it allows for larger payouts for both salaries and dividends, also raising equity prices and the value of management options in the bargain. Evidently, however, such behavior comes at the expense of both fixed capital investment and the future health of the firm itself. If low interest rates encourage firms to borrow more money, which they can use for the same short term purposes, then presumably the longer term damage will be even worse[51].

It has even been suggested that low interest rates have themselves contributed to lower fixed investment in AMEs. One channel would be via higher commodity prices (as a result of the public sector investment boom in China), which raises costs in AMEs and reduces profits. Perhaps more importantly, many corporations still have significant obligations in the form of defined benefit pension plans. Ramaswamy (2012) presents a chilling quantitative analysis of the effects of interest rate changes on public pension funds and defined benefit funds. The essence of the argument is that lower interest rates reduce the asset revenues of pension funds and raise the present value of future liabilities. Funding shortfalls eventually have to be made up by the sponsoring company, reducing profits and funds available for investment.

A recent report by the consulting firm Mercer indicates that the 1500 leading companies in the US had a pension deficit of $689 billion as of July 2012; i.e., they are only 70 percent funded. In the UK, the Pension Protection Fund recently estimated that almost 85 percent of defined benefit plans were underfunded, with a cumulative shortfall of over $400 billion[52]. Moreover, proposed changes to pension rules, in countries using IFRS accounting standards, seem likely to make the impact of low rates on companies with such pension funds significantly worse[53].

To summarize, there are significant grounds for believing that the various channels through which monetary policy might normally operate are at least partially blocked. Moreover, there are also grounds for belief that neither household nor corporate spending would react as vigorously as in the past, even if the traditional transmission channels were functioning properly. Note too that the issue of "debt stocks", other "imbalances", and the possibility of a "credit crunch" affecting the real economy have not even been mentioned yet. These influences will also weigh on both the capacity to spend and the will to spend, further

[50] For an analysis of anti business attitudes in the 1930s, under the Roosevelt administration, see Powell (2003) and Smiley (2000).
[51] Macintosh J (2012) reports that "the proportion of cash flow returned as dividends and buybacks to shareholders in US non financial companies is close to record highs, while the proportion spent on equipment is at 55 year lows. This is not what central banks set out to achieve."
[52] Even as of mid 2010, when bond yields were significantly higher than in early 2012, there were estimates that sustained low rates implied that "half of UK companies are bust". See Johnson (2010).
[53] Under proposals outstanding as of June 2012, companies will no longer be able to defer recognition of actuarial gains and losses. Currently, they can do so using the so called "corridor method". In addition, companies will no longer be able to assume a lower rate for discounting liabilities than the assumed rate (often unreasonably high) at which assets accumulate.

offsetting the influence of ultra easy monetary policies[54]. As well, such polices can have other unintended consequences which might also tend to grow over time.

3. Could ultra easy money have unintended consequences?

The unexpected beginning of the financial and economic crisis[55], and its unexpected resistance to policy measures taken to date, leads to a simple conclusion. The variety of economic models used by modern academics and by policymakers give few insights as to how the economy really works[56]. If we accept this ignorance as an undesirable reality, then it would also seem hard to deny the possibility that the policy actions taken in recent years might also have unintended consequences. Indeed, it must be noted that many pre War business cycle theorists focused their attention on precisely this possibility.

Perhaps a good jumping off point for such analyses might be the work of Knut Wicksell. He made the distinction between the "natural" rate of interest, which equalized saving and investment plans, and the "financial" rate of interest, set by the banking sector. Were the natural rate to diverge from the financial (or market) rate set by the banking sector, prices would respond and a new equilibrium would eventually be reestablished at a different price level. Later thinkers in the Wicksellian tradition (the Austrians in particular) rather laid emphasis on the "possibility that a divergence of the market rate from the natural rate might have consequences beyond changing the price level".[57] Referred to as "imbalances" in this paper, these consequences would eventually lead to a crisis of some sort if inflationary forces did not emerge first. Moreover, it has also been suggested the magnitude of any crisis would depend on the size of the accumulated imbalances, which would themselves depend on the size and duration of the differences between the two rates

Were we to adopt this analytical framework, policymakers today would seem to have serious cause for concern. For simplicity, suppose that the natural rate of interest (real) for the global economy as a whole can be proxied by an **ex post** measure; the potential rate of growth of the global economy, as estimated by the IMF. Reflecting globalization and technology transfer, this measure has been **rising** steadily for the last twenty years. In contrast, if one proxies the financial rate of interest (real) by an average of available breakeven rates (say for ten year TIPS), this measure has been **falling** for the last twenty years. Moreover, at the global level, the natural rate of interest rose above the financial rate in 1997, and the gap kept widening at least until the onset of the crisis in 2007[58]. From this perspective, underlying inflationary pressures and/or imbalances had been cumulating for many years before the crisis began.

[54] For empirical work on the effects of monetary policy, in previous downturns that were accompanied by financial crisis, see Bech et al (2012). They conclude that the benefits of easier money in such circumstances have been "more elusive".
[55] The WEO, published by the IMF in the spring of 2008, predicted real growth in the advanced economies in 2009 of 3.8 percent of GDP. The actual outcome was –3.7 percent, a forecast error of 7.5 percentage points of GDP. The IMF was by no means alone in missing this dramatic turnaround.
[56] For more on this, see White (2010)
[57] See Laidler (1999), p35
[58] See BIS (2007) and Hanoun (2012) Graph 4. Hanoun also provides evidence (Graph 5) that, for the last decade at least, the global policy rate has generally been well below the rate suggested by a global Taylor rule. For a description of the changes in central bank balance sheets, see Bank for International Settlements (2012), p40.

Indeed, the magnitude of the crisis which began in 2007, and the lack of response in many AMEs to macroeconomic measures to date, can also be viewed as evidence in support of using this kind of framework. In contrast to the **ex post** measure of the natural rate, assumed for simplicity above, most of those in the Wicksellian tradition assumed the natural rate was an **ex ante** concept, related to expectations about the future rate of return on capital. Evidently, as noted also by Keynes and his discussion of "animal spirits", these expectations could change quite dramatically over time. It could then be suggested that the (ex ante) natural rate collapsed in 2007, to a level well below the financial rate, as a direct result of the imbalances that had built up earlier. Moreover, given this particular way of thinking and noting that the financial rate is now constrained by the ZLB, this gap can only be redressed by raising the natural rate to encourage investment[59]. As discussed in Section 2.2 above, this will not be an easy task.

The approach taken below is to identify possible "unintended consequences" of rapid credit and monetary growth, and then to evaluate whether such concerns would seem to be justified by the facts of recent developments and/or likely prospects for the future. Consistent with the discussion above, these concerns would include rising inflation and imbalances of various sorts. To be more specific, the latter would include misallocations of real resources (not only in credit upswings but also in downswings), undesired effects on the financial sector (not only bad loans but also unwelcome changes in financial structure) and rising income inequality. Evidently, interactions between these various imbalances could lead in principle to protracted recessions and even debt-deflation. Worse, rising income inequality could threaten social and even political stability.

3.1 The likelihood of rising inflation

Perhaps the first question to be addressed is how inflation was avoided in the AMEs during the many years that "financial rates" were well below "natural rates" and credit growth was very rapid[60]? One possible answer is that a growing commitment by central banks to the maintenance of low inflation succeeded in anchoring inflationary expectations. This explanation, however, is hard to reconcile with the objective fact of rapid monetary and credit expansion engineered by central banks over that period.

A more plausible (or at least complementary) explanation would be the major increase in the rate of growth of potential in the EMEs, accompanied by a series of investment "busts" in a number of countries; Germany after reunification, Japan after the "bubble", South East Asia after the Asian crisis, and the US after the TMT crash of the early 2000s. In effect, a secular increase in global supply was met by a decrease in global demand with the predictable result of reducing inflation[61]. This provided the context in which easy monetary policies could be more easily pursued.

Looking forward, the likelihood of rising inflation in the AMEs would seem to be limited. In most countries there appears to be a significant degree of excess capacity, and Section 2 above implies that ultra easy monetary policy is unlikely to remedy this problem quickly. Nevertheless, some sources of concern remain. In some countries, like the UK, exchange

[59] An important corollary of this would be that invested capital which was no longer profitable should be removed from production and the losses written off by borrowers and lenders respectively. The failure to do this has been a notable feature of the years following the crisis.
[60] Alternative explanations for the "Great Moderation" are discussed at length in Borio and White (2003)
[61] A more detailed analysis is available in White (2008). See also Issing (2012) p10.

rate depreciation could already be having an impact on inflation. Crisis related reductions in the level of potential could also prove greater than is currently expected,[62] leaving room for policy mistakes. Finally, a sudden shift in inflationary expectations, perhaps linked to further measures to extend ultra easy monetary policies, cannot be completely ruled out. While inflation expectations show no trends (away from desired levels) in recent years, they do seem to have become more volatile.

A perhaps more pressing problem is the possibility of sharply higher inflation in EMEs. In part due to their "fear of floating", many EMEs seem to be operating near full capacity, and monetary conditions are generally very loose. As well, the rate of growth of potential now seems to be slowing after previous sharp increases[63]. This could in turn, via the higher price of imports, lead to inflation accelerating unexpectedly in the AMEs as well. In effect, this would be a reversal of the secular disinflationary impulses sent by EMEs to the AMEs in previous years. Since AME central banks underestimated the importance of the positive supply shocks in earlier years, it is not unlikely that they would also fail to recognize the implications of its reversal.

While such an inflationary outcome might be judged useful in resisting debt/deflation of the Fisher type, rising inflation along with stagnant demand in AMEs would clearly imply other serious problems for the central banks of AMEs. On the one hand, raising policy rates to confront rising inflation could exacerbate continuing problems of slack demand and financial instability. On the other hand, failing to raise policy rates could cause inflationary expectations to rise. Further, were different central banks to respond differently, as they did in 2008, there might also be unwelcome effects on exchange rates.

3.2 Misallocations of real resources

New books, articles in the popular press and even rap videos indicate that the Keynes-Hayek debate of the early 1930s is on again[64]. It remains highly relevant to the issue of whether ultra easy monetary policies might have unintended consequences. Keynes was fundamentally interested in demand side policies that would revive economies in a "Deep Slump". In contrast, Hayek and other members of the Austrian school were fundamentally interested in supply side issues. They rather focused on how the economy got into a "Deep Slump" in the first place, conscious of the possibility that remedies (more of the same) might actually make things worse over time.

The Austrian conclusion was that credit created by the banking system, rather than the lending of genuine savings, would indeed spur spending but would also create misallocations of real resources ("malinvestments"). These supply side misallocations would eventually culminate in an economic crisis. Moreover, they concluded that the magnitude of the crisis would be closely related to the amount of excess credit created in the previous upswing.

[62] The OECD estimates that the level of potential in the OECD countries fell after the onslaught of the crisis by about 3 percent on average. They stress, however, that these estimates are highly imprecise.
[63] As EMEs begin to industrialize, they initially have the benefit of rapid urbanization (as agricultural productivity rises) and the international transfer of technology. Over time both of these "catch up" factors supporting growth become less important.
[64] It is important to note that the debate was with the Keynes of the "Treatise" and not yet the Keynes of the "General Theory". In the Treatise on Money, Keynes called for monetary authorities to take "extraordinary", "unorthodox" monetary policies to deal with the slump. Kregel (2011) p 1, contends that "The unorthodox policies that Keynes recommends are a nearly perfect description" of the ultra easy monetary policies followed in Japan, and more recently in other countries. Recall, as noted above, that Keynes' enthusiasm for such monetary measures had faded by the time of the General Theory.

Jorda, Schularick and Taylor (2012), using data from 14 AMEs dating back to the 1870s, provide convincing empirical evidence that this intuition was essentially correct[65]. A similar conclusion arises from the historical data used by Reinhart and Reinhart (2010), and from recent US data based on differences in local market economic conditions[66].

This conclusion does not, however, logically rule out the possibility that Hayek and Keynes were both "right". It is simply a fact that the economy does have both a demand side and a supply side. It is also a fact that policy actions do have both near term and longer term implications. Thus, demand side stimulus might well work to stimulate the economy in the near term, but such stimulus might come with a longer term price. Evaluation of the near term benefits and longer term costs of monetary stimulus is, in fact, the central theme of this paper. In practice, Keynesian thinking has almost completely dominated the policy agenda for most of the post War period. Thus, the predominant consideration for policymakers[67] has been the near term effects of monetary easing on aggregate demand, and the associated impact on inflation. Over the last two decades or so, with inflation near target levels or even threatening to fall below target, policymakers saw little need to raise interest rates in cyclical upturns. Similarly, there seemed no impediment to vigorous monetary easing in downturns.

Even within the Keynesian framework, however, these policies might now be thought questionable. As noted just above, the disinflationary trends observed in the global economy were in large part the result of positive supply shocks, rather than solely due to deficient demand. They should in principle have elicited a different and tighter response[68]. Viewed from an Austrian perspective, the policy error was even graver. Below the surface of the Great Moderation, such policies encouraged financial exuberance[69] which allowed significant "malinvestments" to build up in both phases of successive credit cycles. [70] These developments are documented below.

3.2 (a) Misallocations in the credit upswing

In a comprehensive review of pre-War theories of business cycles, Haberler (1939) distinguished between two forms of "malinvestment" that arise in the upswing of the credit cycle: vertical and horizontal. Vertical malinvestments imply an intertemporal misallocation. It occurs when easy and cheap access to credit causes an inordinate shift towards capital investments, and particularly to longer lived capital investments. For the same reason, saving

[65] See also Reinhart and Reinhart (2011)

[66] Mian and Sufi (2011) relate the magnitude of local downturns in the US (primarily in the non traded sector) to the degree of household borrowing that built up in the same locality during the boom.

[67] Virtually all AME central banks give pride of place to a "first pillar"; namely their estimate of the output gap and its effect on inflation via an augmented Phillips curve. First the Bundesbank, but now also the ECB, have a "second, monetary" pillar which relates low frequency movements in monetary aggregates to longer term inflationary trends. This is still very different from looking at credit developments for their possible "unintended consequences", particularly on the supply side of the economy.

[68] There is a curious asymmetry here. It has been well accepted for decades that negative supply shocks, for example increases in energy prices pushing up inflation, need not cause policy rates to rise. The logic was that first round shifts in the price " level" could be tolerated if they had no second round effects on wages and "inflation". In contrast, positive supply shocks did in practice seem to lead to lower rates than otherwise. On this issue, see Beckworth (2008). Perhaps the clue to the asymmetry is that, in both cases, policy rates wind up lower than otherwise which tends to be both easy and popular.

[69] Issing (2012) notes (p3) that a combination of inflation targeting and supply side shocks can "turn policy into an independent source of instability…(It) fuels financial exuberance and financial exuberance in turn creates financial imbalances".

[70] On returning from a visit to the US in the late 1920s, Hayek foretold a deep slump. On being told this was impossible, because US prices were essential stable, Hayek apparently responded that this was precisely the evidence of an underlying problem. Increases in productivity should have been pushing prices down, but credit expansion was holding them back up.

rates would be reduced and debts allowed to accumulate. These would eventually constrain future spending[71] just at the time the increased supply potential was coming on line. Horizontal malinvestments are investments in particular sectors that eventually lead to excess capacity.

In both kinds of malinvestment, the eventual outturn is a collapse in profits. This results in the forced termination of further investment in projects already well advanced, less new investment in general, and an investment collapse in those particular sectors that had expanded the most during the credit upswing. Looking at developments over the last decade or so, it is very easy to find evidence of such processes at work.

First, consider **vertical** malinvestments. In the years of easy credit conditions preceding the onset of the crisis, investment in the housing stock in virtually every AME rose sharply[72]. House prices rose markedly, as did housing starts in most cases. The fact that these developments were unsustainable is now all too evident. In countries like the US, the UK, Spain and Ireland, the housing downturn is already well advanced, house prices continue to fall, and construction activity has slowed markedly. In some other countries (Canada, Sweden, Denmark, Norway etc.) house prices have continued to rise and construction activity remains elevated. Nevertheless, concerns about overbuilding in these countries are being expressed ever more forcefully[73].

Similarly, in many EMEs relatively easy credit conditions have also led to sharp increases in construction activity and in house prices. In many cases, not least China and Brazil, activity has focused on the production of "high end" properties which remain vacant after their purchase. Given this overhang of inventory, it is not hard to believe that a downturn will prove inevitable. Since housing is long lived, cannot be readily used for other purposes, and is generally not internationally tradable, the effects of this particular kind of malinvestment could be felt for a long time.

Another example of vertical malinvestments would be the massive increases in infrastructure investment, largely privately financed, which occurred globally prior to the onset of the crisis. Indeed, in mid 2008, the Economist magazine called this infrastructure investment "the biggest boom in history"[74]. While this private sector boom came to a halt with the onset of the crisis, it was replaced in part by public sector spending on infrastructure. This has been most marked in China, where overall spending on investment since 2008 has hovered near 50 percent of GDP. Neither the private sector nor public sector phases of this investment boom would have been possible without ready access to relatively cheap credit. Indeed, in the Chinese case, the central authorities largely avoided fiscal expansion by explicitly ordering Chinese banks to provide the loans required by lower levels of government to meet their spending goals.

Large scale spending on infrastructure is not in itself a bad thing. In many circumstances, particularly in EMEs, the social rate of return might be expected to well exceed the cost of

[71] In effect, savings would prove inadequate to purchase all of the goods and services provided by the increased investment generated artificially by credit received from the banking system.
[72] Among the AMEs, only Germany, Switzerland and Japan failed to reflect these developments. In part, this was because all three countries were still recovering from their own, earlier, house price bubbles.
[73] Such concerns have been expressed in the various country reviews organized by the Economic and Development Review Committee of the OECD. Australia, New Zealand, Canada, the Scandinavian countries and a number of others all seem to be exposed in this regard.
[74] The Economist (2008)

financing. However, there is accumulating empirical evidence that many large infrastructure projects cost far more to build than originally estimated and produce far fewer benefits. Flyvbjerg (2009) gives many examples of large projects in AMEs that would never have been built if ex post estimates of benefits and costs had been available. He cites the Channel Tunnel, the Danish Great Belt Tunnel, the "Big Dig" in Boston and the Millennium Dome among a host of others.

Flyvbjerg notes as well three global trends that increase the likelihood of infrastructure investments becoming "malinvestments". The first is the trend towards more rapid spending, driven by the exigencies of spending quickly during a downturn. This raises the risk of both waste and corruption. The second is the rising proportion of global infrastructure spending in EMEs, given the presumption that governance of such projects might be even worse than in AMEs[75]. In China, for example, the dominant influence of the Communist Party on both borrowers and lenders is hard to reconcile with objective assessment of the net benefits of suggested projects.[76] Third, infrastructure projects everywhere are increasingly dependent on IT and communications systems, where large projects have an even more dismal record of accomplishment than projects in other sectors.

A third example of vertical maladjustment, prompted by easy credit conditions, has been the massive build up of export capacity in many countries in South East Asia. Low interest rates in the importing AMEs ensured high levels of consumption and ready markets. Conversely, in the exporting countries, low interest rates encouraged investment to satisfy those demands. Government commitment to "export led growth" strategies also implied resisting upward exchange rate pressures, and encouraged easier monetary policy in turn. Today, many of these exporting countries remain heavily reliant on sales to AMEs[77] whose debts are such that they can no longer afford to borrow to finance such sales.

A fourth and final example of vertical maladjustment is provided by the sharp drop in household saving rates over many years in a number of AMEs, most notably in the English speaking countries. In many of these countries, house prices were rising rapidly during the period of rapidly expanding credit. Some households likely believed (wrongly) that they were in fact "wealthier" as a result, and spent more accordingly. In some countries, most notably the United States, higher house prices also provided more collateral to support further borrowing. Since in the early years of this century there were significant fears of inadequate demand and potentially even deflation, this borrowing was welcomed by policymakers as "intertemporal optimization". However, at the time, little or no attention was paid to the fact that such optimization would by definition require "payback" and could act as a serious constraint on growth in the future[78].

[75] Flyvbjerg ultimately blames "bad governance" for these bad outcomes. In effect, those putting together projects consciously underestimate costs and overestimate benefits. They do this to make their projects more "competitive" with others in the search for funding, especially from governments.

[76] See McGregor (2010) for a broader discussion. For a more specific example, China is intent on building over 20000 kilometers of high speed rail tack to link up its major cities. At the same time, there is to be a massive expansion of airport service to the same destinations. Note as well, that many prestige projects favored by local governments are designed to "outdo" the projects of other local governments. This a recipe for overcapacity.

[77] This is not to deny successful efforts by a number of countries, including China, to expand markets in other EMEs. Of course this still leaves the broader question of the robustness of the totality of those markets in the event of a serious downturn in the AMEs.

[78] This problem is analogous to that faced by Japanese corporations in the 1990s, after many years of debt financed investment which proved unprofitable. Koo (2003) strongly contends that the weakness of investment spending in Japan in the 1990s was due to this "balance sheet effect", and was not due to a shortage of loans caused by a weakened banking system.

The need for "payback" is most clearly evident in sharp increases in household debt service ratios in many countries[79]. These include the English speaking countries noted above, but also a number of "peripheral" countries in Europe as well. Further, perhaps linked to the "fear of floating" phenomena discussed above, many EMEs now also have record high levels of household debt service to cope with. Such countries include some of the largest and fastest growing of the EMEs; China, India, Brazil and Turkey in particular. While it is true that these increases in EMEs have come off very low levels, the speed of the increase has been notable, and might well have outpaced the capacity of the local financial systems to accurately estimate the capacity of borrowers to repay. Indeed by mid 2012, the percentage of non performing car loans in Brazil had already jumped sharply. Whether in AMEs or EMEs, the need for deleveraging by households adds a further reason to doubt that ultra easy monetary policy can sustainably stimulate the real economy.

Nor is it difficult to find evidence for the buildup of **horizontal** (sectorial malinvestments) during the last upswing of the credit cycle. The most obvious example is seen in the construction industry in many countries, mostly but not exclusively in the AMEs. Evidently, this was closely related to the increased spending on housing and infrastructure referred to above[80]. Closely related, the financial sector also expanded very rapidly prior to the start of the crisis in 2007, before imploding immediately afterwards. The global automotive industry witnessed a massive increase in production capacity, not only prior to 2007, but also afterwards as automakers extrapolated past increases in sales in EMEs far into the future. China in particular was estimated to have six million units of unutilized capacity in 2011 (twice the size of the German car market) [81], with dealers also struggling with a huge increase in inventory. Finally, there was also a substantial increase in capacity in the renewable energy industry. As a result, the price of solar panels and wind powered turbines collapsed after the crisis began and many producers faced bankruptcy.

Beyond these increases in the global capacity to produce final goods and services, there were marked expansions in the capacity to produce intermediate and primary goods as well. Much of this was driven by developments in China where productive capacity was still expanding rapidly as of mid 2012 The steel and aluminium industries head a long list of sectors where overcapacity has been evident for a long time[82]. As for primary products, heavy investments have been made in Latin America, in Australia, and a number of other countries to produce and export basic commodities to support the development efforts in South East Asia. Should any link in this demand chain prove faulty, these investments in primary products could also prove much less profitable than is currently anticipated[83]. Finally, there

[79] See BIS (2012) p29 for a fuller documentation. Also see McKinsey (2010) who identify the household sector in five of the fourteen countries they consider as having a high probability of future deleveraging. They identify Spain, the US, the UK, Canada and Korea. While the household sectors in Brazil, Russia, China and India were not judged to be overleveraged, note that the data considered extended only to 2009. Thus the report missed the recent sharp increases in household debt levels in those countries.
[80] Increased spending generally results in more production, but not necessarily. Supply responsiveness in the construction industry in fact varies widely across countries. For example, the response in terms of new housing starts was much greater in the US than the UK, due to the very strict planning and zoning restrictions in the latter.
[81] See KPMG Global (2012)
[82] See European Chamber of Commerce in China (2009). In presenting the report, the President of the Chamber said "Our study shows the impact of overcapacity is subtle but far reaching, affecting dozens of industries and damaging economic growth, not only in China but worldwide". Note that this was written before the further spurt in investment spending in 2010.
[83] By early 2013, many such investment projects (some well advanced) were being abandoned.

has been a commensurate increase in the capacity of the global distribution industry, not least container ships and bulk shipping, whose future could be similarly exposed.

3.2 (b) Misallocations in the credit downswing

Economic downturns, whatever their cause, are always painful. Output that might have been produced is lost, and unemployment rises. Moreover, those less well off, often marginally attached to the work force, seem to suffer the most. This is the familiar Keynesian argument for using macroeconomic stimulus in such circumstances to raise aggregate demand[84]. However, as alluded to above, pre War economic theorists thought downturns also had some positive qualities. For those concerned about rapid credit expansion and "malinvestments", the downturn simply reveals the unsustainability of the previous expansion and its inevitable end. The downturn was then a time of necessary rebalancing with resources shifting from less productive to more productive uses. Schumpeter in particular stressed the opportunities which excess resources provided to entrepreneurs having new ideas and new products – the concept of "creative destruction". From this perspective, monetary policy choices in a downturn should again balance off short term benefits against longer term costs.

Consistent with the dominance of the Keynesian paradigm, monetary policy has been used with increasing vigor over the last quarter century to address prospective or actual downturns in the economy. For example, US monetary policy was eased significantly in 1987 after the stock market crash of October. It was further eased sharply in the early 1990s, after the property boom and the collapse of the Savings and Loan Associations. In spite of unemployment falling well below prevailing estimates of the US NAIRU, the US failed to raise rates in 1997 reflecting concerns about the possible global effects of the crisis in South East Asia. In 1998, the failure of LTCM led to explicit easing. This was followed in 2001 by an unprecedentedly vigorous monetary policy response to an impending slowdown, aggravated by the stock market crash and the events of September 11. Finally, beginning in 2007, monetary policy was further and dramatically eased in the various ways described at the beginning of this paper.

The following paragraphs will focus on the longer term, cumulative, effects of such policies. First, there is evidence that allowing malinvestments to persist can reduce potential growth rates. Second, it can be contended that the aggressive easing of policy in successive cycles led to serial "bubbles" of various sorts. In effect, these serial bubbles constrained the normal process through which malinvestments would have been purged in the course of a typical cyclical downturn.

The contention that easy monetary conditions **lower the rate of growth of potential** is not without counterarguments. On the one hand, some would contend that easy monetary conditions in a downturn help the reallocation of real resources from less to more productive industries[85]. As well, if the economy recovers, then the accelerator mechanism can also lead to more capital investment[86]. These arguments, however, must also consider the various forces (considered above) that are currently acting to restrain investment. On the other hand, to the extent that low interest rates do discourage saving, capital accumulation will be

[84] Recall, however, that Keynes' General Theory (1936) was directed to the issue of "Deep Slumps". It is not then clear that Keynes would have recommended similar policies in the face of actual small downturns, much less preventive easing to preclude even prospective downturns.
[85] See for example, Posen (2011)
[86] Summers and Delong (2012)

discouraged over time. Very low "risk free" rates, dominated by the actions of central banks, can also mislead and contribute to costly misallocations. Moreover, it is possible that easy monetary conditions actually impede, rather than encourage, the reallocation of capital from less to more productive uses.

This last argument rests on the contention that banks will offer advantageous borrowing conditions to traditional customers in a downturn, even when they suspect they are insolvent. Peek and Rosengreen (2003) have investigated this phenomenon in Japan, and evidence of similar behavior has emerged in both the UK and continental Europe more recently.[87] Such behavior on the part of banks is encouraged when they can borrow very cheaply, and also when they expect that easy money will lead to recovery and improved prospects for their clients. In effect, low interest rates encourage all the parties involved to gamble for resurrection.

"Evergreening" of this sort helps maintain the weak, the so called "zombie companies", who then continue to compete and drag down the strong. The Peek and Rosengreen study also documented how productivity growth suffered particularly in those industrial sectors most characterized by this kind of bank behavior. Moreover, the perceived need to support the weak could also lead to higher interest charges for those strong enough to afford it. Finally, it might also imply tighter credit conditions for potential new clients with new ideas as to how to adapt domestic supply to changing patterns of demand and foreign competition[88]. Since innovation is now seen as a primary driver of productivity growth (and thus potential)[89], financial constraints of this sort would be particularly worrisome. And this would be even more the case in countries (In Europe and Japan) where banks remain the dominant source of finance.

The Governor of the Bank of Japan has repeatedly suggested that Japan's poor economic performance in recent decades has been largely due to a failure to adapt its production structure to the requirements of an aging population and the growing competitiveness of emerging Asian countries[90]. In contrast to his advice, and particularly since the onslaught of this current crisis, governments in many AMEs have actually taken explicit measure like "cars for clunkers" and "short time working" to support existing production structures. Since the countries that used these programs the most actively were also running large current account surpluses at the time (eg: Germany, Japan, the Netherlands and Korea) it might also be suggested that many of the jobs "saved" in the short run will eventually disappear as global trade imbalances decline[91] . These policies were not only mistaken, in that they impeded longer run adjustment, but they were also fiscally costly. This raises the question of whether they might not have been under taken had the government's financing costs been higher at the time.

[87] See BIS(2012) p.42 and p.74, for a list of supporting references.
[88] With the rise of the EMEs and their dominance of traditional manufacturing, some commentators even contend that AMEs need to develop a whole new, post industrial information economy. Evidently, if true, this would require a lot of financing.
[89] Assuming a Cobb Douglas production framework, "unexplained" movements in total factor productivity have for decades been the biggest driver of growth in most AMEs. In recent years, the OECD has increasingly emphasized the importance of innovation in "explaining" movements in total factor productivity.
[90] Shirakawa (2012a,2012b)
[91] In Europe the car industry was a particular beneficiary of such programs. It is already being recognized in France, Italy and Belgium that some auto plant closures are inevitable. The subsidiaries of foreign car firms operating in Germany might also be affected.

Finally, there is the issue of **serial bubbles**. Mention was made above of the successively more aggressive efforts made by central banks, since the middle 1980s, either to preempt downturns (eg: after the stock market crash of 1987) or to respond to downturns (eg: 1991, 2001 and 2008). What cannot be ignored is the possibility that each of those actions simply set the stage for the next "boom and bust" cycle, fuelled by ever declining credit standards and ever expanding debt accumulation.[92]

From the perspective of this hypothesis, monetary easing after the 1987 stock market crash contributed to the world wide property boom of the late 1980s. After it crashed in turn, the subsequent easing of policy in the AMEs led to massive capital inflows into SEA contributing to the subsequent Asian crisis in 1997. This crisis was used as justification for a failure to raise policy rates, in the United States at least, which set the scene for the excessive leverage employed by LTCM and its subsequent demise in 1998. The lowering of policy rates in response, even though the unemployment rate in the AMEs seemed unusually low, led to the stock market bubble that burst in 2000. Again, vigorous monetary easing resulted, as described above, which led to a worldwide housing boom. This boom peaked in 2007 in a number of AMEs, seriously damaging their banking systems as well. However, in other AMEs, the house price boom continues along with still rising and often record household debt ratios. This latter phenomena, as well as other signs of rising inflation and other credit driven imbalances in EMEs[93], reflects the easy monetary policies followed worldwide in the aftermath of the crisis.

By mitigating the purging of malinvestments in successive cycles, monetary easing thus raised the likelihood of an eventual downturn that would be much more severe than a normal one. Moreover, the bursting of each of these successive bubbles led to an ever more aggressive monetary policy response. From a Keynesian perspective, this response seemed required to offset the effects of the ever growing "headwinds" associated with all the malinvestments noted above. In short, monetary policy has itself, over time, generated the set of circumstances in which aggressive monetary easing would be more needed but also less effective. This conclusion seems even more justified when we turn to the implications of easy money for the financial sector.

3.3 Effects on the financial sector

Similar to the way that easy money in successive cycles encouraged imprudent borrowing, it also encouraged imprudent lending[94]. There are a number of dangers associated with this. The first of these would be that lenders suffer losses severe enough to cause an eventual and marked tightening of credit conditions. This could occur spontaneously, helping precipitate an economic slowdown, or could follow upon an economic slowdown (led from the demand side) that significantly raised loan losses. Tighter credit conditions would feed back on the real economy, aggravating the downturn. There seems clear evidence of such phenomena today, and also in the historical record[95].

A second concern would be that easy monetary conditions, in association with regulatory and technical developments, would encourage over time the development of a "shadow banking

[92] George Soros (2010) has referred to this serial process as the "debt super cycle".
[93] For some interesting observations on recent developments in EMEs, see Hoffman (2012)
[94] For a fuller analysis of how expanding "safety nets", not least monetary easing in downturns, have contributed to moral hazard on the part of both lenders and borrowers, see White (2004).
[95] Reinhart and Rogoff (2009) p145

sector" based less on traditional banking relationships and more on collateralized lending. Again, there is clear evidence of such an expansion in recent years. Since this kind of lending seems to be even more procyclical than traditional bank lending, and subject to other risks as well[96], this would have to be thought of as another unintended consequence of easy monetary conditions. A third concern is that insurance companies, and other lenders, might find it increasingly difficult to earn adequate returns on their assets. This could again imply longer term problems for an important part of the financial sector.

3.3 (a) Banks and shadow banking in the credit upswing

The mainstay of traditional banking is to borrow short and lend long. With policy rates low relative to longer term rates, and relative to rates incorporating a counterparty risk premium, banks have an incentive to create credit as the demand for credit increases. The rate of growth of credit in the AMEs and the EMEs between 2003 and 2007 was well above the respective growth rates of nominal income.

Moreover, there is growing evidence that banks and financial markets more generally can become overly optimistic about the risks that they run in their lending practices. Recent BIS Working Papers by Borio and Zhu (2008), Gambacorta (2009), Disyatat (2010) and Altunbas et al (2010) all provide evidence of the importance of what they call the "risk taking channel" of the transmission mechanism of monetary policy[97]. Adrian and Shin (2008a and 2008b) also provide compelling evidence that "Short term interest rates are determinants of the cost of leverage and are found to be important in influencing the size of financial intermediary balance sheets". In addition, Adrian and Shinn establish an empirical link between higher leverage, induced by lower interest rates, and subsequent growth rates of housing investment and durable goods consumption.

More anecdotal evidence also supports the hypothesis that low rates encourage more risk taking and softer lending standards. In the years leading up to the crisis which broke in 2007, lending standards dropped almost everywhere, with subprime mortgages to households and covenant light loans to corporations being the most egregious examples. Similarly, there were sharp declines in the sovereign spreads of EMEs and of lower rated corporate and financial paper. Beginning in the middle of 2003, when policy rates in the AMEs were at their lowest level, the prices of houses in many countries, as well as the prices of other illiquid assets (including commodities), began to rise sharply. Similarly, the cost of insurance against unexpected events (proxied by the Vix index) fell to record low levels. In sum, illiquidity was in high demand and liquidity was for sale cheaply. All of these trends were consistent with a credit driven expansion, fostered by low policy rates,[98] that was likely to end in crisis. While

[96] For a fuller assessment, see Financial Stability Board (2012)
[97] Also see Maddaloni and Peydro (2010)
[98] A puzzle is why increases in policy rates, in the US in particular between mid 2004 and 2007, failed to stop the excesses. Two reasons suggest themselves. First, the dynamic of the boom was so great that the "measured" increase in policy rates (essentially 25 basis points per meeting) was inadequate to offset the expected gains. Second, because the increases in policy rates were so well telegraphed, the risks involved in leveraged positions were declining even more than the spread was narrowing. With the Sharpe ratio rising, there was a positive invitation to take on even more leverage. Adrian and Shin (2008) seem to take this point seriously. They state (p28) "If central bank communication compresses the uncertainty around future short rates, the risk of taking on long-lived assets financed by short term debt is compressed. … In this sense, there is the possibility that forward looking communication can be counterproductive." This point was also made repeatedly in BIS Annual Reports prior to the beginning of the crisis.

the beginning of the crisis led to a reversal of all the above trends, by the end of 2012 new records were again being set under the influence of a further round of monetary easing.

Credit expansions of this sort, if not restrained by sufficiently high policy rates, eventually run into two other constraints. The first of these is a shortage of capital, which results in leverage ratios rising to uncomfortable levels. The second is a shortage of longer term and reliable funding to support the credit expansion. Indeed, Kaminska (2012) contends that this latter problem is a "terminal disease" affecting banking, and was greatly aggravated by the secular fall in interest rates[99]. However, banks took aggressive steps to confront both problems, thus allowing them to continue to meet the demand for credit expansion promoted by low borrowing costs. As noted above, this implied a deeper eventual downturn than otherwise given both larger "malinvestments" and also a structurally weakened financial sector.

Banks first confronted the capital shortage problem by exploiting opportunities for regulatory arbitrage opened up by the introduction of "risk weighted assets" in the first Basel Accord of 1992. Slovik (2011) investigates the behavior of 15 of the largest systemically important banks in the AMEs. He documents how the ratio of risk weighted assets to total assets fell almost monotonically from 70 percent of GDP in 1992 to just 35 percent just prior to the onset of the crisis. The implication he draws is that large banks, stretching back over two decades, have been drawing back from their traditional line of business; namely "to actively search for and evaluate lending opportunities and advance loans to credit worthy enterprises and households"[100]. Instead, large banks have increasingly pursued a different business model, based on "shadow banking", which promised to alleviate both the capital problem and the long term funding problem simultaneously.

The essence of shadow banking is to make loans, securitize them, sell the securities and insure them, and actively trade all the financial assets involved[101]. In effect, traditional relationship banking is replaced by a collateralized market system with the repo market at its heart. Banks thus get risky assets off the balance sheet, reducing the constraints just noted, while providing a rich source of fees and further profits from market making and proprietary trading. However, while seemingly convenient to the financial institutions involved, shadow banking activities have significant externalities (or systemic risks) for the financial system as a whole.

A recent report by the Financial Stability Board (2012) enumerates many of these risks. Not least is the complexity and inherent non transparency of "shadow banking" – thus its name. With long chains of interactions involving collateral, rehypothetication[102] and large offsetting positions in CDS and other derivatives, exposure to counterparty risk became almost impossible to estimate. In association with the belief (likely justified) that many of the firms at the heart of the system are "too big and/or complicated to fail", these attributes effectively

[99] Kaminska (2012), p.3 "The consequences of falling yields were, after all, potentially deadly for banks if mismanaged. Not only did they threaten the margins banks collected via cheap liabilities, they increasingly compromised funding supply altogether."
[100] Slovik (2011) p.6. To put this otherwise, the ratio of total loans to total assets for Deutsche Bank fell from 85 percent in 1990 to 27 percent in 2010. For UBS the decline was from 78 percent to 22 percent, and for Bank of America from 58 to 42 percent. See Slovik Table 1.
[101] The most comprehensive description can be found in Pozsar et al (2010). Also Financial Stability Board (2012)
[102] This element of market practices in not well known. Assets received as collateral by a lender are frequently lent out or used as collateral by the lender to borrow more funds. Known as "rehypothecation", this practice makes the chain of related transactions still longer and more complicated. See Singh and Aitken (2009) for a seminal discussion.

precluded the exercise of market discipline to reign in excessive risk taking. As well, the opacity of the system proved a substantial impediment to supervisory oversight. Shortcomings in this regard, with macroeconomic implications, have been documented by Blustein (2012) as well as the Independent Evaluation Office of the IMF (2011). Shortcomings at the microeconomic level are attested to by the recent number of criminal investigations into unacceptable kinds of financial behavior.[103]

Equally important, a point made by the FSB as well as Adrian and Shin (2008a and 2008b) and Geanakoplos (2003 and 2010), is that a collateral based lending system tends to be highly procyclical in its operations. Essentially, this is because the value of available collateral reflects three components; the market value of the collateral, the haircut imposed on the borrower and the velocity of turnover (rehypothecation)of the available collateral[104]. All three of these are likely to move highly procyclically, a tendency documented using recent data by Garcia (2012) and Singh (2012). Further, later in the credit upswing, whole classes of collateral can be judged "acceptable" that would not previously have been so considered. Indeed, as Rajan (2005) has pointed out, substantial efforts were made to construct new instruments (like CDOs and their variants) that looked less risky in that the Probability of Default seemed to have fallen. The fact that the Expected Loss had not fallen commensurately, because the Loss Given Default had risen, given the nature of the new instrument, was generally ignored[105].

Finally, the way the shadow banking system has evolved implies that the end of the "boom" phase can occur very precipitously. Longer term lending tends increasingly to depend on short term funding. Because such funds are not covered by deposit insurance schemes, "runs" can occur quickly when confidence erodes in the solvency of the counterparts. In effect, the famous "Minsky moment" is likely to be shorter, harder to predict, and even more self fulfilling than Minsky suggested. The failure of Bear Sterns and Lehmans provide good examples of these dangers. As well, the shadow banking system has an increasingly international flavor. This not only reduces transparency and the quality of regulatory oversight, but also produces a degree of "balance sheet" exposure that could easily precipitate or aggravate foreign exchange crises. Concerns of this nature have been raised by Obstfeld (2010), Borio and Disyatat (2011) and Shin (2011).

To sum up, low policy rates encourage imprudent behaviour on the part of lenders during the credit upswing. Moreover, they have also contributed to structural change within the financial sector that makes it inherently more procyclical and also less likely to respond to monetary easing in the future. As with induced changes in the behavior of borrowers, low policy rates have themselves generated circumstances for lenders in which aggressive monetary easing would be more needed but also less effective.

3.3 (b) Banks and shadow banking in the credit downswing

Whatever precipitates the end of the credit upswing, the downswing will be characterized by a reversal of all the forces that previously made credit so easily available. Losses will have to

[103] Consider recent cases of insider trading, money laundering and the setting of LIBOR. However, Kindelberger and Aliber (2005) remind us that fraud and criminality were late- credit- cycle phenomena long before the rise of shadow banking.
[104] Singh (2011) provides evidence of how this practice fluctuates with the credit cycle.
[105] This is consistent with the hypothesis of psychologists that most humans suffer from "disaster myopia". This could be the result of survival strategies becoming hard wired over millions of years of evolution.

be absorbed, affecting profits and capital[106]. The appetite for risk will decline, as will the value of collateral as market prices fall, haircuts rise and rehypothecation slows. Worse, whole classes of collateral (like CDOs and the bonds of peripheral countries in Europe) will be judged unacceptable by lenders. Instead, they will accept as collateral only the bonds of the highest ranked sovereigns, and even then only for short term loans. Perhaps still worse, uncollaterized lending (say unsecured bond issues by banks) could become almost unavailable.

To say that financial institutions now face capital losses and severe funding challenges is to say that the very problems they tried to avoid, through the shadow banking mechanism, have now reappeared in a particularly virulent form. Moreover, they must be confronted, not at a time of vigorous economic expansion, but rather of contraction. This implies that both the cost of capital and the cost of funding (relative to policy rates) are likely to be higher. From a secular viewpoint, the implied need to deleverage might be thought a welcome reaction to excessive leverage earlier on[107]. However, from a cyclical perspective, the worry would be a sharp tightening of credit conditions for ultimate borrowers that would reduce their capacity to spend and deepen the downturn.

There seems little question that the financial systems of most AMEs face particular challenges at the present time. The situation is perhaps worst in Europe reflecting factors considered just below. While the problems of European banks are highlighted, the interdependencies implicit in shadow banking imply that financial systems in other continents might also be deeply affected by possible European developments. Unfortunately, this is in the realm of uncertainty rather than quantifiable risk.

To explain the particular challenges facing European banks, consider first the degree of imprudent lending of core Eurozone banks to the banks of peripheral countries. These loans reflected the fallacious belief that there could be no balance of payments problems within the euro zone. Closely related, European banks prior to the crisis had raised large sums in short term dollar loans and used them to make longer term dollar loans through the shadow banking system. Finding dollars to fund those positions subsequently proved particularly difficult, as money market mutual funds in particular withdrew funding.[108]. Second, regulatory efforts to tighten capital and liquidity standards during the credit downswing have materially complicated the situation. Recall that most of the measures being implemented now were suggested under Basel 3. However, they were originally scheduled to be brought in only much later, in order to cushion the effects on a still recovering economy. Third, the evolving euro zone crisis, with its implications for indebted sovereigns and even the survival of the euro, have raised further questions about the future of European banks.

How are financial institutions now responding to the shortage of capital, longer term funding and the shortage of acceptable collateral? As for capital, many banks have cut costs and retained more of the resulting profits, while a few have issued new equity. Less positively, some banks have engaged in forbearance on bad loans to avoid losses of capital. Moreover, there also seems to have been a significant effort to reduce capital requirements by

[106] Financial institutions can for a time (perhaps a long time) avoid this by making new loans to cover interest payments ("evergreening"). Low interest rates encourage such behavior. Since the crisis began, loan default rates in Europe have been unusually low. See Bank for International Settlements (2012) Graph VI.1

[107] A body of literature is now emerging which suggests that, beyond certain levels of credit to GDP, financial deepening actually slows potential growth. See Cecchetti and Kharroubi (2012)

[108] McGuire and Goetz (2009)

manipulating risk weights using internal models. As for longer term funding and the particular problem of collateral, many banks have been highly innovative in "collateral mining" in an attempt to obtain or create new collateral that lenders will think of as being safer. Collateral swaps between banks and insurance companies, better constructed CDOs, greater issuance of ETFs, issuance of covered bonds, and reliance on funding from corporations in the repo market are all increasing. Unfortunately, each of these alternative sources of funds also has significant risks associated with it[109], not least that the collateral offered could be significantly less safe than it first appears to be.

The bottom line thus remains. The poor health of the financial system in AMEs, arising from the earlier period of low rates and rapid credit expansion, could add materially to the headwinds facing the global economy. As noted above, rising funding costs have implied that bank lending rates have fallen significantly less than policy rates. In many countries, especially peripheral countries in Europe, lending standards have tightened significantly. Small and medium size enterprises everywhere have been the most affected, as have borrowers in areas dominated by community banks whose lending generally lacks diversification.

Short of a wholesale restructuring of the liabilities of financial institutions (linked to recognizing losses on the asset side of the balance sheet), it is not clear what central banks can to do to restore the financial system to health. If the problem is insolvency and fears of insolvency, the provision of still more liquidity only postpones the day of reckoning[110]. Indeed, if the central bank lending is done only against "good collateral", the collateral shortfall problem will be exacerbated especially since central banks do not in general rehypothecate[111]. Finally, cheap capital from central banks discourages banks from issuing longer term (and more costly) bonds and encourages them to redeem older ones.

As for still lower policy rates to help the financial system, this might temporarily raise lending spreads and profitability. However, over time, spreads (both term and credit) will trend back towards normal levels as longer term assets mature. Indeed, in the aftermath of a financial crisis, the search for safety along with tightened regulatory standards might result (in some countries) in abnormally sharp declines in term spreads due to declines in longer term government bond rates[112]. Against this background, policies like the Fed's so called "Operation Twist", which artificially reduce term spreads, also reduce the willingness to lend long even if the desire to borrow increases.[113] And, finally and likely most important, with interbank rates close to zero, banks with surpluses become increasingly unwilling to lend to

[109] The Bank of England is concerned about collateral swaps and ETFs. See Hughes (2011). On ETF's, also see Raswamy(2011). On the limitations of the issuance of covered bonds, see Alloway (2012a) and Alloway (2012b).
While it seems there continues to be scope for more covered bond issues at present, the concern remains that there will eventually be a "tipping point". Because covered bonds subordinate other lenders, they might in the end cause uncovered lending to stop entirely.

[110] In the Introduction to this paper, explicit and timely debt restructuring was suggested as one of the policies that governments might follow that would actually encourage recovery. This would include measures to restore the health of the financial system, along the lines pursued by the Nordic countries in the early 1990s

[111] Declining liquidity in the longer term US Treasury market has been ascribed to "Operation Twist". Similar comments have followed on large scale purchases of gilts by the Bank of England.

[112] The flattening of yield curves has already led to a narrowing of interest spreads. See Bank for International Settlements (2012) Table VI.1

[113] See Bill Gross (2012). This is particularly pernicious if it thwarts longer term lending to fund the longer term investment that many AMEs really need. A recent G30 (2013) study has drawn attention to some of the difficulties faced in finding funding for long term investments.

other banks with a shortage of funds. In this way, the availability of credit becomes even more constrained.

3.3 (c) Other unintended consequences in the financial sector

Given the unprecedented character of the monetary policies followed in recent years, and the almost complete absence of a financial sector in currently used macroeconomic models, there might well be other unintended consequences that are not yet on the radar screen. By way of example only, futures brokers demand margin, and customers often provide excess margin. The broker can invest the excess, and often a substantial portion of their profits comes from this source[114]. Low interest rates threaten this income source and perhaps even the whole business model. A similar concern might arise concerning the viability of money market mutual funds, supposing that asset returns were not sufficient to even cover operating expenses. A final example of potential problems has to do with the swaps markets, where unexpectedly low policy rates can punish severely those that bet the wrong way. This could lead to bankruptcies and other unintended consequences. [115]

A problem which has been far better recognized is the implications of low interest rates for insurance companies[116]. This issue was flagged at least as far back as 2000[117], but in recent years a wide range of studies into this problem have been carried out[118]. Ernst and Young estimate that the top 25 life companies would see net investment income decline by 51 basis points (from a 2010 level of 5.01 percent) if interest rates remained at the level of October 2011 for three years. Companies would be most affected when heavily invested in bonds, when the duration of the assets was short (relative to the duration of liabilities), and when companies had little room to maneuver on the liability side because of previous contractual agreements.

Such a decline in portfolio returns is significant and has already led to certain reactions on the part of the insurance companies most affected. Variously, dividends have been lowered, premia have been raised, payouts to the insured have been reduced (where possible), and companies have withdrawn from business lines that no longer seem possible. In conducting an assessment of the problems faced, and the reactions to date, Standard and Poors said that it saw no need to change ratings “in the near term”. This is comforting.

However, left unassessed were three other risks that could prove important. First, what would be the effects of interest rates staying low for much longer than the next two to three years? Second, how might this interact with calls for more capital and expensive, new monitoring procedures in companies judged to be of systemic importance? Third, and closely related, what is the likelihood that some insurance companies might gamble for resurrection by substantially increasing their risk taking. Evidently this is a possible outcome not just confined to insurance companies, but to all financial institutions who suffer losses in a low interest rate

[114] See Meyer (2012)
[115] See Haddock and Barnes (2012). They contend that, prior to 2007, many highly leveraged property deals in the UK used swaps to minimize the risks of rising financing rates. Indeed, many of these swaps had a maturity longer than the underlying loan itself. Now many of these deals need to be restructured, but low policy rates have raised the cost of breaking the swap to prohibitive levels. This is another example of how low policy rates can impede the purging of malinvestments in the downswing of the credit cycle.
[116] These are very similar to the implications for pension funds which were discussed above.
[117] Dickson (2001)
[118] Antolin et al (2011), French et al (2011), Standard and Poors (2011) and Ramaswamy (2012)

environment[119]. Unfortunately, it is generally impossible to assess this possibility until such risks actually materialize. By then the damage, perhaps systemic, has already been done.

Finally, since the beginning of the crisis, another unwelcome phenomenon has been observed in financial markets; namely, Risk Off-Risk On (RoRo) trading. Within two sets of assets, those deemed risky and those deemed safe, correlations between asset class returns have risen sharply[120]. This reflects a new form of trading which seems to focus primarily on tail risks in a context of very ample liquidity which encourages leverage. When participants are feeling relatively sanguine, they rush into all the assets considered risky. When some event arouses fear in the future, there is a similar rush into all assets considered safe.

Clearly such behavior is unwelcome. First, the shift from "risk on" to "risk off" is almost entirely unpredictable, being largely based on political events. For example, recent triggers have been developments concerning the future of the euro zone and the US fiscal "cliff". Moreover, these shifts seem to be occurring with increasing frequency, raising the probability that someone with a highly leveraged position (perhaps a firm deemed "too big to fail") will be caught out. Second, in a RoRo environment, "fundamentals" play virtually no role in portfolio decisions, which must have undesirable consequences over the longer term. Third, with high correlations, portfolio diversification provides few benefits in reducing risks. A world in which the first two moment of the probability distribution of a portfolio no longer play a role in investment decisions would seem a very long way away from a classical world of "efficient" financial markets.

3.4 Effects on central banks and governments

Ultra easy monetary policies, whether very low policy rates or policies affecting the size and composition of their balance sheets, can also have unintended and unwelcome implications for central banks themselves. Some of these effects are more technical. First, with very low policy rates, the likelihood rises that normal intermediation spreads in private markets will fall so far that these markets will collapse. The central bank may then find itself as the "market maker of last resort". The current interbank market might fall into this category. Moreover, a similar experience in Japan in the 1990s indicates that restarting such private markets is not easy. Second, deeper questions can arise about central banks operating procedures in such an environment[121]. Third, with central banks so active in so many markets, the danger rises that the prices in those markets will increasingly be determined by the central bank's actions. While there are both positive and negative implications for the broader economy, as described in earlier sections, there is one clear negative for central banks. The information normally provided to central banks by market movements, information which ought to help in the conduct of monetary policy, will be increasingly absent. Finally, with policies being essentially unprecedented, wholly unexpected implications for central banks (as with others) cannot be ruled out[122].

[119] For a discussion of the trading losses recently suffered by J P Morgan, see Tett (2012)
[120] See Williams et al (2012)
[121] See Bank for International Settlements (2012) Box IV b.
[122] In mid 2012, some commentators suggested the ECB should start paying negative interest rates on reserves held at the ECB. The initial ECB resistance to this suggestion was based in part on the concern that this was wholly unexplored territory. Another worry, arising from recent Danish experience, was that banks would then have to recoup losses by raising rates on loans. In this way, monetary easing might actually prove contractionary.

Beyond these technical considerations, the actions undertaken by AME central banks pose a clear threat to their "independence" in the pursuit of price stability. First, as central banks have purchased (or accepted as collateral) assets of lower quality, they have exposed themselves to losses. If it were felt necessary to recapitalize the central bank[123], this would be both embarrassing and another potential source of influence of the government over the central bank's activities. Second, the actions of central banks have palpably been motivated by concerns about financial stability. Going forward, it will no longer be possible to suggest that monetary policy can be uniquely focused on near term price stability. Third, by purchasing government paper on a large scale, central banks open themselves to the criticism that they are cooperating in the process of fiscal dominance[124].

It is easier to identify these possible implications for central banks than to assess their desirability. On recapitalization, it is not at all clear that central banks need positive capital to carry out their responsibilities[125]. On central banks being overly concerned with financial stability, many economists would argue that this was part (indeed the core) of the traditional mandate of central banks. They would note that, since financial instability can lead to deflation (which is not price stability either), the concerns about price and financial instability are simply two sides of the same coin[126]. Adrian and Shin (2008) even insist that the link is growing ever stronger, given how policy rates drive the leverage cycle in the modern world of shadow banking. Finally, suppose that central bank purchases of government paper are a response to a market driven "run" that could become self fulfilling[127]. Is this not exactly the kind of situation when central banks ought to intervene? Evidently, such considerations are receiving a great deal of attention in the context of the Euro zone crisis[128].

What are the implications of ultra easy monetary policy for governments? One technical response is that it could influence the maturity structure of government debt. With a positively sloped yield curve, governments might be tempted to rely on ever shorter financing. This would leave them open to significant refinancing risks when interest rates eventually began to rise. Indeed, if the maturity structure became short enough, higher rates to fight inflationary pressure might cause a widening of the government deficit sufficient to raise fears of fiscal dominance. In the limit, monetary tightening might then raise inflationary expectations rather than lower them. While this dynamic was seen in the past in some Latin American countries,

[123] Leijonhufvud (2009)makes the related point that, in choosing who to support and who not, central banks are making choices with distributional implications. Issues of distribution fall more normally in the realm of politics and will attract the attention of politicians.
[124] Hanoun (2011) expresses concern that the focus of central banks on price stability will be diluted by financial dominance, fiscal dominance and also exchange rate dominance. This last concern refers to the "fear of floating", referred to above, that has extended the credit driven problems in the AME s to the EMEs as well.
[125] The central banks of many countries have operated with negative capital for decades; e.g., Chile, Jamaica and others.
[126] This author, and Borio and others at the BIS, have been making this point for many years. The practical implication is that price stability targets should extend over a horizon long enough to allow imbalances to unwind. Thus, to lean against a credit bubble is to lean against some combination of possible near term inflationary pressures and/or the possibility of excessive disinflation (or even deflation) over the medium term. See White (2006a). Operationally, this implies that separating the price stability function from the financial stability function at central banks is logically wrong. See White (2012a). Issing (2012) reminds us, however, of some important political considerations that could qualify this conclusion.
[127] The problem is one of multiple equilibria. A sovereign may be solvent given reasonable interest rates, but not if a run pushes up rates beyond some limit.
[128] See in particular De Grauwe P (2013) who argues that both the financial market and the official sector "panicked" (a bad equilibrium) and imposed fiscal austerity in Europe where it was not needed. Moreover, he argues that fiscal austerity has actually worsened prospects for government debt/ GDP ratios as the denominator has been significantly affected by Keynes' "paradox of thrift".

in this crisis the maturity structure of the debt in many AMEs has actually been lengthened not shortened.

A more fundamental effect on governments, however, is that it fosters false confidence in the sustainability of their fiscal position. In the last few years, in spite of rising debt levels, the proportion of government debt service to GDP in many AMEs has actually fallen. Citing as well the example of Japan, many commentators thus contend that the need for fiscal consolidation can be resisted for a long time. Richard Koo, Martin Wolf and others are undoubtedly right in suggesting that a debt driven private sector collapse should normally be offset by public sector stimulus. What cannot be forgotten, however, is the suddenness with which market confidence can be lost, and the fact that the Japanese situation was initially highly unusual in a number of ways[129].

What is clearer is that exiting from a period of ultra easy monetary policy will not be easy. In this area, the Japanese experience over the last two decades is instructive. Central banks using traditional models will hesitate to raise rates because growth seems sub-normal. Further, the recognition that higher short rates might cause longer rates to "spike", with uncertain effects on financial stability, will also induce caution[130]. Governments will also firmly resist higher rates, because they might well reveal that the level of government debt had indeed risen to unsustainable levels. Further, on the basis of recent experience, the entire financial community (with its formidable capacity for public communication and private lobbying) will oppose any tightening of policy as too dangerous. Their motives in this regard are questioned below. Presumably a sharp enough increase in inflation would lead to a tightening of policy. However, by then a lot of further damage – not least to the credibility of central banks – might well have been done.

3.5 Effects on the distribution of income and wealth

Income inequality has risen sharply in almost every country in the world in recent years. This applies equally to AMEs and EMEs[131]. Moreover, after many years when distributional issues were largely ignored, these trends are now receiving increased attention. While arguments can easily be made for some degree of inequality to foster growth[132], there is a sense almost everywhere that recent trends have gone too far. Wilkinson and Picket (2009) suggest that greater inequality has many undesirable social effects. It has also been suggested that greater inequality can leads to a concentration of political power in the hands of those who wish to use it for their own purposes. In the limit, such trends call into question the legitimacy of the whole democratic process. Further, by raising perceptions of unfairness, the trust that

[129] The Japanese crisis of the 1990s began with a relatively low level of public debt, a very high household saving rate, the world's largest trade surplus, and a very strong home bias for portfolio investment. Contrast this, for example, with the almost opposite position of the US today. A marked shift in market confidence in US Treasury debt could then well lead to a dollar as well as a bond crisis. Note further that the gross level of public debt in Japan has since risen to over 200 percent of GDP, that the Japanese household saving rate has fallen virtually to zero, and that Japan has recently been running a current account deficit. Should all of this cause Japanese "home bias" to come unstuck, a similar crisis might yet be possible in Japan.

[130] This might be particularly the case in the US. Recall the turmoil in the bond markets when rates were raised in 1994. Recall as well the concern to avoid financial instability implicit in the "measured" increase in policy rates between 2004 and 2007. Further, because of the problem of convexity hedging, which is unique to the United States, there might well be concerns that raising policy rates could have undesired consequences.

[131] See OECD (2011)

[132] The classical argument is that richer people save more and this provides the basis for capital accumulation.

underpins all transactions in a market system can also be eroded. Evidently, these are crucially important social issues.

Given its global incidence and secular character, rising income inequality is most likely deeply rooted in technological change and globalization, both of which threaten the less well educated. Nevertheless, it is also worth asking whether, albeit to some lesser degree, this might be another unintended consequence of ultra easy monetary policy. Not only has the share of wages (in total factor income) been declining in many countries, but the rising profit share has been increasingly driven by the financial sector. It seems to defy common sense that at one point 40 percent of all US corporate profits (value added?) came from this single source.

To simplify a description of how such a process might work, distinguish between three classes of people. Class 1 (entrepreneurs and financiers) are those who are rich enough to save (equity) and they invest on a leveraged basis using funds borrowed from other savers. This second class of savers (Class 2) is also relatively well off, but more risk adverse than the first class. Class 3 consists of the less well off who essentially borrow from the others. It is of interest to see who fares relatively well (and relatively badly) in the ”boom bust” phases of the credit cycle, and also how shadow banking practices play into this. As argued above, both constitute the unexpected consequences of ultra easy monetary policies.

In the boom phase of the cycle, with interest rate low relative to expected rewards, members of Class 1 speculate, using leverage, and generally make substantial profits as asset prices rise and the economy expands. The momentum of this process continues even after policy rates begin to rise. Speculation is also encouraged by the safety net features increasingly provided by governments[133]. Moreover, those in the financial sector systematically exploit knowledge asymmetries to increase both fees and gains from market movements. This process of extraction is facilitated by the inherent non transparency of the shadow banking system. Finally, members of Class 1 use their political influence to enhance these safety net features and to drum up support for the “safety and soundness” of the shadow banking system upon which they increasingly rely.[134]

Members of Class 2 also profit, especially as interest rates rise, since they are net savers (creditors) with predominantly short term assets. Class 3 members suffer from higher interest rates as the recovery continues, but to the extent they have borrowed to buy real assets (especially houses) they also seem to gain as the prices of those assets rise. Rajan (2010) contends that governments actively encouraged this process[135] to allow lower income people to continue to consume, even as their incomes and job prospects were being further squeezed by technological developments and globalization.

In the bust phase of the cycle, asset prices collapse and Class 1 speculators can lose part (though rarely all) of the wealth accumulated earlier. Sharply easier monetary conditions ease

[133] These would include the “Greenspan put”, and the assumption that some firms were too big/complex/interrelated to be allowed to fail. Another important advantage is that lenders in the US and EU, with loans secured on financial collateral, have bankruptcy privileges. That is, in the case of bankruptcy, the holders of collateral can immediately seize it and sell it, thus jumping the normal queue of creditors. See Perotti (2012) and Johnson R (2010). Fisher and Rosenblum (2012) and others feel that banks that cannot be allowed to fail in a disorderly fashion should be broken up. Needless to say, this suggestion has proven controversial.

[134] For two powerful works speaking to these issues, see Johnson S (2009) and Wedel (2009)

[135] In the US, the massive expansion of the remit of Government Sponsored Enterprises (especially Fannie Mae and Freddie Mac) provide strong support for Rajan’s position.

their burden materially. Again, there is lobbying to ensure that the other forms of support promised earlier by governments actually materialize. Members of Class 2 bear the main burden of this transfer from creditors to debtors, either directly (as their financial assets earn very little) or indirectly due to lower pensions and higher insurance cost. As debtors, members of Class 3 also benefit from ultra easy monetary policy[136]. Overall, however, they suffer the most because their net wealth is very low, their access to further credit disappears, and they are the most liable to lose their jobs in the downturn. Ironically, if Rajan's thesis is correct, the policies originally designed to help the poor have hurt them the most.

This story is highly stylized and perhaps not true in certain respects. Nevertheless, it seems true enough to warrant further interdisciplinary research into the potential redistributive implications of ultra easy monetary policy.

4. Conclusions

The case for ultra easy monetary policies has been well enough made to convince the central banks of most AMEs to follow such polices. They have succeeded thus far in avoiding a collapse of both the global economy and the financial system that supports it. Nevertheless, it is argued in this paper, that the capacity of such policies to stimulate "strong, sustainable and balanced growth" in the global economy is limited. Moreover, ultra easy monetary policies have a wide variety of undesirable medium term effects – the unintended consequences. They create malinvestments in the real economy, threaten the health of financial institutions and the functioning of financial markets, constrain the "independent " pursuit of price stability by central banks, encourage governments to refrain from confronting sovereign debt problems in a timely way, and redistribute income and wealth in a highly regressive fashion. While each medium term effect on its own might be questioned, considered all together they support strongly the proposition that aggressive monetary easing in economic downturns is not "a free lunch".

Looking forward to when this crisis is over, the principal lesson for central banks would seem to be that they should lean more aggressively against credit driven upswings, and be more prepared to tolerate the subsequent downswings. This could help avoid future crises of the current sort. Of course the current crisis is not yet over, and the principal lesson to be drawn from this paper concerns governments rather more than central banks. What central banks have done is to buy time to allow governments to follow the policies[137] that are more likely to lead to a resumption of "strong, sustainable and balanced" global growth. If governments do not use this time wisely, then the ongoing economic and financial crisis can only worsen as the unintended consequences of current monetary policies increasingly materialize.

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[136] This would be limited, however, if the mortgage were fixed rate and long term. In the US, refinancing opportunities would also be restricted if the value of the property fell below the value of the mortgage.
[137] For a fuller description of these recommended policies, see White (2012)

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Civilizing capitalism: "good" and "bad" greed from the enlightenment to Thorstein Veblen (1857-1929)[1]

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> *As we look over the country today we see two classes of people. The excessively rich and the abject poor, and between them is a gulf ever deepening, ever widening, and the ranks of the poor are continually being recruited from a third class, the well-to-do, which class is rapidly disappearing and being absorbed by the very poor.* Milford Wriarson Howard (1862-1937), in *The American Plutocracy*, 1895.

This paper argues for important similarities between today's economic situation and the picture painted above by Milford Howard, a member of the US Senate at the time he wrote *The American Plutocracy.* This was the time, the 1880s and 1890s, when a combination of Manchester Liberalism – a logical extension of Ricardian economics – and Social Darwinism – promoted by the exceedingly influential UK philosopher Herbert Spencer – threatened completely to take over economic thought and policy on both sides of the Atlantic.

At the same time, the latter half of the 19th century was marred by financial crises and social unrest. The national cycles of boom and bust were not as globally synchronized as they later became, but they were frequent both in Europe and in the United States. Activist reformer Ida Tarbell probably exaggerated when she recalled that in the US "the eighties dripped with blood", but a growing gulf between a small and opulent group of bankers and industrialists produced social unrest and bloody labour struggles. The panic on May 5, 1893 triggered the worst financial crisis in the US until then.

In economic theory, this increasing concentration of wealth and power that resulted from ostensibly "free market" activities caused a massive upheaval against classical economics in the late 19th century. In his three-volume *Main Currents in Modern Economics* (1971) [2] Ben Seligman expressively entitles the first volume, dedicated to this period, "The Revolt against Formalism". This revolt was spearheaded under different labels – historicism, institutionalism, empiricism, social policy, religion, socialism, ethics – but all these movements were in practice directed against the two-pronged movement of Manchester Liberalism (similar to today's neoliberalism) and Spencerian Darwinism. Ricardian formalism and social Darwinism decidedly lost this battle. In the US the 1890s saw the beginning anti-trust legislation and an increased awareness to social issues and a social justice which markets alone were obviously unable to deliver. Europe saw the growth of what was to become the welfare state, and the German *Verein für Sozialpolitik* (Association for Social Policy) pragmatically and patiently leading the way over a period of sixty years. Capitalism was tamed in the sense that predatory activities, excessive market power, and speculations were harnessed, while social problems were met by new policy institutions.

[1] This paper is based on discussions in the volume *Thorstein Veblen: Economist for an Age of Crises*, Erik S. Reinert & Francesca Viano (eds.), London: Anthem (The Other Canon Series), 2012
[2] Ben B. Seligman, *Main Currents in Modern Economics. Economic Thought since 1870,* 3 vols., Chicago: Triangle Books, 1971 (a one-volume edition had been published in 1962 by The Free Press).

Three economics texts from the late 1890 – by Gustav Schmoller (Germany), Herbert Foxwell (UK), and Thorstein Veblen (US) – represent the revolt against formalism and the resulting taming of capitalism. Although their styles and agendas were different, they are important representatives of the alternative theory that solidified on both sides of the Atlantic during the 1890s. They created an alternative to what Gustav Schmoller called *the irrational twins:* Manchester Liberalism and communism. This 1890s generation laid the foundations for the Middle Way between communism and Manchester liberalism, for a regulated capitalism with decent economic distribution and after the 1930s – as long as this theory was kept in place – also without major financial crises.

The mainstream canonical account of the history of economic thought has come to overshadow the important radical and influential voices of Schmoller, Foxwell, and Veblen Instead today's focus on this period is on the marginalists, a group of economists who chose to avoid studying issues with normative and political implications – but therefore also chose political irrelevance – and the neoclassical tradition starting with Alfred Marshall's *Principles of Economics* (1890). With marginalism and Marshall – particularly in the appendices to his *Principles* – economics was to develop into the new and even more sterile formalism. However, the revolting group of economists here mentioned helped shaping the incentive system of capitalism so that the interests of individual capitalists again were brought in line with the interests of society at large.

Starting in 1929, The Great Depression saw a rehash of the social and theoretical conflicts of the 1890s, but this time featuring a new generation of economists: Joseph Schumpeter in the German speaking and John Maynard Keynes in the English speaking world, both men born in 1883. However, the foundations of the science of controlling and civilizing industrial capitalism – the basic arguments against what today is called neoliberalism – had been laid in the preceding generation.

Now history is repeating itself, as usual with variations. Crises, then and now, necessarily bring with them a discussion of the role of self-interest and greed in capitalism.[3] Greed, or avarice, is one of the seven mortal sins of Christendom. However, since capitalism is based on self-interest, successful capitalism must separate the kind of self-interest which contributes to *wealth creation* from that which constitutes predatory *wealth extraction.*[4] In other words productive self-interest or *good gree*d must be separated from *bad greed*. Neo-classical economics, however, contains no internal arguments against Gordon Gekko's *Greed is Good* in Oliver Stone's 1987 movie "Wall Street". The economics of the 1890s, however, had theories which provided the necessary separation, and it is time to re-discover them.

Thorstein Veblen's work was the one making the clearest separation between the human proclivities that produce – respectively – *good* and *bad* greed. I shall argue that Veblen re-invented wisdom and insights that had already been made during the Enlightenment, insights that need to be re-discovered. However, just as last time, these insights cannot be re-discovered without ridding economics of excessive neoclassical formalism which – through its

[3] Many books have been published on the subject of greed recently. A historical overview is provided by David E.Y Sarna, *History of Greed, Financial Fraud from Tulip Mania to Bernie Madoff,* Hoboken: Wiley, 2010.
[4] A discussion of this and a fifty page bibliography on the issue are found in Erik S. Reinert and Arno Daastøl, *Production Capitalism vs. Financial Capitalism – Symbiosis and Parasitism. An Evolutionary Perspective and Bibliography*, The Other Canon Foundation and Tallinn University of Technology Working Papers in Technology Governance and Economic Dynamics, No 36, 2011. Downloadable on http://hum.ttu.ee/tg/

inability to separate *good greed* from *bad greed* – provides dogmas which presently benefit wealth extraction at the expense of wealth creation.

1890s: three elements in the revolt against formalism

Opposition to an overly formalistic science of economics would focus on three key aspects of the economics of David Ricardo (1817) which – if employed in practical policy – will distort policies in ways which, contrary to what the same theory claims, often create rents that distort the distribution of economic gains. We could call them Ricardo's three vices:

1. *Ricardo's assumption-based rather than an empirically based theory*. The belief that one could easily deduce policy conclusions directly from a highly abstract theoretical model leads the profession systemically to ignore important aspects of reality. This is the original *Ricardian Vice* as described by Schumpeter. Instead economic theory needed to be experience-based: built on observations of reality rather than on assumptions taken out of thin air. If "perfect competition" is assumed while oligopolies and monopolies are a normal state of affairs, policies based on the assumption of "perfect competition" will create rents to the companies that operate under oligopolies and monopolies.
2. *Ricardo's built-in defence of colonialism*. Establishing the theory of international trade on the barter of labour hours, void of any qualitative features, Ricardo created an economic theory where all economic activities became qualitatively alike: a stone-age technology was implicitly defined as equally conducive to economic welfare as industrial age technology. Ricardo made colonialism morally defensible.
3. *Ricardo's failure to distinguish the financial sector from real economy*. Although he did connect the quantity of money to inflation, Ricardo's economic system failed to distinguish between the monetary (financial) sphere of the economy and the real economy of goods and services.[5] This Ricardian foundation plays an important role in the present crisis. First, it makes it impossible to describe an economic world where the financial sector takes on a parasitic – rather than a supportive – relationship to the real economy of goods and non-financial services. Secondly, as a corollary to this, it opens up for the erroneous belief that a rapidly growing financial sector at the expense of the real economy is qualitatively no different from the growth of the industrial sector at the expense of the agricultural sector. And thirdly and more specifically – which is the main point of this paper – this Ricardian foundation makes it impossible to distinguish between making money in a way that increases the size of the economic pie (*good greed*) and making money in a way that reduces the size of the economic pie (*bad greed*).

The Ricardian vices and their neo-classical equivalents give rise to important economic rents. The failure to distinguish qualitatively between economic activities produced an excuse for colonialism, and made it possible for colonial powers to extract rents from the Third World. The failure to distinguish between the financial sector and the real economy – the failure to

[5] Ricardo made his fortune in the financial economy, as a stockbroker and loan broker.

see that finance may become parasitic – makes it possible today for the financial sector to make huge profits from predation on the real economy. Ironically, mainstream economics which on the surface abhors rents – like those created by industrial policies – itself produces huge rents to the parasitic elements of capitalism. Formal Ricardian and neo-classical economics are in actual fact the rent-seekers' best friend. The ostensible non-normative and non-political mainstream theory as a matter of fact plays an important role as a de-facto ally of "the one per cent": mainstream economics plays the role of useful and well-paid collaborators. Just like financial crises, the unproductive rents collected do not exist in theory, they only exist in practice.

This paper, then, focuses on the third of these Ricardian vices, the one that is at the root of the present crisis of the West. But first a brief note on the three publications by the representative rebels of the 1890s: Herbert Foxwell (1849-1936), a Cambridge economist who was president of the Royal Economic Society and founded what are probably the two best collections of economics book, now at Harvard (Kress Collection) and the University of London (Goldsmiths' Collection). Gustav von Schmoller (1838-1917), Founder of the *Verein für Sozialpolitik* and later Rector of the University of Berlin, and the major US economist of this generation: Thorstein Bunde Veblen (1857-1929), the Norwegian-American economist who founded both evolutionary and institutional economics.

The first of the three publications is Gustav Schmoller's 1897 inaugural speech as Rector of the University of Berlin, which laments that "the human idealism of Adam Smith" had degenerated into "the hard mammonism of the Manchester School"[6] (i.e. today's neoliberalism) and where he decries the naiveté of both laissez-faire and communism as "twins of an ahistorical rationalism".[7] As already noted Schmoller decried what he called the two irrational twins: Manchester Liberalism and communism. Schmoller's typifies the views of the German Historical School, or – as they were called – the socialists of the chair (*Kathedersozialisten*).

The second work of revolt, two years later, is Cambridge economist Herbert Foxwell's 110-page introduction to a book by Anton Menger.[8] Foxwell also distances himself from both political utopias and – very importantly – holds David Ricardo's work responsible for the political ills to *both* the political right and the political left, i.e. for the ills of both of Schmoller's *irrational twins.* Foxwell's criticism of abstract Ricardian theory has a strong punch:

> Ricardo, and still more those who popularised him, may stand as an example for all time of the extreme danger which may arise from the unscientific use of hypothesis and social speculations, from the failure to appreciate the limited application to actual affairs of highly artificial and arbitrary analysis.[9]

[6] On the Manchester School, see William D. Grampp, *The Manchester School of Economics,* Stanford: Stanford University Press, 1960.
[7] Gustav Schmoller, *Wechslende Theorien und faststehende Wahrheiten im Gebiete der Staats- und Socialwissenschaften und die heutige deutsche Volkswirtschaftslehre,* Berlin: W. Büxenstein, 1897; online: www.othercanon.org
[8] Herbert Foxwell, introduction to Anton Menger, *The Right to the whole Produce of Labour,* London: Macmillan, 1899. Online: www.othercanon.org
[9] Foxwell, *op.cit*, p. xli.

Thorstein Veblen's *The Theory of the Leisure Class* is a third element in this theoretical revolt of the late 1890s. It was published in the same year Foxwell published his anti-Ricardian treaty. Both Schmoller and Foxwell were, not surprisingly, favourably referred to by Veblen.[10] When Veblen mocks Ricardian context-free and overly formalistic economics, he is essentially making the same point as Foxwell, but he uses a very different style:

> A gang of Aleutian Islanders slashing about in the wrack and surf with rakes and magical incantations for the capture of shell-fish are held, in point of taxonomic reality, to be engaged in a feat of hedonistic equilibration in rent, wages, and interest.[11]

What was to become the new mainstream was also clearly influenced by the changing paradigm of the 1890s, towards a less abstract and more dynamic type of economics. When Alfred Marshall lists his influences in the introduction to his *Principles of Economics* (1890), he does not mention Smith and Ricardo. The two kinds of influences that have affected the book "more than any other", says Marshall in the introduction to his *magnum opus*, are those of biology, as represented by the writings of Herbert Spencer, and "of history and philosophy, as represented by Hegel's *Philosophy of History"*.[12] These were aspects later lost by Marshall's neoclassical successors: the theory was more than ever before elevated into highly prestigious but sadly irrelevant levels of abstraction.

The enlightenment discovery and taming of private interest – from Bernard Mandeville to Pietro Verri.

The writings of Bernard Mandeville (1670-1733) came as a shock to early 18th century Europe. His book *The Fable of the Bees; or Private Vices, Publick Benefits* (1724)[13] – of which a first volume was published in 1714 – opened up for individual self-interest as a main engine of growth inside an economic system of laissez-faire. Mandeville could be interpreted as claiming all greed is good greed. The ensuing events and debates in Europe – essentially lasting through the rest of the century – fine-tuned the limits of this laissez-faire, gradually leading to a system which in practice lined up the incentives for the private sector to coincide with what was in the interest of society at large: ***private interest was let free only where it coincided with the public interests.*** Private interest which was in conflict with the public interest was what I for short have labelled *bad greed*, and institutions and legislation were created in order to prevent such activities.

At the time Mandeville was accused of heresy, being a "zealot of infidelity", of "subverting order and discipline in the Church" and of "recommending luxury, avarice, pride and all kind of vices as being necessary to public welfare". Nevertheless, as the 18th century progressed, Mandeville's basic message of the importance of self-interest came to be recognized. His message was simplified by an example provided by Adam Smith: It is not through the kindness of the baker that we get our daily bread, it is because the baker needs to make money.

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[10] Thorstein Veblen, "Review: Gustav Schmoller, *Über einige Grundfragen der Socialpolitik und der Volkswirtschaftslehre"*, *Journal of Political Economy* 6.3. (June 1898), 416–19. Foxwell's introduction to Menger is referred to by Veblen as "Menger's admirable introduction" in *Essential Writings of Thorstein Veblen*, eds. Charles Camic and Geoffrey M. Hodgson, London: Routledge, 2011, p. 375.
[11] Thorstein Veblen, *The Place of Science in Modern Civilization,* New York: Huebsch, 1919, p. 193.
[12] Alfred Marshall, *Principles of Economics,* London: Macmillan, 1890.
[13] Bernard Mandeville, *The Fable of the Bees; or, Private Vices Public Benefits,* London: T. Ostell, 1806.

The effect of Bernard Mandeville's *The Fable of the Bees* was like that of a torch to a pile of dry wood. Mandeville's claims that "private vices could become public virtues" – indeed the whole basis for Adam Smith and today's mainstream – went totally against the previous idea of a society constructed on virtue, on the *virtù* of the Renaissance civic humanism. In 1757 Erik Pontoppidan – Rector of the University of Copenhagen and the editor of Denmark-Norway's first economic journal – provides an example of the attempts at drawing demarcation lines in Mandeville's work between the self-interest which *promotes* the common weal and that which *destroys* the common weal:

> I know how an English author of the work *The Fable of the Bees* can argue for lasciviousness and luxury: that it creates labour for many hands. This can apply to policy when foreigners buy more of the work than we do ourselves, when the raw materials are our own, and when the hands of our labourers are more than those who can be employed at the plough, at the flail[14], and at the oars. I also know what has been replied to this writer, with good reason, that if his suggestions had been well founded, it would follow that a group of arsonists, to whom it occurred to set fire to all four corners of London, ought to be seen as the best of patriots, because they, more than anyone else, would do much for the trade and employment of many thousands of masons, carpenters and other artisans in the reconstruction of the town.[15]

The debate on luxury was a central to the Enlightenment, requiring a limitation similar to that between *good* and *bad* greed. Pontoppidan hints at the answer: luxury became accepted as long as it adds value to local raw materials and/or employs idle hands, and as long as it does not worsen the balance of payment. We must keep in mind that most nations at the time were far from the production-possibility frontier, had much underemployment, and balance of payment problems.

As the 18th century grew older, the fine-tuning of the limits of private interests – of greed – advanced. In his main work of 1771, Count Pietro Verri of Milan succinctly condensed the limits to Mandevilles's theory in one brief sentence:

> Because the private interest of each individual, ***when it coincides with the public interests***, is always the safest guarantor of public happiness.[16]

Any and all greed and self-interest is obviously not compatible with public interest, only the self-interest which increases rather than diminishes the size of the economic pie. This would be the *good* self-interest or greed. Today the financial sector shows us that it is as easy to make money ruining a country as by building it up, which would obviously be *bad greed*, one that does *not* coincide with the public interest. But since economic theory has lost society as an economic category – a fact famously restated by Margaret Thatcher – it has not been noticed that the same theory has lost the middle part of Verri's sentence: self-interest and greed is only good when it coincides with the public interest. In this way neo-classical economics has opened up for a Gordon Gekko-like theory where all greed is good.

[14] Instrument used for threshing grain.
[15] *Danmark og Norges Oeconomiske Magazin*, Preface to Vol. 1, 1757.
[16] Pietro Verri, *Meditazioni sulla economia politica,* Genova: Ivone Gravier, 1771, p. 42, emphasis added.

What we could call *Verri's Rule* distinguishes the *good greed* which is in the public interest from the *bad greed* which is a predatory greed not in the public interest. Verri's Rule is reasonably clear, but not necessarily clear-cut in all applications. The kind of self-interests which produces innovations and goods and services increasing the size of the economic pie for all is a good kind of "greed". Henry Ford, for example, made money in a way which revolutionized transportation and increased the size of the economic pie. The same positive effects for society cannot be found when George Soros brought down the British pound. Markets need arbitration which, it can be argued, is in the public interest. But actively inducing huge devaluations and speculative gains is something different from arbitration.

If we attempt to employ Verri's Rule to the 2012 election debate around Mitt Romney's economic activities in Bain Capital, this company's activities probably come out on both sides, both as good and bad greed. Leveraged buyouts may put troubled companies in working order, but these processes seem easily to degenerate into asset stripping and the overseas outsourcing of jobs, which – applying Verri's Rule – would be bad greed. Verri's Rule is clear and simple, and in my view useful, but of course not free of grey areas.

Pietro Verri's 1771 work shows that continental European economists had accepted and clarified Mandeville's basic message before Adam Smith, who is the one who tends to get the credit for this.

The French Revolution: an overdose of economic freedom leading to predatory greed

Standard textbook economics normally traces its roots back to the times of feudalism, to the tradition of the French Physiocrats. The Physiocrats defined wealth as consisting only of the produce of agriculture; industry and services were deemed as "sterile" (after all we live only from food, right?). The emphasis of the Physiocrats on freedom of trade led to a situation we recognize today: much more money can be made through speculation in rising prices of items already produced (be it real estate, stocks, or food) than from producing new goods and services. Under the rule of Physiocracy in France more money could be made by taking wheat and flour out of Paris waiting for prices to rise, than from supplying bread to the inhabitants of Paris.[17] The *good greed* described in Adam Smith's example of the baker was crowded out by the *bad greed* of speculation. Freedom *to* speculate came into conflict with the freedom *from* hunger.

The excesses of the Physiocratic doctrine that dominated in France from the 1750s provided an important antidote to any extreme interpretation of Mandevillian freedoms. With the events leading up to the French Revolution, it became evident that some economic actors' *freedoms to* needed to be limited by other economic actors' *freedoms from.* Freedom of trade also brought with it the freedom to speculate, and this led to shortages of bread in Paris.

At the time the authorities, through their ideological beliefs, argued that – by definition – unlimited economic freedom would produce economic harmony. As one journal serenely put it in 1765: "The riots are not and cannot be the effect of real need because in a regime of liberty the dearth that the enraged minds fear, or feign to fear, is manifestly impossible".[18] In other words, if people are hungry, it must be something they imagine, because a system of freedom

[17] For a discussion, see Steven L. Kaplan, *Bread, Politics, and Political Economy in the Reign of Louis XV,* 2nd edition, London: Anthem (The Other Canon Series), forthcoming 2013, p. 201.
[18] Kaplan, *op cit*, p. 201.

is automatically seen also to be a system of harmony. The models had become more real than reality itself, reflecting Ricardo's later view that if their doctrines don't tally with the facts that is just "so much worse for the facts"[19]. The parallels to today's economic theory should be reasonably clear.

In spite of its theoretical impossibility, the speculation-induced scarcity of bread was real. In fact the economic debates of the day – between the Physiocrats who believed in unlimited economic freedom vs. the Anti-Physiocrats who believed capitalism needed regulation – is in a sense the prototype of an economic debate. The historical fact is that the Physiocrats lost all the battles, except the one in today's textbooks in economics: a standard history of economics starts with a mention of the Physiocrats as a preamble to the introduction of Adam Smith. In this sense, neo-classical economics is fictitious to its very roots: it proudly bases itself on a theory that lost all battles in practical economic policy. Indeed, the French Revolution broke out in 1789 on the day when news reached Paris that the last Anti-Physiocrat – Jacques Necker – had lost his job as French Minister of Finance.[20]

The political base of Physiocracy was found in the feudal landowners who benefitted from speculation, just as today's political basis of neoliberalism represents the same type of speculative interests. Today – without a gold standard and with an ability to create money out of thin air – the supporters of the "freedom to make money from speculation rather than from production" no longer rest with the feudal landlords, but with the financial sector. The same financial sector which today benefits greatly from an economic theory unable to distinguish the financial sector from the real economy. There is, then, an important qualitative difference between making money from the production of goods and services and profiting from changing prices for what has already been produced: between wealth creation and wealth extraction.

Thorstein Veblen's understanding of capitalism

What are the defining characteristics of this capitalism which some – including myself – claim needs to be re-civilized? First of all, compared to earlier economic systems, capitalism is characterized by Polanyi's three fictitious commodities which had not been objects of purchase in previous economic systems: *land*, *labour*, and *money*.

Secondly, Werner Sombart adds to our understanding of the capitalist system when he defines its origins as the point where activities no longer ceased at the point when the immediate economic needs of the family had been met. Another characteristic of capitalism is, then, the *scale* of production and a large division of labour. Historically, capitalism was born in the Italian city states of the Renaissance in the spirit of *magna facere*, of doing great things, as in Lorenzo il Magnifico's Florence. Sombart also defines the institutional structure of capitalism as consisting of 1) the entrepreneur, 2) the modern state, and 3) the industrial system. This is a definition that also fits capitalism in the early Italian city states.

Leonardo da Vinci (1452-1519) – a prolific artist, engineer and inventor – is the prototype character at the birth of capitalism. But can his motivation only have been greed? A new motivation at the time of Leonardo was a religious gestalt-switch which took place under

[19] John M. Ferguson, *Landmarks of Economic Thought*, New York: Longmans, Green & Co. 1938, p. 142.
[20] Kaplan, *op. cit.*

influence from the Eastern Church. Human beings were created in the image of God, and should therefore attempt to create as He had. Invention and innovation became a religious duty.[21] *Innovations* – once a synonym for heresy for which Roger Bacon was punished in the 13th century – after the Renaissance became a goal for society, as in Francis Bacon's *Of Innovations* (1625).

Thorstein Veblen contributed to our understanding of capitalism by deconstructing the simplistic idea of self-interest into several facets, in a way compatible with its historical origins. In his *Theory of the Leisure Class* (1899), Veblen produced a classification of the spirits of capitalism which helps us understand the problems of today. While English economic theory in the tradition of Jeremy Bentham had constructed a passive *homo economicus*, a creature seeking pleasure and avoiding pain, Veblen – in the spirit of the Renaissance – thought that activity and initiative, not passivity, was the economic essence of Mankind. While other animals harvested, the essence of Man's economic activity was to Veblen *production*, not – as Adam Smith had claimed – *barter*.

To Veblen, society needed to be understood in its evolution over time, not in terms of statics or comparative statics. He saw this evolution being driven by human instincts and proclivities. On the productive side we have:

1) The *instinct of workmanship*, the desire to produce,
2) The *parental bent*, that human beings react to the fact that they are part of a larger society,
3) *Idle curiosity*, the not-for-profit desire to understand and therefore, in a positive sense, to control the world around us.
4) The *instinct of emulation*, of copying others with the intention of improving, be it in production, i.e. in technological development, or in consumption patterns, i.e. in conspicuous consumption.

These instincts were complemented by an instinct of *predation* – of *bad greed* – a desire to get something for nothing, to harvest where others have sown. Veblen's criticism of the predation instinct and the "vested interests" and their profit created from unproductive activities recall previous religious calls against usury. Usury was seen as an immoral act in which gold and silver received profits without having done any constructive work. Inanimate objects like gold and silver should not be allowed to procreate.

But Veblen was not a religious man, and his criticism did not confront the financial sector as such. Rather he attempted to separate capitalism into two distinct spheres of interest, those motivated by the instinct of workmanship and the other productive instincts (*the engineers*) making money from production, and the *businessmen* whose pecuniary gains came from predatory activities. Schumpeter's view of what motivates businessmen is in the spirit of the Renaissance and of Veblen, including his view that a motivation for early industrialists was to emulate the life-style of the feudal landlords.

Personally, as did at least one of Veblen's most influential students, I find it difficult to distinguish between engineers and businessmen in practical life. However, this does not mean that the distinction is not extremely useful, just that the demarcation line should

[21] Erik S. Reinert and Arno Daastøl, "Exploring the Genesis of Economic Innovations: The religious gestalt-switch and the duty to invent as preconditions for economic growth", *European Journal of Law and Economics*, Vol. 4, No. 2/3, 1997, pp. 233-283.

probably be drawn elsewhere. At the root of today's financial crisis is a Veblenian mechanism of "vested interest", the desire of the financial sector to get something from nothing. First of all from speculative activities, from changing prices of goods which have already been produced, rather than from the production of new goods and services. The line between legitimate hedging of positions in the real economy and generating speculative bubbles may not be crystal clear, but it is there. Secondly, from the financial sector's ability to create money and liquidity far exceeding the ability of the real economy to invest this liquidity in a profitable way, thus creating unpayable debts. The excess liquidity created will accumulate as assets in the financial sector, and as liabilities in the real economy.

In practice central banks have not only been printing money, they have simultaneously been printing debt, the predatory collection of which represents an extreme case of *bad greed*. Greece was the first country to be driven into poverty by this mechanism. Bankruptcy and default has always been crucial elements in capitalism, and European nations must now be allowed to default like Latin American countries frequently have for over a century.

Capitalism may function well when the interest of the capitalist class is in line with the interests of society at large. When capitalists make money on new technology and production (based on Veblen's instinct of workmanship), they make money through *good greed* that automatically increases the size of the economic pie and therefore contributes to the common weal. A major achievement of Enlightenment economics, on which I argue Veblen builds, was to separate the economic activities where the vested interests contributed to the common good – where wealth-production was a by-product of self-interest and greed – and where greed produced no such beneficial effects.

In certain periods – those not dominated by Manchester liberalism or neoliberalism – it has been obvious that private interests – greed - were not always in perfect harmony in a market economy. The role of the legislator was seen as creating the policies that made sure individual interests coincided with the public ones. The role of the 1933 Glass-Steagall Act had precisely been to enforce this Enlightenment vision of the economy, to make sure that the interests which the financial sector could legally pursue stayed in line with the interests of society at large. As it now is, after the Glass-Steagall Act was abolished, heaps of money can be made by destroying economies – as we see in Greece – rather than by building them.

It is normal that capital floods to the newest and most profitable industries that display the highest rate of technical change and growth, be it Carnegie's steel mills, Ford's assembly lines or Bill Gates and his Microsoft. Capitalism collapses, on the other hand, when money flows to the financial sector per se, as if finance were an industry on par with steel, cars, or software. Thus, the fundamental flaw behind today's global situation is the failure to distinguish sufficiently between the real economy and the financial economy (see Fig. 1 below). This clear distinction was once understood – not only in Islamic economics as today – but all along the political axis from Marx and Lenin on the left, to social democrat Rudolf Hilferding – a Jew who was killed by the Gestapo – to the conservatives Schumpeter and Keynes, all the way to Hitler's economists on the far right. The German distinction between *schaffendes Kapital* (creative capital) and *raffendes Kapital* (roughly: capital which grabs existing wealth) is a useful parallel to *good* and *bad* greed, but unfortunately it was created by persons too close to fascism.

As Karl Polanyi points out, what communism, fascism and the New Deal had in common was a distrust of *laissez faire*. This included an understanding of the need to control the financial

sector. Of the three ideologies that aimed at controlling the financial sector, it should be pretty obvious which one to choose: we need to recreate policies in the spirit of the New Deal. In a sense the West – and Europe in particular – has not faced the task of a necessary clean-up of its ideological chamber of horrors from the 1930s as these ideologies related to the relationship between the financial sector and the real economy. For decades a separation of the financial sector – a mere mention of *Hochfinanz* or High Finance – risked being labelled as anti-Semitic, while it could just as well have been labelled communist or Rooseveltian. The political incorrectness that has surrounded the discussion of high finance is one reason why financial crises – once understood along the whole political spectrum – are so poorly understood today. In a strange way, the horrors of Holocaust have acted to deter and delay our understanding of the role played by the financial sector today.

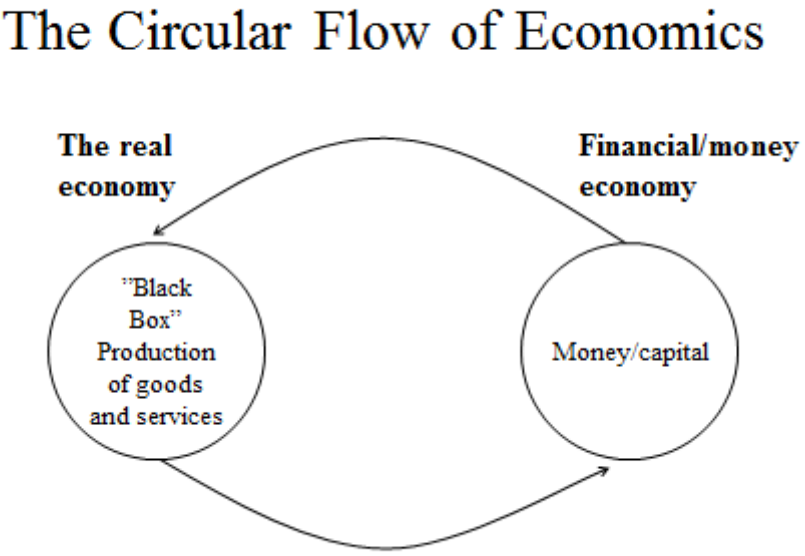
A necessary ingredient in today's economic drama is also how the way in which economics was mathematized has contributed to the increasing dominance of Wall Street over the productive sectors. A failure to distinguish the financial economy other than as a mirror image of the real economy has made it impossible to formalize key basic insights about the role of the financial sector. Such insights only come with any analysis made from a book-keeping point of view – e.g. though approaches like those of Hyman Minsky – where it becomes obvious that the growth of assets in the financial sector will tend to accumulate as liabilities in the balance sheet of the real economy. If excessive debts are not cancelled, the real economy enters into a situation of debt peonage to the financial sector.[22]

The transfer of income and assets from the real economy to the financial economy is the most important long-term effect of the bad greed that is allowed to operate in this financial crisis. If these imbalances are not addressed by making big investments in the real economy, any recovery – however weak – will be driven by demand from the financial sector, and the losses in the real economy of the West may be permanent. This is now what is happening in the US and in Europe.

Financial crises are basically produced by a mismatch between the real sector of the economy and the financial sector, illustrated below.

[22] For a discussion see my "Mechanisms of Financial Crises in Growth and Collapse: Hammurabi, Schumpeter, Perez, and Minsky", in *Jornal Ekonomi Malaysia*, No. 46 (1) (2012), pp. 85-100, and *The Other Canon Foundation and Tallinn University of Technology Working Papers in Technology Governance and Economic Dynamics*, No 39, 2012. Downloadable on http://hum.ttu.ee/tg/

Figure 1. The real economy vs. the financial economy



Understanding financial crises requires a terminology that distinguishes the financial economy from the real economy. The financial economy consists of what Schumpeter called *Rechenpfennige*, or accounting units. In Veblen's terminology, this is the sector that bases its activities on pecuniary gain. The real economy consists of the production of goods and services, Schumpeter's *Güterwelt*, populated by people who in Veblen's terminology are engaged in material production based on the instinct of workmanship and a parental bend (an understanding of being part of society), including, of course, the engineers.

In times when capitalism functions well, the financial sector and the real economy live in a kind of symbiosis; they support each other. The financial sector functions as scaffolding to the real economy or, as Keynes put it, as a "bridge in time". During times of crisis the financial sector takes on a speculative life of its own and becomes a parasite weakening the real economy. As the speculative bubble grows, what was once rational (investing in new technology) gradually becomes irrational (investing in pyramid games)[23]. The right hand circle in Fig. 1 grows as a malignant tumour and feeds on the real economy in a parasitic way, decreasing wages and shrinking whole economies, as Greece experiences at the moment.

But bad greed can also exist inside the real economy. As Veblen argued, sabotage is sometimes part and parcel of business strategy. Reading Veblen on this in the 1970s sounded like a strange proposition, but when it was proven that ENRON had sabotaged the California electricity supply in early 2001 in order to have a price hike approved it became obvious that Veblen had been right. This was sabotage and *bad greed*. Indeed it seems that capitalism alternates between periods of relative virtue – as the decades following WW II – and periods of frontier capitalism, when all tricks are allowed, as during the 1890s and again now.

[23] That is, irrational from the point of view of society, but still rational to the individual speculator as long as the bad greed incentive system is in place.

The 1940 movie *Edison - The Man* – starring Spencer Tracy – gives us the story of how Thomas Edison (1847-1931) and his light bulb was sabotaged by the operators of gas lights for street lightening. But later Edison himself stood in the way of technological progress. Having invested heavily in direct current (DC) Edison fought the superior technology of alternating current (AC) pioneered by his former employee Nikola Tesla (1856-1943). AC is what we now use because of its high voltage and ability to be transported long distances.

Thorstein Veblen's term *vested interests* describes a financial stake in a particular outcome. The young inventor Edison fought for his light-bulb against the vested interests of the businessmen who owned the gas light operations. Later, when Edison himself had become a businessman, he fought even more vigorously than the gas light people had against a new and better technology: the alternating current of Nikola Tesla. In other words, engineers have vested interests – promoting innovations – which differ from those of businessmen – the protection of their vested interests. Adding to Veblen's terminology, engineers represent good greed and business represents bad greed.

During his lifetime Thomas Alva Edison, then, played both sides –representing both good and bad greed – in the evolution of electricity. The young and old Edison represent the two different forces – the hero and the villain / good and bad greed respectively – in the history of electric energy, in what was called "War of the Currents".

Presently a similar fight is taking place in the US energy sector. A massive campaign is organized against subsidies for renewable energy by people with vested interests in old technology, particularly coal. The conflict peaked with the so-called Solyndra Scandal. Solyndra was a company founded in California in 2005 in order to produce solar panels, and it received a Federal Loan of 535 million dollars. This money was lost, and caused a huge scandal in the US, helped by a six million dollar ad campaign from the Koch Brothers to blow the loss totally out of proportion. A sober look at the situation reveals that the amount lost corresponds to 6.7 hours, or 0.28 days, of the annual US defense budget. This is not a large amount of money to invest in creating a steeper learning curve for clean energy. *Bad greed* – interested in prolonging the life of polluting technologies – sabotages *good greed* wanting to make money on clean energy. If we re-introduce the public interest as an economic category, it makes sense to distinguish *good greed* from *bad greed*.

Thorstein Veblen generalized this conflict between businessmen and engineers by saying that human society would always involve conflict between existing norms with vested interests, and new norms developed out of an innate human tendency to discover and invent, based on improving our understanding of the physical world in which we exist. "Idle curiosity" and "the instinct of workmanship" are positive proclivities of man (leading to good greed businesses) that continuously would be fighting the pecuniary interests of those with a vested interest in status quo (bad greed businesses).

1989: how the death of one of the irrational twins brought forth the monster in the other

The same worry of a disappearing middle class expressed in the 1895 book which heads this paper e had already been voiced by Gustav Schmoller when – at the 1872 founding meeting of the *Verein für Sozialpolitik* – he feared that "society was becoming like a ladder where all the middle steps have disappeared. There is only hold at the very top and at the bottom". During the same meeting, Schmoller shows that the arguments at the time were similar to

those which used to be voiced by the Physiocrats and again by today's neoliberals: if we just get the last vestiges of control out of the way and let the market rule alone, harmony will be established.

> The deep cleavage in our society separating entrepreneurs and workers, owning and not owning classes, represents a threat of a social revolution. This threat has drawn closer. In wide circles there have been serious doubts whether the economic doctrines which dominate on today's market – and which were expressed at the Economic Congress – forever will keep their dominance. Will the introduction of the free right to carry on business (*Gewerbefreiheit*) and the elimination of all mediaeval legislation on guilds really crate the perfect economic conditions that the hotheads (*Heißsporne*) of that tradition predict? [24]

Instead of the market mechanism creating harmony, then as now we are increasingly experiencing what I have labelled *post-industrial feudalism*, a society economically controlled by a small per cent of the population ("the one per cent") based on the control of a key factor of production. Today this is based on the control of capital rather than – as in classical feudalism – on the control of land.

As we have seen, in 1897 Schmoller – then Rector at the University of Berlin – had decried both Manchester Liberalism, today's neoliberalism, and communism as "twins of an ahistorical rationalism". When the demise of communism, represented by the 1989 fall of the Berlin Wall, marked the death of one of these two ahistorical twins, one could have expected that experience-based rationalism – what Schmoller, Foxwell, and Veblen had stood for – could declare a resounding victory. That did not happen.

In fact the exact opposite happened. The fall of the Berlin Wall was followed by an unprecedented triumphalism of the other irrational twin: of a belief that unfettered markets would create economic harmony and even represent "the end of history". In the 1990s, the forces that the *Revolt of the 1890s* had managed to stop – almost fact-free and static economics coupled with social Darwinism in the tradition of Herbert Spencer – virtually became the only game in town.

For all its irrationality, for more than one hundred years communism had provided both a benchmarking tool and a credible threat that civilized and humanized capitalist economies. A Galbraithian balance of countervailing powers – big business, big labour, and big government – had created generalized welfare in the West, on both sides of the Atlantic. Now – in the name of the market – big labour and big government were dismantled. Checks and balances, once so cherished in the United States, were to a large extent gone.

Also in the US post-WW II interest in human rights had to some extent turned to something resembling a war against these same rights, now relabelled as *entitlements*. In his infamous 47 per cent speech, Mitt Romney singled out those "who believe that government has a responsibility to care for them, who believe that they are entitled to health care, to food, to housing, to you name it. That that's an entitlement." At the same time the United Nations' Rapporteur for the Right to Food, Olivier De Schutter, continues to work according to the principle that food is a human right.

[24] Verein für Socialpolitik, *Verhandlungen der Eisenacher Versammlung zur Besprechung der Socialen Frage am 6. und 7. October 1872.* Leipzig: Duncker & Humblot, 1873, p. 5.

Again, the Ricardian blind spots of economic theory were used for rent-seeking in an unprecedented way. Monopolies were privatized in the name of "competition" and "free markets". Assumptions of "perfect competition" in economic models blinded people to a reality of massive accumulation of market power, and a failure to distinguish the financial economy from the real economy sheltered a predatory financial sector from scrutiny by mainstream economics and therefore also from politicians. As the irrelevant assumptions of neo-classical economics increasingly came to pass for reality itself, massive assumption-based rents could be harvested though *bad greed*: self-interest which does not increase the size of the economic pie.

As with the situation leading up to the French Revolution, it is reasonably clear that the present crisis is a result of *excessive freedom*. The freedom of trade so cherished by the Physiocrats and their landowning benefactors made it more profitable to move grain and flour out of Paris in order to wait for prices to go up, than to bake bread for the citizens of Paris. The result was a shortage of bread which was the main cause of the French Revolution.

Today the financial sector enjoys the freedom to create virtually as much money as it wishes, freedom to loan the money to the nations and the individuals it wishes, and freedom to send the bill to nation-states and their tax-payers when debtors do not pay. Like in pre-revolutionary Paris, more money is made from speculative activities that do not increase the size of the pie – from *bad greed* – than from the production of goods and services, emanating from Veblenian proclivities: the instinct of workmanship and from the idle curiosity of which any innovation has an important element. Profit-making is normally a necessary element in the production of goods and services in a market economy, but by reducing human motivation to a hedonistic activity neo-classical economics fails to distinguish between *good* and *bad* versions of profit-making and greed.

As the West now faces multiple crises, the most immediately serious one is financial predation which rapidly shrinks the real economies in the European periphery. Italy and Spain are on track to become the next Greece. The medicine applied to satisfy the financial sector – i.e. austerity – in practice amounts to an attempt to massively reduce purchasing power, which sends the real economy into a cumulative spiral of decreasing wages, decreasing tax income, decreasing investments and – as a result of the falling cost of labour – decreasing incentives for labour-saving innovations. I find myself agreeing with Michael Hudson[25] that the only solution to the present problems of the West is some form of debt cancellation: the huge and unpayable debts – their own assets – that the financial sector has been allowed to create out of thin air must also be allowed to disappear into thin air.

At the moment bad greed – greed which decreases the size of the real economy – dominates in the West, further weakening its economic position vis-à-vis Asia. Just as it was first done during the Enlightenment, and later in the 1890s by Thorstein Veblen and his contemporaries, "greed" which leads to innovation and increased productivity again needs to be separated from predatory greed which, rather than create value, extracts value from national economies. As already mentioned, in his 1897 speech Gustav Schmoller lamented that "the human idealism of Adam Smith" had degenerated into "the hard mammonism of the Manchester School"[26]. The revolt of the 1890s reversed this trend and civilized capitalism. But now the

[25] Michael Hudson, *The Bubble and Beyond. Fictitious Capital, Debt Deflation and Global Crisis,* Dresden: ISLET, 2012.
[26] Gustav Schmoller, 1897, *op. cit*, online: www.othercanon.org

same thing has happened again: humanism has been converted into neoliberal mammonism. This can be reversed again, but only by recreating the large diversity of economic approaches of the 1890s: historical, evolutionary, institutional, and ethical.

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

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1. Introduction

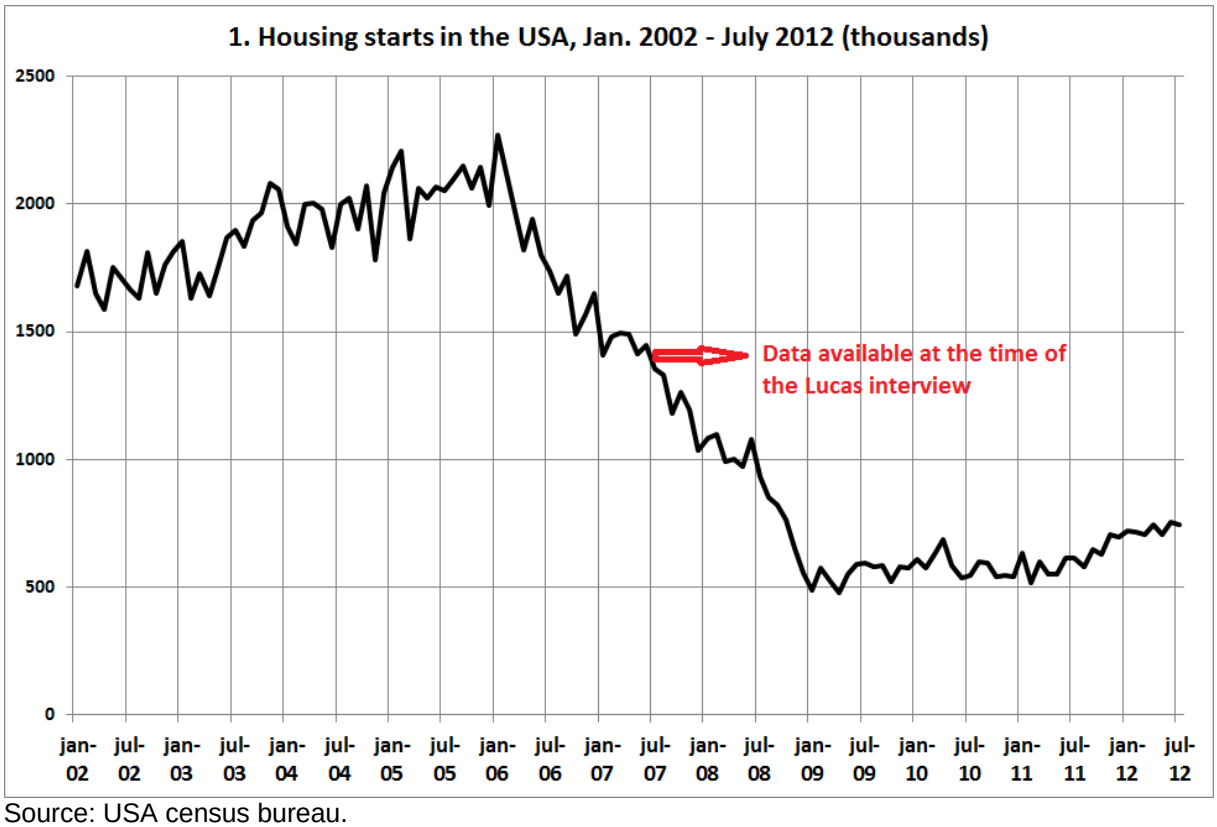
1.1 Two kinds of models

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.[1]

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?[2] 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*".[3]

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.[4] And the neo-classical models aren't. The

[1] 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", *Temi di discussion 740*, Banca d'Italia.

[2] 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.

[3] 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.

[4] 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 and 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".*[5] 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)[6]:

> '*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)[7]:

> '*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

[5] Bê Duc and le Breton (2009)

[6] 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).

[7] 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 ?[8] 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.[9] 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.

[8] Van der Lecq, F. (1998), '*Money, coordination and prices'*. Groningen.
[9] 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.[10] 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.[11] 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

[10] 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.
[11] 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.[12] 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.[13] 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).[14] '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. Benoït 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*".[15] 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![16] 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 the 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

[12] Bos, F. (2009), *The National Accounts as a Tool for Analysis and Policy in View of History, Economic Theory and Data Compilation Issues,* Saarbrücken.
[13] 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
[14] Häring, N. and D. Douglas (2012), *Economists and the powerful. Convenient theories, distorted facts, Ample rewards.* London, New York.
[15] 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
[16] 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.

and other publications and journals and quite a different culture. The work of the economic 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.[17] 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 acquaintance 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.[18] 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.[19] 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

[17] 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.

[18] 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/

[19] 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.

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.

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.[20] 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).[21] 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) in 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

[20] 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/.

[21] 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.

model-context' analysis often leads to incoherent thinking.[22] At least, that's the idea. Below, I 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.[23] The reason

[22] 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-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.

[23] 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",

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%, 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.[24] 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 us 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.[25] Economy wide inflation has been below the 1.9% ECB for four years now. Which of course means that ECB policy is less

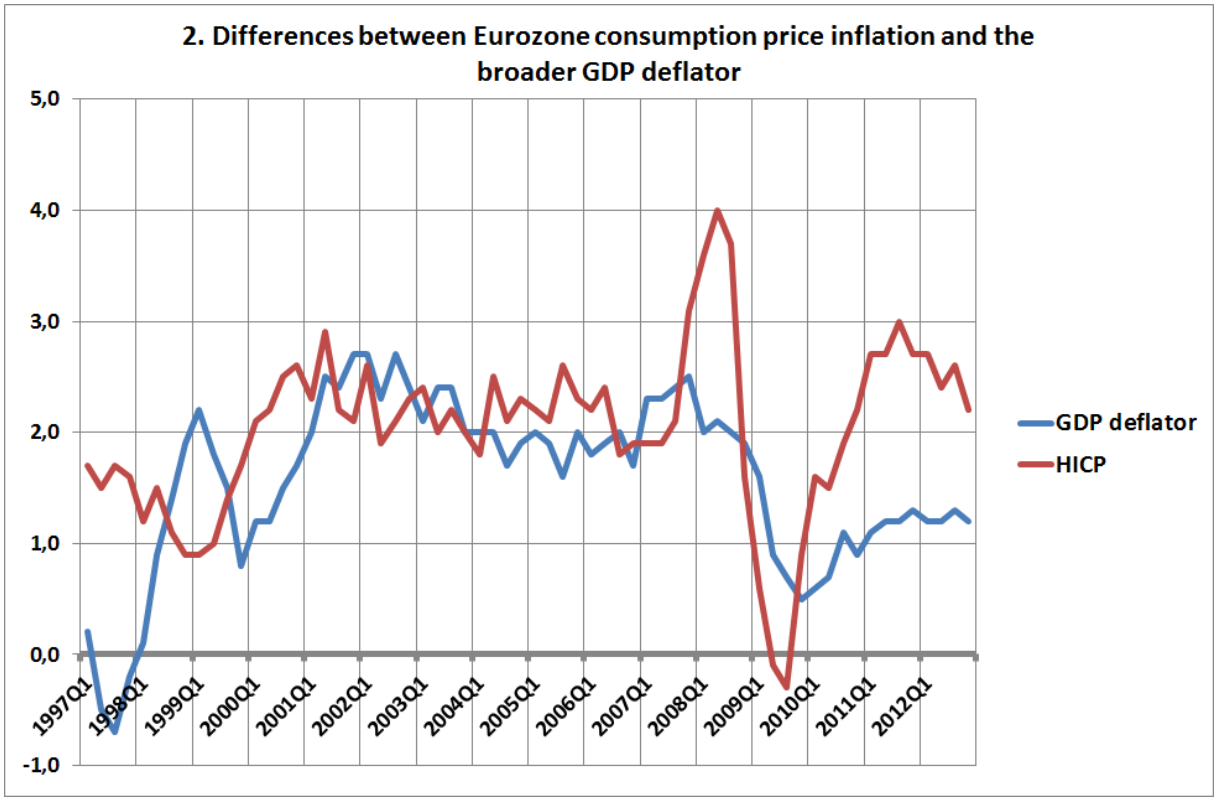
http://www.ecb.int/press/key/date/2011/html/sp110905.fr.html.
Interestingly, the first Monthly Bulletin of the ECB does not mention a target level but a maximum level.

[24] http://unstats.un.org/unsd/nationalaccount/

[25] 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.

accommodative than indicated by a comparison of HICP inflation and the official interest rates.

Graph 2.



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.[26] These differences of course cast doubt upon the clarity and even the credibility of the '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….).[27] *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.[28] 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.[29] 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

[26] 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-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. Bryan, F.M., S.G. Cecchetti and R. O'Sullivan (2001), 'Asset prices in the measurement of inflation', *De Economists 149* pp. 405-431.

[27] http://www.ecb.int/pub/pdf/mobu/mb201209en.pdf

[28] 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.

[29] 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.

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:[30]

> 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***."[31]

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

[30] 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.
[31] 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.

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 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.[32] 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.[33] 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.[34] 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.

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[32] 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

[33] 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; 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.

[34] http://en.wikipedia.org/wiki/Rational_expectations, consulted 16/9/2012.

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

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*."[35]

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".*[36]

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

[35] 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

[36] 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.

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, 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[37] as well as institutions, among them the ECB[38]. 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"*[39]

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![40] 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?[41] Well, now we know. A thunderstorm was brewing – but the ECB decided that, well, it wasn't as inflation was low (house price

[37] 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.
[38] '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.
[39] ECB, 'Long-term developments', p. 67.
[40] 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)!
[41] Minsky, H.P. (1986), *Stabilising an unstable economy.* Yale.

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. 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.[42] 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.[43] 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.[44] 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*

[42] 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/PAEReview/issue58/Koo58.pdf

[43] 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.

[44] 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/qa-reinhart-and-rogoff-on-the-crisis-the-mother-of-all-moral-hazard/, accessed 18-12-2011.

> *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"*

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"*[45]

Wow – according to this kind of thinking house prices and financing could not be 'fragile' as fragility is assumed non-existent.[46] 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 Twaa: 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.[47] 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.[48] 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*)*:

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[45] Buiter, W. (2009), "The unfortunate uselessness of most 'state of the art' macro/economics", http://www.bresserpereira.org.br/terceiros/cursos/Buiter,Willem.pdf.

[46] In the often quoted Geraly 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.

[47] http://www.debtdeflation.com/blogs/

[48] 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.

> *"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 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"*[49]

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*."[50]

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.[51]

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

[49] Schularick, M and A. Taylor (October 2012), "fact checking financial recessions", http://www.voxeu.org/article/fact-checking-financial-recessions
[50] Bè *Duc, Le Breton (2009).*
[51] Bindseil and Winkler (2012).

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?

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.

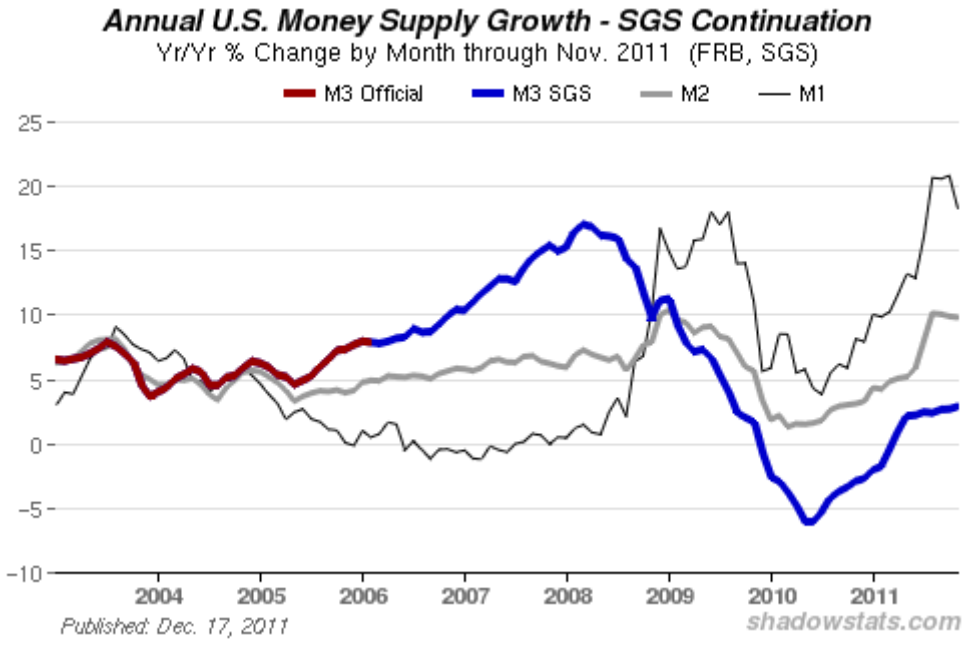
To give an example: the cumulative (at the time of writing still positive but rapidly dwindling) deviation of M-3 money growth from the ECB 4,5% medium run growth target is explicitly shown in the Monthly Bulletin, while the speeches of former ECB head Trichet again and again mentioned that the 'hangover' 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'.[52] 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.[53] 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',

[52] It is of course a good question why they allowed the stock of money to increase so fast before 2007.
[53] See for instance the November 2011 Monthly Bulletin, charts 15 and 16, http://www.ecb.int/pub/pdf/mobu/mb201112en.pdf

despite large increases in M-1 and M-2 (which are constituents of M-3)[54]! Which, of course, does give one a totally different idea about the inflationary risks post 2008 than looking at M1 or M2.[55]

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*."

[54] 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.
[55] ECB data:
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
Austrian 'True money supply': http://mises.org/content/nofed/chart.aspx

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:[56]

> "*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. 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. [57] 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.[58] 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,

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[56] http://www.federalreserve.gov/faqs/economy_14419.htm

[57] 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 Saoudi-Arabia are mentioned in BIS papers 49 (Basel, December 2009).,

[58] 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.

while inflation remained moderate to low.[59] 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:

> "*The problem is that the Federal reserve and other Central Banks have not been producing data consistent with neo classical micro-economic theory*".[60]

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.[61] 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).[62] 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

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[59] 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

[60] 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

[61] 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.

[62] 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.

use them as an analytical tool.[63] 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

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.

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[63] 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.

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Crisis and methodology: some heterodox misunderstandings

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Abstract

Whether justified by the concrete circumstances or not, an economic crisis is, by simple association, taken as an implicit refutation of the invisible hand vision and the underlying theory. The fundamental heterodox critique locates the source of apparent theoretical difficulties at the level of methodology. Although acceptable in principle, this belief involves some actual misunderstandings with regard to the respective roles of deterministic laws and deductive reasoning. In order to clarify these, the present paper revisits some key episodes in the history of economic methodology.

JEL B10, B20, B41

Keywords financial crisis, intellectual crisis, power of ideas, material consistency, logical consistency, determinism, deductive method, failure of reason, common sense, domain of economics, Cournot's Unfitness Proposition

> One positive consequence of the ongoing economic crisis is that the intellectual malaise of the modern academic discipline of economics is becoming ever more widely recognised. . . . It is . . . not at all surprising that mainstream contributions are found continually to be so unrealistic and explanatorily limited. *The (mathematical) method, or rather the emphasis placed upon it in the modern economics academy, is the overriding problem.* (Lawson, 2012, p. 3), original emphasis

Those who have lost their job, their money, or their home in the latest financial crisis and its aftermath will be surprised to learn that their misfortune is ultimately caused by methodological problems of academic economics. This attribution seems bizarre. Yet, on second thought, it resonates well with Keynes's closing sentence in the *General Theory* about the power of ideas: '. . . it is ideas, not vested interests, which are dangerous for good or evil' (1973, p. 384). If it is ideas that ultimately rule the world this must hold with extra force for the methodological ideas that inform scientific research.

When economists daydream they fancy that practical men are the intellectual 'slaves of some defunct economist' (Keynes, 1973, p. 383). Let us face the facts.

> Late in life, moreover, he [Napoleon] claimed that he had always believed that if an empire were made of granite the ideas of economists, if listened to, would suffice to reduce it to dust. (Viner, 1963, p. 1)

The more intelligent part of practical men has an instrumental relation to ideas and takes whatever suits best in the given circumstances to advance their cause. This should not come as a surprise. A natural preference for *doxa* instead of *episteme* is implied in Adam Smith's

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vision of the self-interested agent. If they cared for one, practical men have – given the dubious methodological status of economics – always found the congenial academic underpinning for their agenda.

> However, these practical contributions of economists for the most part did not require any great scientific apparatus. The argument that "the market works" has been known for many centuries, even before Adam Smith. It often amounts to little more than saying that a money system with prices for goods and services will outperform a barter system as an arrangement for their exchange – something recognized by all kinds of societies and stated in many times and places before modern "technical" economics. (Nelson, 2006, pp. 330-331)

A priori, an alliance of economics and politics does not prove anything for or against a specific approach and may sometimes even come as a surprise to the theoreticians themselves.

> I have always regarded Competitive General Equilibrium analysis as akin to the mock-up an aircraft engineer might build. My amazement in recent years has accordingly been very great to find that many economists are passing the mock-up off as an airworthy plane, and that politicians, bankers, and commentators are scrambling to get seats. This at a time when theorists all over the world have become aware that anything based on this mock-up is unlikely to fly, since it neglects some crucial aspects of the world, the recognition of which will force some drastic redesigning. (Hahn, 1981, p. 1036)

According to Hahn's testimonial the real world application of the apex of mathematical economics and the core of standard economics is, if anything, a proof for the power of misapprehension. The fact that existent theoretical economics is sometimes taken seriously by politicians, central bankers, business people and economists themselves is not a proof of its validity but rather of a widespread naïvité (cf. Stiglitz, 2011).

Lawson's nexus between economic crisis and methodology boils down to a bi-directional causal chain: the latest economic crisis is attributed to orthodox theory; this theory is the achievement of a wrong methodology. In reverse causality this suggests that the abandonment of the mathematical method, the hallmark of orthodoxy, will lead to a better theoretical understanding of how the economy works and eventually to the prevention of crises. Although not illogical, this belief involves subtle misunderstandings. In order to clarify these it is illuminating to revisit some key episodes in the checkered history of economic methodology.

Methodology is about demarcation between science and nonscience (Popper, 1980, p. 34) and not about doing justice to all sides and arguments. The present paper tries to cover a broad perspective and is therefore highly selective. This selection takes the form of significant quotations. Seen in a row, the unique aphorisms make a coherent argument. To summarize it aphoristically: The heterodox critique of the neoclassical orthodoxy is largely justified, but not on methodological grounds; unfortunately heterodoxy itself has no promising methodological alternative to offer.

1 The elements of economic methodology

In the era of political economy, economists actively participated in the grand project of the advance of knowledge.

> I am inclined to say even more: from Plato to Descartes, Leibniz, Kant, Duhem and Poincaré; and from Bacon, Hobbes, and Locke, to Hume, Mill, and Russel, the theory of knowledge was inspired by the hope that it would enable us not only to know more about knowledge, but also to contribute to the advance of knowledge – of scientific knowledge, that is. (Popper, 1980, p. 19)

It was rather commonplace that a physicist, e.g. Mach, or a mathematician, e.g. Poincaré, quoted J. S. Mill on matters of methodology.[2] Mill expressly advocated borrowing from physics. This, though, involved two essentially different elements. First, the idea of deterministic causal laws.

> The backward state of the Moral Sciences can only be remedied by applying to them the methods of Physical Science, duly extended and generalized. (Mill, 2006b, p. 833)

Second, the deductive method.

> In the definition which we have attempted to frame of the science of Political Economy, we have characterized it as essentially an *abstract* science, and its method as the method *à priori*. Such is undoubtedly its character as it has been understood and taught by all its most distinguished teachers. It reasons, and, as we contend, must necessarily reason, from assumptions, not from facts. It is built upon hypotheses, strictly analogous to those which, under the name of definitions, are the foundations of other abstract sciences. (Mill, 2004, p. 110), original emphasis

Mill was explicit about the subsidiary role of the deductive method.

> The ground of confidence in any concrete deductive science is not the *à priori* reasoning itself, but the accordance between its results and those of observation *à posteriori.* (Mill, 2006b, p. 896-897)

It was rather obvious to Mill that deterministic causal laws and human behavior do not match.

> The phenomena with which this science [of human nature] is conversant being the thoughts, feelings, and actions of human beings, it would have attained the ideal perfection of a science if it enabled us to foretell how an individual would think, feel, or act, throughout life, with the same certainty with which astronomy enables us to predict the places and occultations of the

[2] "One text he [Dirac] took out of the library was John Stuart Mill's *A System of Logic*, which the young Einstein had studied some fifteen years before… He [Mill] influenced Dirac, and many others, more than they knew." (Farmelo, 2009, p. 43)

> heavenly bodies. It needs scarcely be stated that nothing approaching to this can be done. (Mill, 2006b, p. 846)

To get economics off the ground as a science and to demarcate it from psychology and sociology made it imperative to say something general about human behavior in the economic realm. Mill put it thus:

> Just in the same manner [as geometry] does Political Economy pre-suppose an arbitrary definition of man, as a being who invariably does that by which he may obtain the greatest amount of necessaries, conveniences, and luxuries, with the smallest quantity of labour and physical self-denial with which they can be obtained in the existing state of knowledge. (Mill, 2004, p. 110)

Mill regarded this proposition as an empirical law which resembles, but has to be carefully distinguished from, universal deterministic physical laws. Empirical laws are neither deterministic nor universal, they express merely a local and temporary tendency.

> In political economy for instance, empirical laws of human nature are tacitly assumed by English thinkers, which are calculated only for Great Britain and the United States. (Mill, 2006b, p. 906)

Mill identified deterministic laws and deductive reasoning as the two crucial elements of the scientific method and adapted them to economics. With regard to a sufficiently articulated theory the first element implies the criterion of material consistency, the second of logical consistency. A theory must satisfy both criteria, that is to say, it can be rejected either on empirical or on logical grounds alone.

> Mill realized that human behavior is not subject to deterministic laws but, if at all, to the weaker form of empirical laws. A detailed analysis of human behavior, though, was not the topmost issue for the classicals. It was the laws of price formation, growth and distribution they were really interested in.

2 Law and logic

The conception of a deterministic causal law had been made abundantly clear by Newton. His approach became paradigmatic among economists (Redman, 1997, pp. 208-218) and gave rise to an inflation of laws beginning with the laws of demand and supply and ending with the laws of motion of the society as a whole.

But it was a second and more important quality that struck readers of the Principia. At the head of Book I stand the famous Axioms, or the Laws of motion:.. For readers of that day, it was this deductive, mathematical aspect that was the great achievement. (Truesdell, quoted in Schmiechen, 2009, p. 213) While J. S. Mill derived his behavioral tendencies inductively, Jevons choose a systematic approach to impose order upon the arbitrary multitude of laws.

> The science of Economics, however, is in some degree peculiar, owing to the fact... that its ultimate laws are known to us immediately by intuition, or, at any rate, they are furnished to us ready made by other mental or physical

> sciences. That every person will choose the greater apparent good; that human wants are more or less quickly satiated; that prolonged labor becomes more and more painful; are a few of the simple inductions on which we can proceed to reason deductively with great confidence. From these axioms we can deduce the laws of supply and demand, the laws of that difficult conception, value, and all the intricate results of commerce, so far as data are available. (Jevons, 1911, p. 18)

Just like Mill, Jevons applied the deductive method. But there is a subtle shift of meaning. When Jevons uses the term law he has the deterministic laws of Newton at the back of his mind and not the empirical laws of Mill. Jevons accorded his fundamental behavioral law the logical status of an axiom.

> ... the theory here given may be described as the mechanics of utility and self-interest. Oversights may have been committed in tracing out its details, but in its main features this theory must be the true one. Its method is as sure and demonstrative as that of kinematics or statics, nay, almost as self-evident as are the elements of Euclid, when the real meaning of the formulæ is fully seized. (Jevons, 1911, p. 21)

His methodology was from outer appearances quite similar to Mill's but Jevons went one decisive step further.

> An explicit maximization hypothesis has been the hallmark of neoclassical economic since the end of the nineteenth century and might easily be seen to be the one major departure that distinguishes neoclassical from classical economics. (Boland, 2003, p. 49)

This established marginalism as the explanatory device from consumer choice to production and distribution.

> These economists were implicitly treating microeconomics as a pure axiomatic system, whose terms may or may not be instantiated in the real world, but which is of great interest, like Euclidean geometry, whether or not its objects actually exist. (Rosenberg, 1994, p. 229)

The crucial point of Jevons's approach, which culminated in the existence proof of general equilibrium (Weintraub, 1985), are the premises. To recall, Newton's set of axioms contained the deterministic laws of motion. Because these have a counterpart in the real world the deductive method provides conclusions that are potentially in agreement with observation. This cannot happen if the terms in the axioms have no real world interpretation. In this case, the criterion of logical consistency is satisfied but that of material consistency is inapplicable and therefore undecidable. Keynes clearly identified the salient methodological point.

> For if orthodox economics is at fault, the error is to be found not in the superstructure, which has been erected with great care for logical consistency, but in a lack of clearness and of generality in the premises. (Keynes, 1973, p. xxi)

3 The return of common sense

To make the world we live in understandable to ourselves we have not only myth and science but also common sense – uneasily sitting between the two. J. S. Mill had no friendly word for common sense.

> People fancied they *saw* the sun rise and set, the stars revolve in circles round the pole. We now know that they saw no such thing; what they really saw was a set of appearances, equally reconcileable with the theory they held and with a totally different one. It seems strange that such an instance as this... should not have opened the eyes of the bigots of common sense, and inspired them with a more modest distrust of the competency of mere ignorance to judge the conclusions of cultivated thought. (Mill, 2006b, p. 783)

Apart from being presumptuous, common sense is simply not up to the task.

> But, as beings of limited experience, we must always and necessarily have limited conceptive powers; while it does not by any means follow that the same limitations obtain in the possibilities of nature, nor even in her actual manifestations. (Mill, 2006b, p. 753)

Keynes thought otherwise. He was acquainted with Quine's argument that theoretical simplification is achieved through formalization but held that this did not apply to the social realm.

> Between the alternatives of metaphorical *jouissance* and an austere canonical notation there is a middle route, and its viability has been argued for, and displayed by Keynes. (Coates, 2007, p. 87)

Before starting work on the *General Theory*, Keynes had made up his mind.

> In the early thirties he confessed to Roy Harrod that he was "returning to an age-long tradition of common sense." (Coates, 2007, p. 11), see also (Skidelsky, 2009, p. 82)

Now, economics deals not only with individuals and social relations but the economic system as a whole and Keynes had to come to grips with 'definitions and ideas'. In fact, he did not. He spent an immense amount of his time on Book II 'and still left his successors in confusion' (Moggridge, 1976, p. 33).

> By choosing definitions on the ground that they correspond with actual usage Keynes was formulating an ordinary language social science, one that bears a resemblance to those argued for by philosophers of hermeneutics. (Coates, 2007, p. 90)

To recall, Newton first defined the basic concepts mass and force by giving them a precise meaning that was quite different from the woolly everyday usage. In marked contrast, Keynes related his definition of income expressly to 'the practices of the Income Tax Commissioners.' He was in grave doubt whether 'it might be better to employ the term *windfalls* for what I call *profits*.' But he was quite sure that 'saving and investment are, necessarily and by definition,

equal – which after all, is in full harmony with common sense and the common usage of the world.' (Keynes, quoted in Coates, 2007, pp. 93, 91, original emphasis)

Keynes had no clear idea of the fundamental economic concepts income and profit, and he knew it.

> His *Collected Writings* show that he wrestled to solve the Profit Puzzle up till the semi-final versions of his *GT* but in the end he gave up and discarded the draft chapter dealing with it. (Tómasson and Bezemer, 2010, pp. 12-13, 16)

In the discussions following the publication of the *General Theory* Keynes had 'no desire' that the particular forms of his 'comparatively simple fundamental ideas... should be crystallized at the present state of the debate' (cited in Rotheim, 1981, p. 571). Keynes kept the discussion within the compass of common sense, where 'nothing is clear and everything is possible' (Keynes, 1973, p. 292).

With his middle route Keynes followed the philosophically well-established Cambridge tradition of loose verbal reasoning.

> Another danger is that you may 'precise everything away' and be left with only a comparative poverty of meaning... Such a problem was avoided, said Keynes, by Marshall who used loose definitions but allowed the reader to infer his meaning from "the richness of context." (Coates, 2007, p. 87)

But, again, common sense, legitimized by its descent from the Scottish School of common sense and euphemized as vigilant observation and intuition, was not up to the task.

> Looking back over the last 70 years it is an inescapable fact that the theoretical arm of the Keynesian Revolution never got off the ground. (Rogers, 2010, p. 152)

The Cambridge tradition, continual frustration notwithstanding, still has its epistemological adherents.

> For Keynes as for Post Keynesians the guiding motto is "it is better to be roughly right than precisely wrong!" (Davidson, 1984, p. 574)

If we define the ambition of science as to get it *precisely right,* then the guiding motto of Post Keynesianism amounts to an invitation of 'Babylonian incoherent babble' (cf. Dow, 2005, p. 385) and leads, predictably, to a loss of theoretical coherence (King, 2002, pp. 203-208). Confronted with the phony alternative relevance vs. rigor or truth vs. precision (Mayer, 1993) the non-Keynesians opted for rigor.

> Mathematical economics, it seems, had the great virtue of demonstrable irrelevance, which was morally preferable to spurious relevance. (Porter, 1994, p. 155)

4 Weirdness, realism, formalization

Since Keynes's days common sense came steadily more under pressure with the escalation of weirdness in the natural sciences and mathematics.

> ... the *fundamental* problem in philosophy of science – making sense of and determining how science has arrived in a justified way at its present, extremely *weird*, beliefs about how the world is... Thales and Aristotele could not have arrived at quantum theory; no naive examination of experience could have suggested such a view of the world. (Suppe, 1977, p. 684), original emphasis

This opened a welcome chance to defend all kinds of weird concepts with fresh panache. Had not Newton introduced the occult force of gravitation, and had not Galileo assumed a nonexistent vacuum? This became the first line of defense against the critique of unrealism in economics.

> The most important methodological issue in economics has been and persists to be over what is called the 'realism' of theories and their 'assumptions'. Profit maximization, perfect information, transitive preferences, diminishing returns, rational expectations, perfectly competitive markets, givenness of tastes, technology and institutional framework, non-gendered agents – these and many other ideas have been assumed by some economists and questioned by others. (Mäki, 1994, p. 236)

There are, though, two kinds of weirdness: justified and unjustified. The first thing to notice is that physical weirdness occurs on very small or very large scales (Feynman, 1992, p. 127). Second, Newton could not, in the strict sense, explain gravitation but he could express it in a neat formula. The calculations that were performed with it proved to be quite accurately in correspondence with facts.

The second line of defense appeals rhetorically to common sense.

> But can the model be true? Can any model be true? I do not think so. Any model, whether in physics or in the social sciences, must be be an over-simplification. (Popper, 1994, p. 172)

Indeed, who could ever deny this truism? The map is not the landscape. The point is that Newton knew how to properly over-simplify (Cohen, 1999, pp. 148-155) and thereby to gain real insights while his imitators in the social sciences did not.

In economics the conceptual primitives are humans, middle-sized objects, measurable variables like prices, and in most cases trivial events like buying and selling which involve rather down-to-earth human faculties. That is, the economic realm is coextensive with the physical realm that has been satisfactorily explained by classical mechanics. Physics has to be taken seriously as a boundary condition.

> Political Economy, therefore, presupposes all the physical sciences; it takes for granted all such of the truths of those sciences as are concerned in the

> production of the objects demanded by the wants of mankind;... (Mill, 2004, p. 102)

Yet classical mechanics is not weird at all. It is alone economic theory that is weird, as Walras learned to his chagrin.

> Walras approached Poincaré for his approval… But Poincaré was devoutly committed to applied mathematics and did not fail to notice that utility is a nonmeasurable magnitude… He also wondered about the premises of Walras's mathematics: It might be reasonable, as a first approximation, to regard men as completely self-interested, but the assumption of perfect foreknowledge "perhaps requires a certain reserve." (Porter, 1994, p. 154)

By the same token is Keynes's uncertainty argument perfectly justified.

> The sense in which I am using the term [uncertainty] is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest twenty years hence, or the obsolescence of a new invention... About these matters there is no scientific basis on which to form any calculable probability whatever. We simply do not know. (Keynes, 1937, p. 214)

Compared to the weirdness of assumptions like foreknowledge, Keynes's return to justified common sense must therefore be counted as theoretical progress, notwithstanding the fact that it brings us only back to from where Socrates started, i.e. to 'I know that I know nothing'.

> The problem is... that the assumptions made in economic theories and models simply are unrealistic in the wrong way and for the wrong reasons. (Pålsson Syll, 2010, p. 26)

Physicists do not reject unrealistic abstractions and idealizations as long as they do not distort the object of inquiry beyond recognition, yet there is perfect unanimity that, for example, an ideal construct like a perpetual motion machine is impossible in principle and not merely infeasible in practice. What Keynes called the 'classical' theory is the economic counterpart of a perpetual motion machine. To spell this out made the *General Theory* a conversation-stopper. And it still is. Keynes's scientific stance is consensus among methodologists.

> A scientific theory cannot require the facts to conform to its own assumptions. (Keynes, 1973, p. 276)

This is in full accordance with the classical stance.

> Such thinkers do not reflect that the idea, being a result of abstraction, ought to conform to the facts, and cannot make the facts conform to it. (Mill, 2006b, p. 751)

Realism led Keynes to the conclusion that the 'classics', i.e. the British neoclassical school, stood on the wrong side of the line that demarcates science from nonscience but he could not offer an in all respects superior alternative. With regard to weird behavioral assumptions

common sense points the way to the right side of the demarcation line. To follow it, however, is beyond common sense.

> … Keynes, too, sometimes gave the impression of not having fully grasped the logic of his own system. (Laidler, 1999, p. 281)

Keynes famously announced his revolution with a reference to Euclid.

> Yet, in truth, there is no remedy except to throw over the axiom of parallels and to work out a non-Euclidean geometry. Something similar is required today in economics. (Keynes, 1973, p. 16)

This in turn would have required some sort of non-Euclidean axioms, that is, a bit more formalization than Keynes was prepared to do himself.

> I mean by this that formalization eliminates provincial and inessential features of the way in which a scientific theory has been thought about... Formalization is a way of setting off from the forest of implicit assumptions and the surrounding thickness of confusion, the ground that is required for the theory being considered… In areas of science where great controversy exists about even the most elementary concepts, the value of such formalization can be substantial. (Suppes, 1968, pp. 654-655)

5 Heterodox disarray

> The main 'culprit', I shall argue is a mode of explanation that can be referred to as *deductivist*, or, more particularly, it is the conception of 'laws' (or 'significant results' or 'theoretical formulations') upon which deductivist explanation ultimately depends. (Lawson, 1997, p. 16), original emphasis

Is deductivist the same thing as deductive, i.e. 'the process of reasoning from one or more general statements... to reach a logically certain conclusion' (Wikipedia: Deductive reasoning)? Obviously not.

> By deductivism I simply mean the collection of theories… that is erected upon the event regularity conception of laws... (Lawson, 1997, p. 17)

Now, the conception of a law implies a deterministic event regularity in the causal form 'if event X then event Y'. This, though, is quite different from the deductive form which states 'if antecedent X then consequent Y'. This form has nothing to do with deterministic causal laws.

> … deductive chains of reasoning cannot on their own establish the existence of causal processes in the real world. (Hodgson, 2001, p. 76)

Yet the two are closely interrelated in physics.

> To give a *causal explanation* of an event means to deduce a statement which describes it, using as premises of the deduction one or more *universal laws*,

> together with certain singular statements, the *initial conditions*. (Popper, 1980, p. 59), original emphasis

The key point is that universal laws are taken as premises. Deduction is applied in physics too, but physic's hallmark are deterministic laws while mathematics is purely deductive.

> It is a well-known jest that 'a mathematician is a scientist who knows neither what he is talking about nor whether whatever he is talking about exists or not'. (Cartan, quoted in Ronan, 2006, p. 70)

Nobody has ever criticized mathematicians for being "deductivist". Quite the contrary, the plain fact that products of pure deductive reasoning correspond in numerous cases admirably to the objects and processes of reality has puzzled physicists, philosophers, and the mathematicians themselves since the ancient Greeks (Wigner, 1979).

It is the idea of an event regularity in the form of a law that has been identified by Lawson as main culprit. Hence "determinist" instead of "deductivist" would have been a less ambiguous characteristics. The deductive method does not necessarily imply deterministic laws that enable prediction in the social realm. This is known since J. S. Mill.

> It is evident, in the first place, that Sociology, considered as a system of deductions *à priori*, cannot be a science of positive predictions, but only of tendencies. (Mill, 2006b, p. 898)

Positive prediction would only be possible if the premises were universal deterministic laws.

> If the conditions of the theory are satisfied, the events that it predicts will necessarily take place. This inevitability of the analysis accords it a considerable prognostic significance, according to Robbins. Seldom has a simple view of a matter found so much support as the apriorism that he professed, which John Stuart Mill... developed for the first time under the name 'concrete deduction' as a variant of the hypothetico- deductive model of physics. (Klant, 1994, p. 25)

The salient point is easy to see. Robbins presupposed the existence of universal deterministic behavioral laws. This, evidently, has nothing to do with the deductive method. What Lawson criticizes under the label "deductivist" is Robbins's misapplication. At first it seems that Lawson got the point.

> Certainly, any application of the retroductive… form of reasoning requires an explicit prior statement of the premises which are used to initiate the analysis. Nor, of course, is deduction *per se* ruled out in the latter, or in *any* other general approach to reasoning. (Lawson, 1997, p. 112)

But in the next sentence he equates "deductivist" with what in fact is "determinist".[3] The employment of deductive logic, where it is appropriate, is notaccepting the deductivist form of analysis (whereby the object alwaysis to deduce specific claims about actualities from

[3] "It is a defect of ordinary language that there is not necessarily any distinction, as regards the outward form, between $p \supset q$, a deductive inference, and $p\ s\ q$ an inductive inference." (Hutchison, 1960, p.25)

accepted 'laws' and initial conditions, possibly including its axioms and assumptions). (Lawson, 1997, p. 112)

This means in more concrete terms.

> The essence of neoclassical economic theory is its exclusive use of a deductivist Euclidean methodology. A methodology – which Arnsperger & Varoufakis calls the neoclassical meta-axioms of "methodological individualism, methodological instrumentalism and methodological equilibration" – that is more or less imposed as constituting economics, and, usually, without a smack of argument. (Pålsson Syll, 2010, p. 24)

We are no longer occupied with the deductive method pure and simple as conceived by Mill. So this is what is at issue: (a) the deductive method is mistaken, or (b), there is nothing wrong with the method but the neoclassical meta-axioms and deterministic behavioral laws are beside the point.

And here is where the flimsy logic of the critics of the neoclassical approach comes in. From the widely accepted fact that neoclassical economics is unsatisfactory and the correct observation that it applies the deductive method and produces an abundance of vacuous mathematical models the conclusion is drawn that the method is wrong. The simple fact is – as already noticed by Poincaré – that the foundational assumptions of neoclassical economics are inadmissible. Hence the correct conclusion is to reject the meta-axioms and to keep hold of the deductive method because it is neutral with regard to premises. With false premises it yields the false conclusion and vice versa with true premises. It is as straightforward as 'garbage in, garbage out'. What is needed are true premises.

Each theory (heterodox approaches are no exception) starts from 'hypotheses or axioms or postulates or assumptions or even principles' (Schumpeter, 1994, p. 15). Therefore, the crucial question is:

> What are the propositions which may reasonably be received without proof? That there must be some such propositions all are agreed, since there cannot be an infinite series of proof, a chain suspended from nothing. (Mill, 2006a, p. 746)

No theory whatever can dodge this question. Emphasizing that neoclassical economics is unconvincing is neither new nor helpful. Mathematics as pure deduction is not the problem either. It allows us to express the wrong idea that the planets move in circles or the right idea that they move in ellipses. By the same token it allows us to express the wrong idea that the economy is a deterministic equilibrium system and the right idea that it is a nondeterministic open system. Now, take the mathematics away and what is left?

> To Plato's question, "Granted that there are means of reasoning from premises to conclusions, who has the privilege of choosing the premises?" the correct answer, I presume, is that anyone has this privilege who wishes to exercise it, but that everyone else has the privilege of deciding for himself what significance to attach to the conclusions, and that somewhere there lies the responsibility, through the choice of the appropriate premises, to see to it

> that judgment, information, and perhaps even faith, hope and charity, wield their due influence on the nature of economic thought. (Viner, 1963, p. 12)

This is a fair appraisal of the deductive method. What could be the objections against it? No methodologist ever maintained that it automatically produces 'true' theories. This may appear as a serious drawback, but neither exaggerated claims nor disappointed expectations provide a valid argument against the method.

The gist of the whole matter is: by rightly sticking to the deductive method yet applying indefensible premises neoclassical economics discredited the method in the eyes of critics. This would be a minor casualty were it not for the fact that by rejecting the method heterodoxy deprives itself of one of the most elementary scientific tools to build up a serious theoretical alternative.

> … we may say that the long-lasting success of our categories and the omnipresence of a certain point of view is not a sign of excellence or an indication that the truth or part of the truth has at last been found. It is, rather, the indication of a *failure of reason* to find suitable alternatives which might be used to transcend an accidental intermediate stage of our knowledge. (Feyerabend, 2004, p. 72), original emphasis

6 Deduction vs. intuition: a phony trade-off

> A purely deductive method would ensure us that conclusions were as probative as the premises on which they build. But deduction is totally unampliative. Its output is in its truth-transmitting input. If we are to use content-increasing methods we therefore have to accept that they can't be of a deductive caliber. (Pålsson Syll, 2010, p. 48)

Indeed, but this is the very strength of the method and not a lamentable weakness. Two points are essential: to state the premises explicitly and then to develop the logical implications without tacitly changing the premises on the way and without introducing additional premises. If there is truth in the premises it is conserved, nothing is added and nothing is lost. The method ensures formal consistency, not more, not less.

> Research is in fact a continuous discussion of the consistency of theories: formal consistency insofar as the discussion relates to the logical cohesion of what is asserted in joint theories; material consistency insofar as the agreement of observations with theories is concerned. (Klant, 1994, p. 31)

Formal consistency, of course, is not all but it is a necessary condition 'for he who contradicts himself proves nothing' (Klant, 1988, pp. 112-113).

By its very nature the deductive method must not be content-increasing. The content resides in the premises. Hence the choice of premises is decisive. This choice, though, is antecedent to the application of the deductive method. This is long known from the history of science.

Popper demonstrates that “logic, whether deductive or inductive, cannot possibly make the step from these theories [of Galileo and Kepler] to Newton’s dynamics. It is only ingenuity which can make this step.” (Cohen, 1977, p. 335)

In a similar way Einstein speaks of the ‘search for those highly universal laws... from which a picture of the world can be obtained by pure deduction. There is no logical path’, he says, ‘leading to these... laws. They can only be reached by intuition, based upon something like an intellectual love (‘Einfühlung’) of the objects of experience.’ (Popper, 1980, p. 32)

> And yet, by three incorrect steps… Kepler stumbled on the correct law. It is perhaps the most amazing sleepwalking performance in the history of science... (Koestler, 1979, p. 333)

> ... the relativistic phenomena described by Lorenz and clarified by Einstein might have been inferred from first principles long before, if only more careful thought had been given to the foundations of classical geometry and mechanics. (Brown, 2011, p. 61)

The pivot of any scientific inquiry is – once more:

> What are the propositions which may reasonably be received without proof? That there must be some such propositions all are agreed, since there cannot be an infinite series of proof, a chain suspended from nothing. But to determine what these propositions are, is the *opus magnum* of the more recondite mental philosophy. (Mill, 2006a, p. 746), original emphasis

Deduction does not prevent intuition, it rather presupposes the *opus magnum* of intuition.

7 Refocusing the domain

> In fact, the history of every science, including that of economics, teaches us that the elementary is the hotbed of the errors that count most. (Georgescu-Roegen, 1970, p. 9)

This brings us to the very question of what the elementary in the infinite multitude of economic phenomena is.

> Thus, economics is apparently the study of the economy, the study of the coordination process, the study of the effects of scarcity, the science of choice, and the study of human behavior. One possible conclusion to draw from this lack of agreement is that the definition of economics does not really matter. (Backhouse and Medema, 2009, p. 221)

The task of theoretical economics is to create a mental map of the whole economy without firsthand experience.

> And in the social sciences it is even more obvious than in the natural sciences that we cannot see and observe our objects before we have thought about them. For most of the objects of social science, if not all of them, are

> abstract objects; they are *theoretical* constructions. (Popper, 1960, p. 135), original emphasis

That is, one has to leap from commonplace economics which trades in easy to grasp phenomena on a small scale to an extremely abstract set of foundational propositions about the economy as a whole.

> Since, therefore, it is vain to hope that truth can be arrived at, either in Political Economy or in any other department of the social science, while we look at the facts in the concrete, clothed in all the complexity with which nature has surrounded them, and endeavor to elicit a general law by a process of induction from a comparison of details; there remains no other method than the à priori one, or that of "abstract speculation." (Mill, 2004, p. 113-114)

The set of basic propositions has to reduce the vast complexity of the real thing to almost nothing. From this almost-nothingness the real world complexity then has to be logically reconstructed. The first task is to clarify the domain of the inquiry which is neither well-defined nor arbitrary.

> Scientific domains are characterized as a number if *items of information* (putative facts, including, perhaps, accepted laws and theories) which come to be associated together as a *body of information* having the fol- lowing characteristics: the association is based on some well-grounded, significant, relationship between the items of information which are suggestive of deeper unities among the ítems;… (Suppe, 1977, p. 686), original emphasis

The clarifying of the domain involves a tentative decision of what to take in and what to leave out. For example: the trajectories of a feather and a canon ball both belong to the physical realm. Being too complex the physicists ignored the flying feather and focused on the falling canon ball. In this manner most real world phenomena drop out of the domain – at least for the time being. One has no guarantee that this abstraction from supposedly insignificant phenomena will work or whether one gets hold of the significant relationships. Here is where intuition and skill come in.

> The more complicated the model and the greater the number of the variables involved, the further it moves beyond our mental control, which in social sciences is the only possible control... A "simple- minded" model may after all be the more enlightening representation of the economic process provided that the economist has developed his skill to the point of being able to pick up a few but significant elements from the multitude of cluttering facts. The choice of relevant facts is the main problem of any science, as Poincaré and Bridgman insisted. (Georgescu-Roegen, 1971, pp. 340-341)

For the purposes of theoretical economics real human beings have therefore been reduced to homo oeconomicus.

> No science has been criticized by its own servants as openly and constantly as economics. The motives of dissatisfaction are many, but the most

> important pertains to the fiction of *homo oeconomicus.* (Georgescu-Roegen, 1971, p. 1)

Since homo oeconomicus is patently alien there was an almost instinctive call for more realism. Commonsensical as it is, this conclusion jumps too short. The fact that human beings belong to the economic realm does not automatically imply that they belong to the domain of economics or that they have to occupy a larger part of it. In classical economics the main issues were accumulation, innovation, competition, productivity, distribution of income and wealth etcetera. Homo oeconomicus was, if anything, a side-show. The real humans belonged to the domains of psychology, anthropology, sociology and biology.

It cannot be the intent of an economist who is on his way to understand how the economy works to get lost in these domains. Insofar, the reduction to homo oeconomicus is justified. What is more, the prospects of rendering economics more realistic by making homo oeconomicus more realistic are rather unpromising.

> The human or personal factor will remain *the* irrational element in most, or all, institutional social theories. (Popper, 1960, p. 157), original emphasis

The quest for the laws of human behavior begins and ends either with a diffuse psychological account that is hardly ever distinguishable from a projection or with a patently weird idealization. Therefore it was, in the first place, not such a good idea to put theoretical economics on so weak a foundation.

> The abstract idea of wealth or value in Exchange… must be carefully distinguished from accessory ideas of utility, scarcity and suitability to the needs and enjoyment of mankind... These ideas are variable, and by nature indeterminate and consequently ill suited for the foundation of a scientific theory... (Cournot, quoted in Mirowski, 1995, p. 208)

Let us call this Cournot's Unfitness Proposition. It asserts that behavioral assumptions are incapable of supporting a sophisticated theoretical superstructure that corresponds reasonably well with real world phenomena.[4] And from this follows for the route to be taken:

> The purpose… is to criticise the notion that economics is a science of behaviour or that a science of behaviour is fundamental to economics. This plausible and, as I believe, mistaken idea has sometimes been called (methodological) psychologism… In opposition to psychologism I put forward the notion of economics as a study of spontaneous order independent of any behavioural science… If it is correct, then all the attempts to derive an adequate model of economic behaviour (as practised, for example, by the

[4] Some classics grasped this intuitively: "Macaulay pointed out that asserting restrictive, unrealistic assumptions about human nature and then deducing the whole science of politics was ridiculous." (Redman, 1997, p. 322). See also (Hudson, 2010, pp. 14-16). Modern physicists are perfectly aware of the decisive methodological point: "By having a vague theory it is possible to get either result.. It is usually said when this is pointed out, 'When you are dealing with psychological matters things can't be defined so precisely'. Yes, but then you cannot claim to know anything about it." (Feynman, 1992, p. 159). Hence: "A broader methodological conclusion would appear to follow from the above. In so far as one is dissatisfied with purely "static", a-monetary analysis omitting the uncertainty factor… the method of deduction from some "Fundamental Assumption" or "principle" of economic conduct is more or less useless, because no relevant "Fundamental Assumption" can, on our present knowledge, be made." (Hutchison, 1960, p. 118)

> representatives of 'behavioural' or 'psychological economics') are misconceived. (Hudík, 2011, p. 147)

The critics of the neoclassical approach correctly spotted that the whole edifice rests on a set of behavioral axioms. Yet with the attempt to make the formal representation of choice more realistic the critics actually confirm its implicit assumption which reads: in order to explain the economy it is necessary to explain human behavior first.

> If we ask, 'What is the most adequate model of behaviour for economics?' we implicitly assume that economics actually needs a model of behaviour; hence, we already assume psychologism of a kind. (Hudík, 2011, p. 147)

Therefore, one has to go one step further and to move human behavior from the center of the domain to the periphery. Put simply, it is advisable to change the definition from:

> Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses. (Robbins, 1935, p. 16)

to:

> Economics is the science which studies how the economic system works.

What is demanded, then, is the reconstruction of a coherent theoretical superstructure on a *nonbehavioral* foundation. This, of course, is not an entirely novel idea.

> The highest ambition an economist can entertain who believes in the scientific character of economics would be fulfilled as soon as he succeeded in constructing a simple model displaying all the essential features of the economic process by means of a reasonably small number of equations connecting a reasonably small number of variables. Work on this line is laying the foundations of the economics of the future... (Schumpeter, 1946, p. 3)

The mathematical method as such is not the cause of the ongoing economic crisis. This is not to say that the method has been applied correctly. Thus far the heterodox critique is justified. Yet:

> … it is important to understand that what is put in question by recent destructive results is not formalization in general but rather the particular formalization generally employed in economic theory. That a paradigm should be shown to be deficient does not imply that one should cease to search for a paradigm. (Kirman, 1997, p. 97)

Neither common sense nor plain realism nor more psychology is a promising alternative. As it stands at the moment, heterodox methodology is part of the malaise rather than part of the solution.

8 Conclusion

The main result from the deliberately selective appraisal of economic methodology has been that behavioral assumptions, rational or otherwise, are not solid enough to be eligible as first

principles of theoretical economics. Hence all – orthodox and heterodox – endeavors to lay the formal foundation on a new site and at a deeper level need no further vindication.

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

Editor's note:
This short paper was originally submitted to *World Economics Review*, where under its online open review it was for a year subjected to voluminous high calibre critique and author response (available here). As the first reviewer noted: "*If the author is right, a substantial part of orthodox economics has to be rejected on purely formal grounds*". The paper's arguments turn on the application of abstract algebra, a branch of mathematics in which we economists are rarely fluent. The paper asserts:

1. Hick's and Samuelson's applications (and those based thereon) of differentiation to ordinal utility are founded on mathematical errors.
2. Expected utility's scale construction rule is self-contradictory.

By publishing Jonathan Barzilai's paper in the RWER, it is hoped that one or more mathematicians will bring their expertise to bear on its argument and that the high calibre consideration of the paper by economists will continue in public view. To this end, a post
http://rwer.wordpress.com/2013/03/25/inapplicable-operations/
has been placed on http://rwer.wordpress.com/ where you may comment on the paper. Only comments of an academic nature and directed primarily to the paper will be posted.

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Inapplicable operations on ordinal, cardinal, and expected utility

Jonathan Barzilai [Dalhousie University, Canada]

Abstract
By formally defining the relevant mathematical spaces and models we show that the operations of addition and multiplication, and the concepts that depend on these operations, are not applicable on ordinal, cardinal, and expected utility. Furthermore, expected utility's scale construction rule is self-contradictory.

1 Introduction

Our purpose is to clarify some fundamental utility theoretical issues. While von Neumann and Morgenstern's utility axioms [7, p. 26] have attracted much attention, the framework in which they measure preference by constructing utility scales has been mostly overlooked and the applicability of mathematical operations on utility functions has been taken for granted in the literature of operations research and economic theory.

We define the relevant mathematical spaces and models and show that the operations of addition and multiplication, and the concepts that depend on these operations, are undefined and are not applicable on ordinal, cardinal, and expected utility functions.

2 Applicability of operations: mathematical spaces

Mathematical spaces, e.g. vector or metric spaces, are sets of objects on which specific relations and operations (i.e. functions or mappings) are defined. They are distinguished by these relations and operations — unless explicitly specified, the objects are arbitrary.

Only those relations and operations that are defined in a given mathematical space are relevant and applicable when that space is considered — the application of undefined relations or operations is an error. For example, although the operations of addition and multiplication are defined in the *field* of real numbers, multiplication is undefined in the *group* of real numbers under addition; multiplication is not applicable in this group.

In all the spaces that follow, the relation of equality (an equivalence relation) is assumed to be defined.

2.1 Ordinal spaces

An ordinal space is a set *A* of objects equipped only with the relations of order and equality. Our interest is limited to the case of a complete order where for any $a, b \in A$ exactly one of $a < b, b < a,$ or $a = b$ holds (the relation of order is irreflexive, antisymmetric, and transitive).

Since order and equality are not operations, i.e. single-valued functions, no operations are defined in ordinal spaces. Specifically, the operations of addition and multiplication (and their inverses — subtraction and division) are not applicable in ordinal spaces.

2.2 Vector Spaces

2.2.1 Groups and Fields

A ***group*** is a set *G* with a binary operation, denoted *a* ■ *b* that satisfies the following axioms:

• The operation is *closed: c* = *a* ■ *b* ∈ *G* for any *a, b* ∈ *G.*

• The operation is *associative:* (*a* ■ *b*) ■ $c = a$ ■$(b$ ■ $c)$ for any *a, b, c* ∈ *G*.

• The group has an *identity:* there exists *e* ∈ *G* such that a ■ $e = a$ for all *a* ∈ *G*.

• *Inverse elements:* for any *a* ∈ *G,* the equation *a* ■ *x* = *e* has a unique solution *x,* the inverse of *a,* in *G*.

In addition, if *a* ■ *b* = *b* ■ *a* for all *a, b* ∈ *G*, the group is *commutative*.

A ***field*** is a set *F* with two operations that satisfy the following axioms:

• The set *F* is a commutative group under the operation of *addition.*

• The set *F* – {0}, where zero is the additive identity, is a commutative group under the operation of *multiplication.*

• $a \times 0 = 0$ for any $a \in F$.

• For any $a, b, c \in F$ the distributive law $a \times (b + c) = (a \times b) + (a \times c)$ holds.

A ***vector space*** is a pair of sets (V, F) with associated operations as follows. *F* is a field and its elements are termed scalars. The elements of *V* are termed vectors and *V* is a commutative group under vector addition. For any scalars $j, k \in F$ and vectors $u, v \in V$ the scalar product $kv \in V$ is defined and satisfies, in the usual notation $(j + k)v = jv + kv, k(u + v) = ku + kv, (jk)v = j(kv)$, and $1 \cdot v = v$.

2.3 Affine spaces

An **affine space** is a triplet of sets (P, V, F) together with associated operations as follows (for equivalent definitions see Artzy [1] and Postnikov [8]). The pair (V, F) is a vector space. The elements of *P* are termed points and two functions are defined on points: a one-to-one and onto function $h: P \to V$ and a "difference" operation $\Delta: P^2 \to V$ that is defined by $\Delta(a, b) = h(a) - h(b)$.

The difference $\Delta: P^2 \to V$ is not a closed operation on *P:* although points and vectors can be identified through the one-to-one correspondence $h: P \to V$, the sets of points and vectors are equipped with different operations and the operations of addition and multiplication are not defined on points. If $\Delta(a, b) = v$, it is convenient to say that the difference between the points *a* and *b* is the vector v. Accordingly, we say that an affine space is equipped with the operations of (vector) addition and (scalar) multiplication *on point differences.*

The dimension of the affine space (P, V, F) is the dimension of the vector space *V*. In a one-dimensional affine space, for any pair of vectors $u, v \in V$where $v \neq 0$ there exists a unique scalar $\alpha \in F$ so that $u = \alpha v$ and the set *P* is termed an affine straight line. In a one-dimensional vector space, the ratio $u/v = \alpha$ for $u, v \in V,\ v \neq 0$, means that $u = \alpha v$. Therefore, in an affine space, the expression $\Delta(a, b)/\Delta(c, d)$ for the points $a,\ b,\ c,\ d \in P$ where $\Delta(c, d) \neq 0$, is defined and is a scalar:

$$\frac{\Delta(a, b)}{\Delta(c, d)} \in F$$

if and only if the space is one-dimensional, i.e. a straight line. By definition, when the space is a straight line, $\Delta(a, b)/\Delta(c, d) = \alpha$ (where $a,\ b,\ c,\ d \in P$) means that $\Delta(a, b) = \alpha\Delta(c, d)$.

2.4 Ordered affine straight lines

A field *F* is ordered if it contains a subset *P* such that if $a, b \in P$, then $a + b \in P$ and $a \times b \in P$, and for any $a \in F$ exactly one of $a = 0$, or $a \in P$, or $-a \in P$ holds. An ordered affine straight line is an affine straight line over an ordered field.

The relation of order, which is needed to indicate a direction on a straight line (for example, to indicate that an object is more preferable than another), is defined in an ordered affine straight line since it is an ordered one-dimensional space.

2.5 Expected utility spaces

Since expected utility axiom sets in the literature are not necessarily equivalent, we list here the main features of the von Neumann and Morgenstern's axioms [7, p. 26].

This space is equipped with two completely ordered sets: a set *A* of arbitrary objects, and a set *I* which is the subset of the ordered field of real numbers in the open interval (0, 1). No operations are defined on the set *A,* but a single ternary operation $e: I \times A \times A \to A$ is defined in this space. Additional assumptions impose constraints on the order and the operation but no other relations or operations are defined in an expected utility space.

3 Applicability of operations: models

Whether non-physical properties such as utility (i.e. preference) can be measured, and hence whether mathematical operations can be applied on scale values representing such

properties, remained an open question when in 1940 a Committee appointed by the British Association for the Advancement of Science in 1932 "to consider and report upon the possibility of Quantitative Estimates of Sensory Events" published its Final Report (see Ferguson *et al.* [3]). An Interim Report, published in 1938, included "a statement arguing that sensation intensities are not measurable" as well as a statement arguing that sensation intensities are measurable. These opposing views were not reconciled in the 1940 Final Report (for additional details see Barzilai [2]).

For our purposes it is sufficient to note the following elements of the measurement framework: an empirical system *E* is a set of empirical objects together with operations, and possibly the relation of order, which characterize a property under measurement. A mathematical model *M* of the empirical system *E* is a set with operations that reflect the operations in *E* as well as the order in *E* when *E* is ordered. A scale *s* is a homomorphism from *E* into *M*, i.e. a mapping of the objects in *E* into the objects in *M* that reflects the structure of *E* into *M*. The purpose of modeling *E* by *M* is to enable the application of mathematical operations on the elements of the mathematical system *M* and mathematical operations in *M* are applicable if and only if they reflect empirical operations in *E* (see e.g. von Neumann and Morgenstern [7, §3.4]).

4 Ordinal utility

An ordinal space, i.e. an ordered set, is not a Euclidean space. Since it is not a vector space, the elementary operations of addition and multiplication are not applicable in an ordinal space. Therefore, the operations and concepts of algebra and calculus are undefined in ordinal spaces. In particular, norms, metrics, derivatives, and convexity concepts are undefined and not applicable in an ordinal space. Therefore, ordinal utility functions are not differentiable and, conversely, differentiable scales cannot be ordinal and, since the partial derivatives of an ordinal utility function do not exist, the concept of marginal utility is undefined in an ordinal space.

Under the titles *Need for a theory consistently based upon ordinal utility* and *The ordinal character of utility* Hicks [5, Chapter I, §§4—5] proceeds "to undertake a purge, rejecting all concepts which are tainted by quantitative utility" [5, p. 19]. In essence, he claims that wherever utility appears in economic theory, and in particular in demand theory which employs partial differentiation, it can be replaced by ordinal utility. The notion of differentiable ordinal functions is untenable and has no parallel in mathematics and science: Thermodynamics is not and cannot be founded on ordinal temperature scales. Clearly, the concept of "slope," i.e. derivative, is undefined on an *ordinal* topographic map.

Hicks's untenable claim, which appears in current economic textbooks, was followed in Samuelson's *Foundations of Economic Analysis* [9, pp. 94—95] by a more technical, but incorrect, argument in support of this claim. This analysis is carried out in an unspecified space, which in fact is an ordinal space, and operations that are not applicable in this space are applied. For example, the chain rule of differentiation is applied where the conditions for applying this rule are not satisfied. Note also that the set of ordinal scale transformations contains *all* monotone increasing functions (if $u(x)$ is an ordinal utility function, so is $F(u(x))$ where *F* is *any* monotone increasing function) but Samuelson's chain rule argument applies only to the subset of *differentiable* ordinal scale transformations. (Consider for example the ordinal utility function $u(x_1, x_2)$ whose value is 1 when both variables are rational and 2 otherwise.) For additional details see Barzilai [2, §3.4].

5 Cardinal utility

The concept of cardinal utility has no counterpart (e.g. cardinal time or cardinal temperature) in science. Saying that cardinal properties are those not preserved under all ordinal transformations amounts to saying that "cardinal" means "non-ordinal" which is not a proper definition. Some authors (e.g. Harsanyi [4, p. 40]) define cardinal utility functions as utility functions that are unique up to positive affine transformations (i.e. "interval" scales), but there is no mathematical definition of "cardinal space" in the literature and no proof that this scale-uniqueness type implies the applicability of the operations of addition and multiplication. In fact, it is easy to see that "interval" uniqueness *does not* imply the applicability of addition and multiplication.

6 Expected utility

6.1 Inapplicability of addition and multiplication

Since various expected utility spaces differ only in the constraints they impose on the order relation and the expectation operation (they are equipped with *one ternary* operation), the operations of addition and multiplication (*two binary* operations) are not defined and are not applicable on expected utility scales.

6.2 The expected utility rule is self-contradictory

The expected utility rule for lotteries, $u(l) = pu(a) + (1-p)u(b)$, imposes a constraint on the utility of the lottery $l = \{(p,a),(1-p,b)\}$ while no constraints are imposed on the utility of prizes. This rule is contradictory for prizes that are lottery tickets which the theory does not exclude.

7 Summary

It is not recognized in the literature (e.g. Hillier and Lieberman [6] and Harsanyi [4]) that the concepts of cardinal and expected utility are fundamentally flawed while the operations of algebra and calculus are not applicable on ordinal functions.

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Reduced work hours as a means of slowing climate change

David Rosnick[1] [Center for Economic and Policy Research, USA]

Abstract
The choice between fewer work hours versus increased consumption has significant implications for the rate of climate change. A number of studies (e.g. Knight et al. 2012, Rosnick and Weisbrot 2006) have found that shorter work hours are associated with lower greenhouse gas emissions and therefore less global climate change. This paper estimates the impact on climate change of reducing work hours over the rest of the century by an annual average of 0.5 percent. It finds that such a change in work hours would eliminate about one-quarter to one-half of the global warming that is not already locked in (i.e. warming that would be caused by 1990 levels of greenhouse gas concentrations already in the atmosphere). The analysis uses four "illustrative scenarios" from the Intergovernmental Panel on Climate Change (IPCC), and software from the Model for the Assessment of Greenhouse-gas Induced Climate Change to estimate the impact of a reduction in work hours.

Introduction

The world will have to cope with some amount of climate change. Already, humans have released sufficient greenhouse gases into the atmosphere to raise the average surface temperature of the planet. Atmospheric concentrations will be high enough as to induce further warming for some time—even if emissions of greenhouse gases return to 1990 levels.

Heading off more serious climate change will require a variety of policy changes. In this paper, we produce some rough estimates for the impact on the climate due to one possible important policy change—a gradual reduction in work hours. The direct cost of a reduction in work hours is at worst very small. In standard neoclassical models, the loss of consumption due to working less is offset in large part by an increase in leisure. In fact, a reduction in work hours may increase hourly productivity or (when employment is depressed) increase the employed share of the population.[2] These effects may offset aggregate income losses, with higher levels of employment having the additional effect of lowering the cost of unemployment benefits.

To the extent that working less will result in lower production, however, lower production should result in a fall in emission of greenhouse gases. In addition, there may be a shift in emission intensity per dollar of output as consumption patterns change.[3] How all these different factors might interact to change projected emissions is still an open question. Further, the sensitivity of the climate to greenhouse gas emissions is subject to a wide range of uncertainty. Nevertheless, in this paper we will estimate some general rules of thumb for the climate impact of a reduction in work hours. These will depend on the emissions baseline and the response of various actors to the policy change, but are robust to varying estimates of climate sensitivity.

[1] The author would like to thank Mark Weisbrot, Sara Kozameh, Dan Beeton, and Stephan Lefebvre for editing and helpful comments. The author is an economist at the Center for Economic and Policy Research, in Washington D.C.
[2] See Baker (2009) and Baker (2011).
[3] For more in this topic, see Schor (2010).

Climate baselines

To investigate the range of possibilities, we start with the four "illustrative scenarios"[4] from the Intergovernmental Panel on Climate Change (IPCC). The IPCC chose each scenario to represent a particular "storyline" describing alternative evolutions of the world economy. *Very* roughly speaking, the "A1" and "B1" storylines involve low population growth but rapid increases in output, while the "A2" and "B2" storylines assume higher population growth and lower levels of output.

TABLE 1
Storyline quantifiers in 2100

	Population (Billions)	GDP (Trillions of 1990 USD)	Implied GDP per-capita (Thousands of 1990 USD)
A1	7	550	78.6
A2	15	250	16.7
B1	7	350	50.0
B2	10	250	25.0

Source: IPCC, and author's calculations.

These storylines produce a wide range of incomes on a per-capita basis. In part, this is due to differences in assumed productivity growth, but much of this difference reflects variations in population growth within the developing world. For example, if population growth is much faster in developing countries than it is in developed countries, then the worldwide growth in average income per person will be slower than otherwise.

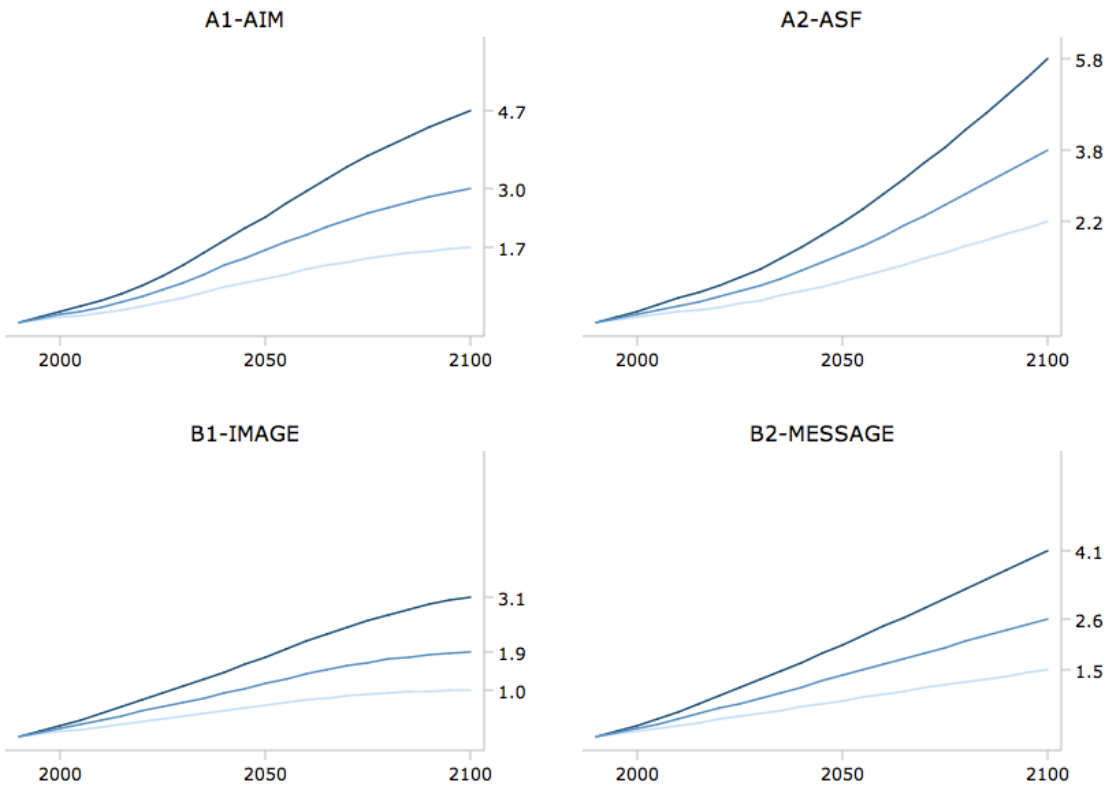
For each storyline, the IPCC chose an illustrative "marker" scenario—a quantitative realization of the storyline produced by one of the several emissions models employed in the report. For example, the marker for the A1 storyline uses the Asian Pacific Integrated Model (AIM) so we call this scenario A1-AIM. Each one of these "marker" scenarios corresponds to a different level of baseline emissions, and a range of possible impacts on climate – depending of the temperature response to the emissions.

We may estimate the baseline climate impact from the emissions associated with each of these four "marker" scenarios by use of the Model for the Assessment of Greenhouse-gas Induced Climate Change (MAGICC) produced by the University Corporation for Atmospheric Research (UCAR). **Figure 1** shows a wide range of possible temperature responses to each scenario.[5] Across the four scenarios, central estimates of warming through 2100 range from

[4] Intergovernmental Panel on Climate Change (2000). Table 4-1, page 175.
[5] MAGICC reports results using a central estimate of 3ºC increase in temperature per doubling of CO2 in the atmosphere. The employed range for this *climate sensitivity* is reported as 1.5-6.0ºC per doubling, which is somewhat broader than the 2.0-4.5ºC reported in the IPCC's *Climate Change 2007: Synthesis Report.*. Though use of MAGICC's default range of results may exaggerate the uncertainty in climactic response, this does not impact the final results of this paper.

1.9ºC (B1) to 3.8ºC (A2). The A2 and B2 scenarios suggest considerable ongoing warming even beyond 2100.[6]

FIGURE 1
Estimated change in temperature (ºC) since 1990—illustrative scenarios



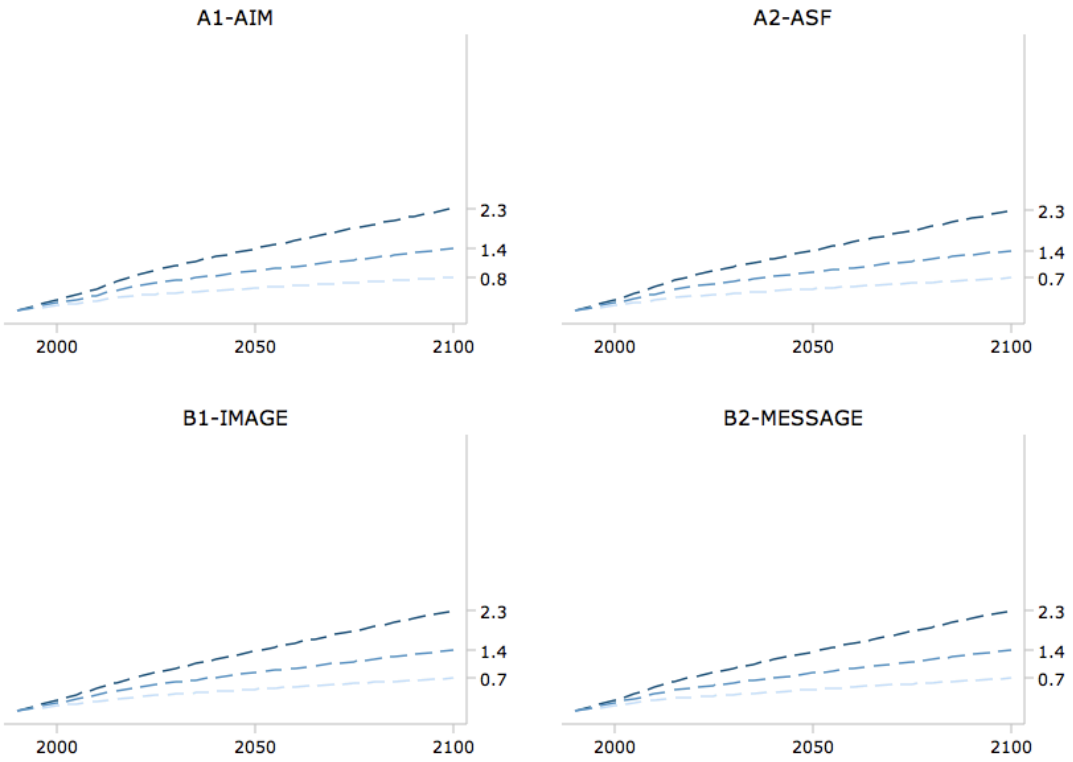
Source: IPCC and author's calculations.

It is important to note that much of this warming is effectively locked-in. In Figure 2, we assume that by 2020 emissions return to and remain at 1990 levels.[7] Because emissions between 2020 and 2100 are identical in each alternative, the results are very similar. Irrespective of policy there will be very likely a minimum of 0.75-2.34ºC of warming--depending on climate sensitivity.

[6] Note that projected climate change is more severe in the A2-ASF scenario than, say, the B1-IMAGE even though GDP is larger in the B1 storyline than A2. Among the storylines, there is considerable variation in the amount of energy or emissions required to produce each dollar of GDP. See IPCC (2000), Chapter 4.4.2.1. A1 Scenarios.

[7] Not all emissions may be input into the MAGICC software—in particular those controlled by the Montreal Protocol. (See Appendix 1 of the MAGICC user manual, available at http://www.cgd.ucar.edu/cas/wigley/magicc/UserMan5.3.v2.pdf) Thus, emissions of CF4, C2F6, and input HFCs are assumed to change relative to baseline in proportion to changes in emissions of SF6 relative to SF6 baseline.

FIGURE 2
Change in temperature (ºC) since 1990 with return to 1990 emissions by 2020



Source: IPCC and author's calculations.

This leaves 0.3-3.5ºC of warming that may be addressed— absent policy measures that would bring us below 1990 emissions levels. If we live in a world with low climate sensitivity to emissions, then we are very fortunate. A B1 future with "a high level of environmental and social consciousness combined with a globally coherent approach to a more sustainable development"[8] would result in very little additional warming. On the other hand if climate sensitivity is high, an A2 future[9] where economic growth is "uneven" with "less international cooperation" and "slower technological change," then we would require considerable action to prevent significant warming.

The IPCC calls "dematerialization" a priority of the B1 storyline—increased consumption of services and improvements in quality rather than simply increasing the quantity of consumption. But increased leisure is a viable alternative as well. As productivity increases, different societies may simply choose to work less rather than fully increase output.[10] In this sense, a B1 storyline could reflect a world with fewer work hours per person—at least relative to alternative futures. In this paper, we ask how climate responds to introducing leisure as a priority into different storylines.

It is worth noting that the pursuit of reduced work hours as a policy alternative would be much more difficult in an economy where inequality is high and/or growing. In the United States, for

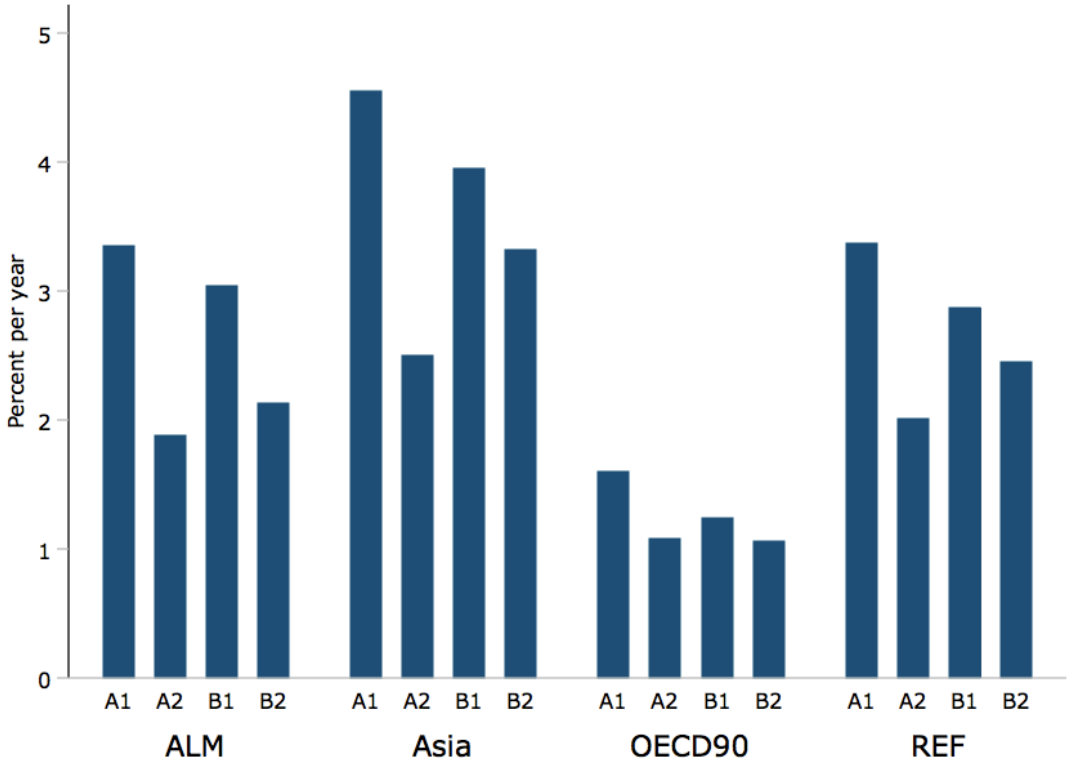
[8] Intergovernmental Panel on Climate Change (2000), Chapter 4.3.3.
[9] Intergovernmental Panel on Climate Change (2000), Chapter 4.3.2.
[10] European workers, for example, are generally as productive as those in the United States; yet they work significantly fewer hours than do their American counterparts. See Rosnick and Weisbrot (2006).

example, just shy of two-thirds of all income gains from 1973–2007 went to the top 1 percent of households.[11] In this type of economy, the majority of workers would have to take an absolute reduction in their living standards in order to work less. The analysis in this paper assumes that the gains from productivity growth will be more broadly shared in the future, as they have been in the past.

Modeling a reduction in work hours

The illustrative scenarios above assume world per-capita income growth of between 1.3 and 2.7 percent per year over the 110-year period from 1990-2100. Some of this income growth reflects greater productivity—the ability of a laborer to produce more in an hour of work. Likewise, some of this income growth reflects additional hours of work performed by the average person. These two may interact in complex ways. For example, an increase in productivity may make it more profitable for firms to increase worker hours, yet the increase in hours may exhaust workers and make them less productive. Similarly, an increase in productivity may raise the wages of workers and allow them to both reduce their hours and raise their incomes, yet these well-rested workers may be even more productive. **Figure 3** shows the projected growth in per-capita incomes by region.[12]

FIGURE 3
Average income growth by region 1990-2100



Source: IPCC and author's calculations.

[11] Piketty and Saez (2003).
[12] These regions are defined by the IPCC. ALM=Africa and Latin America, Asia=Developing Asia, OECD90=OECD countries in 1990, REF=Countries undergoing market reform

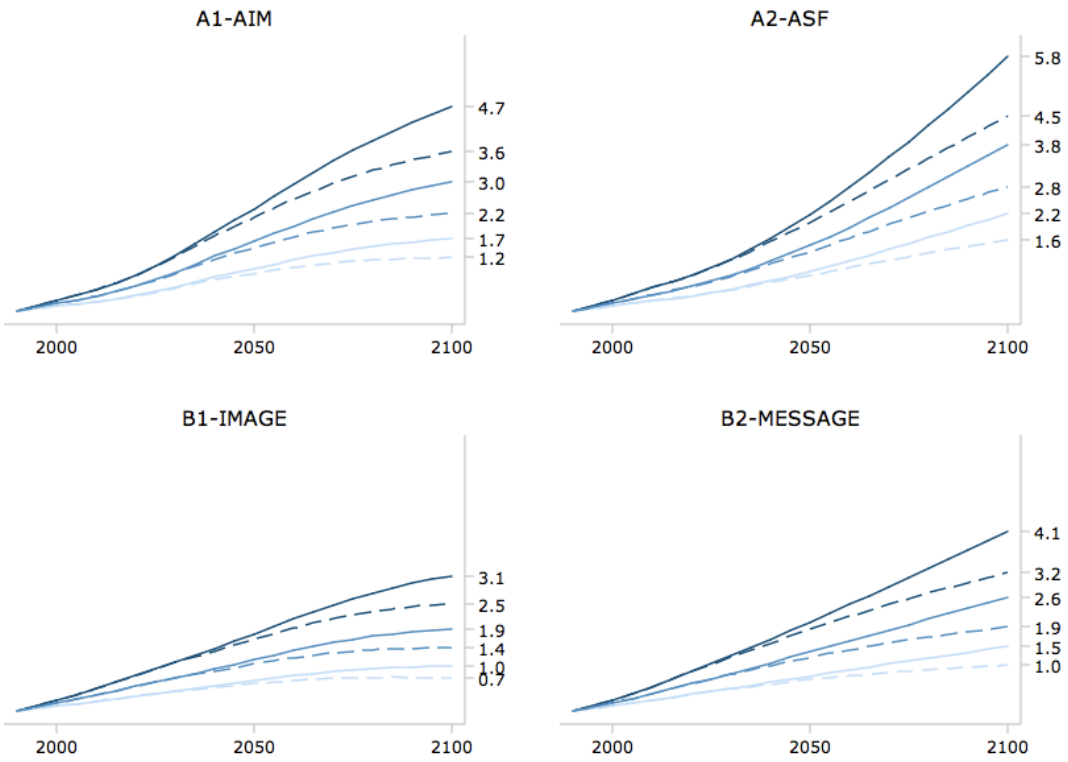
Among developing regions, incomes grow between 1.9 percent and 4.6 percent per year, depending in large part on the scenario. Average incomes in the OECD are projected to grow much more slowly.

Rather than tease out how hours and productivity are determined in these scenarios, let us arbitrarily assert that these projections assume that the developing world converges to the work habits of those in the United States. If, alternatively, the world were to follow a more European model of work, we would expect fewer hours, less output, and lower emissions of greenhouse gases. Specifically, assume that after any interaction with productivity or employment, hours eventually fall by 0.5 percent per year relative to each baseline—starting in 2013.[13]

For developing countries, this amounts to trading in one-tenth to one-quarter of baseline income gains for increased leisure. For the moment, let us also assume that the effect on emissions is disproportionately large in comparison to the fall in hours.[14] Recent work estimated that a 1 percent increase in annual hours worked per employee is associated with a 1.5 percent increase in carbon footprint.[15] We therefore begin with the assumption that every percentage point fall in initial hours leads to a 1.5 percent fall in greenhouse gas emissions.[16] Within the OECD, we will assume only half this effect, reflecting that only the United States would be adjusting to the rest of the developed world. **Figure 4** expands on Figure 1 above by including the corresponding alternative emissions scenarios (shown by the dotted lines).

[13] By 2100, average hours would have fallen by 36 percent. Based on a 40-hour-per-week, 50-week baseline work year, this could be achieved by moving, gradually over 87 years, to a 30-hour week with seven additional weeks of vacation.
[14] Knight, *et. al.* (2012).
[15] Carbon footprint reflects emissions as calculated on a consumption basis. See Knight et al.(2012).
[16] In these scenarios, emissions of CF4 and C2F6, as well as input HFCs are assumed to change in correspondence to emissions of SF6.

FIGURE 4
Estimated change in temperature (ºC) since 1990—baselines and reduced hours—large emissions response



Source: IPCC and author's calculations.

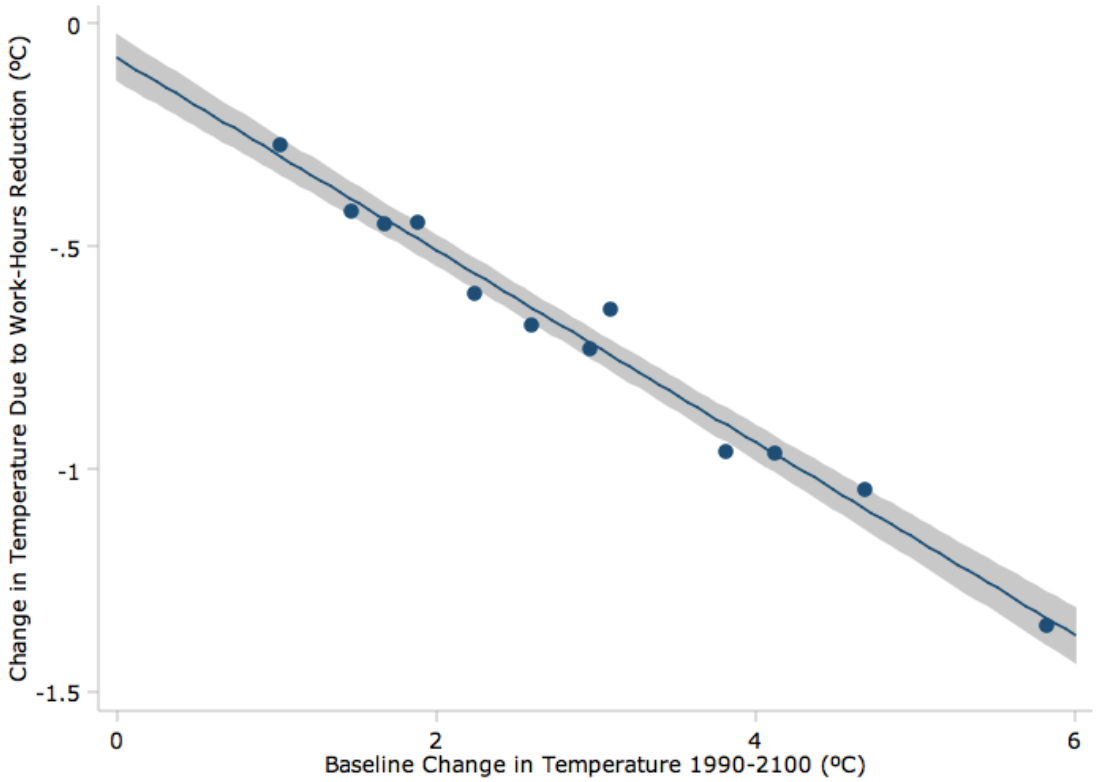
The results vary with the scenario and climate sensitivity to emissions. As we see in Figure 4, work-hours reduction could prevent 1.3 of the 5.8 degrees of average warming projected in the high-sensitivity A2-ASF scenario. On the other hand, work-hours reduction may prevent only 0.3 degrees of the 1.0-degree warming in the low-sensitivity B1-IMAGE scenario.

Figure 5 shows that the greater the baseline increase in temperature, the greater the potential for reduction. It appears that approximately one-fifth of projected warming is countered by the hours-induced reduction in emissions.

Note that this result applies over the wide range of possible climate sensitivities. This allows us to conclude that with 40-70 percent of warming already locked in, between 35-70 percent of addressable warming is avoided by reducing hours in this manner.

Now, let us suppose the emissions response to a change in hours is proportionate, so that a 1 percent reduction in hours associates with a 1 percent reduction in emissions. Obviously, this reduces the impact on climate change, as seen in **Figure 6**.

FIGURE 5
Baseline climate change and mitigation by 2100—large emissions response to hours



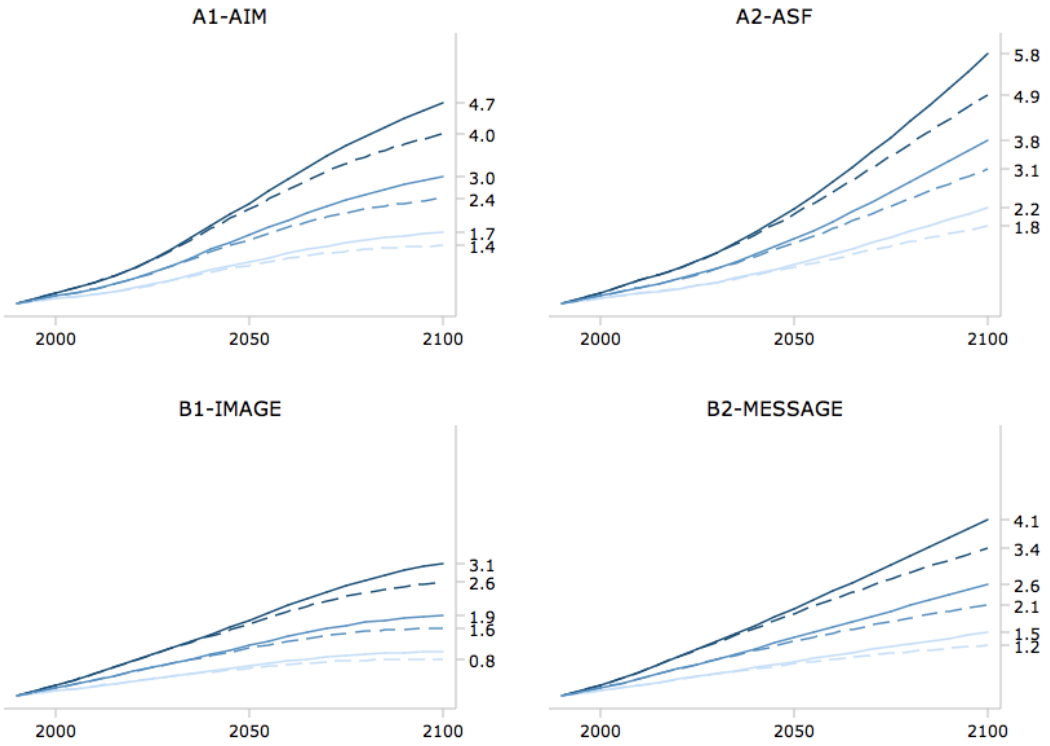
Source: IPCC and author's calculations.

Rather than mitigating 22 percent of the increase in temperature, under a proportional response only 15 percent of the increase is reversed. As before, with 40-60 percent of warming effectively locked-in, this decrease corresponds to 25-50 percent of addressable warming. Further, if a work-hours reduction has a significant impact on the rate of full employment[17] and productivity and fails to reduce emissions intensity, an even more pessimistic emissions response is possible. Such an outcome would be surprising given current research on the environmental impact of work hours.[18] Nevertheless, if a 1 percent fall in hours reduces emissions by only 0.5 percent, then only 8 percent of every degree of warming would be mitigated by our work-hours reduction.

[17] A properly designed work-hours reduction may be expected to increase employment when the economy is depressed. Our concern here is in the long run when the economy runs largely at full capacity.

[18] In addition to large responses found by Rosnick and Weisbrot (2006) and Knight (2012), disproportionately large responses were found by Hayden and Shandra (2009) and Devetter and Rousseau (2011). The latter noted that "consumption habits are effectively linked to working hours, and not just income…. Some of the most polluting forms of consumption are favored by long or very long working hours." On the other hand, Hertwich and Peters (2009) find a less than proportional response though it is not clear how much of this result is driven by development-driven dematerialization as opposed to production and income.

FIGURE 6
Estimated change in temperature (ºC) since 1990—baselines and reduced hours—proportionate emissions response



Source: IPCC and author's calculations.

TABLE 2
Emissions response and percentage of addressable warming mitigated

	Emissions Elasticity	Climate Response (percent mitigation per degree of warming)	Effective Mitigation (percent mitigation per 0.3-0.6 degrees)
High	1.5	22	36-72
Proportional	1.0	15	25-51
Low	0.5	8	13-27

Source: IPCC and author's calculations.

Conclusion

For all practical purposes, some amount of climate change is inevitable. However, the amount of warming is very much under our control. In addition to reducing emissions by other means, a significant reduction in climate change is possible by choosing a more European response to productivity gains rather than following a model more like that of the United States. By itself, a combination of shorter workweeks and additional vacation which reduces average annual hours by just 0.5 percent per year would very likely mitigate one-quarter to one-half, if not more, of any warming which is not yet locked-in.

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Improved macroeconomic control with electronic money and modern monetary theory

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Abstract
This paper combines the concept of electronic money (no physical currency) with Modern Monetary Theory (MMT). It argues – based on an MMT understanding of macroeconomics – how electronic monetary systems offer a big step forward for macroeconomic control, among other things by giving a government new and potent steering tools. More specifically the paper discusses how one in an electronic money environment can easily curb an overheated economy primarily through control of money velocity – not money supply. This is a necessary topic to explore, even if the opposite is needed in today's global situation, to convince academics and decision makers that running necessary large and persistent government budget deficits in depressed economies, is not "irresponsible" and does not need to imply strong inflation in later economic boom situations.

Keywords: modern monetary theory, electronic money, 100% reserve currency, money velocity, inflation control, stock/flow system

JEL classification: B50, E42, E5, G21, G28, H62

1. Introduction

In this author's opinion, the best theoretical platform for the understanding of today's macroeconomies and what might be done to improve them, is *Modern Monetary Theory* (from now on: "MMT"). MMT – also labeled "neo-chartalism" – has since the onset of the debt crises around 2008 gained influence in the global discourse on macroeconomic theory and crisis solutions. Some central academic proponents of MMT are L. Randall Wray, Stephanie Kelton, Scott Fullwiler, James Galbraith, and Bill Mitchell. A comprehensive text explaining MMT is (Wray, 1998). This paper assumes that the reader is somewhat familiar with, and not unsympathetic to, MMT.

In the MMT framework, a government and the Central Bank (CB) is seen as one unit. The "independence" of CB's that is the rule in most countries is a political and legal construct, and may as such be reversed by a national assembly. Any CB is constitutionally, at least in some final instance, an arm of the government. This is generally accepted, not solely by MMT adherents. For a country *issuing its own currency* (this is a prequisite for MMT to be valid as a platform for policy), a government's "debt" that builds up with its CB through deficit spending in excess of the income from selling bonds, is only an accounting convention. A government does not need to "finance" its spending through tax income or to borrow by issuing government bonds – a government may spend (and thus net create money) by debiting its account at the CB. Such a government is not revenue constrained. It can never "run out of" its own issued currency, and can always pay any debt if this debt is in its own – not foreign – currency. The role of taxes in MMT is to drain money to control demand and limit possible inflation, and to redistribute income.

In the MMT view, money has value and enjoys confidence since it is the only accepted means to pay taxes, and since the state can enforce tax payment. It does not need to be backed by any asset.

MMT assumes flexible exchange rates. Rigidly binding one's currency to foreign currency(-ies), removes the advantages of MMT. One is then on a de facto “gold standard”, and this is incompatible with MMT.

The obvious and common objection to MMT is "it will be inflationary". Yes, inflation may be an issue. This is a reasonable objection and will therefore be discussed below. That said, inflation is a possibility under *any* macroeconomic regime if nominal aggregate demand is near or surpasses some capacity limit. The possibility of inflation is not *in itself* an argument against MMT. Through taxation and other methods inflationary pressures can effectively be taken care of within an MMT paradigm. How to achieve this is one of the main topics of this paper.

As discussed, a government may use the option of injecting new fiat money (*base money, High-Powered Money* – from now on "HPM") into circulation. But in today's system we mostly have net creation of money through bank lending. This *credit* money – as opposed to HPM – grows *endogenously*. Endogenous bank-created money growth is a consequence of what banks do to maximise their profits without breaching Basel capital adequacy rules (Andresen, 2010). Control of money supply from the CB via banks, as told in the monetarist and mainstream economics money multiplier story, is not possible. Therefore one should instead give the government a monopoly on money creation, so that all money is HPM: new money should be spent, not lent by the banks, into the economy. This fits well with the MMT view, and has for many decades been, and still is, supported by many economists and economic reformers. The most famous proponent of 100% money is probably Irving Fisher (1936). His and other economists' "Chicago Plan" has recently been re-evaluated with a very postive conclusion (Benes and Kumhof, 2012). When banks wish to lend in a 100% reserve scenario, they would have to borrow HPM at lower rates, and live off the rates difference. But they should not create money themselves. This will *ceteris paribus* make control of money creation and, therefore inflation, easier.

That said, control of money supply is not the central point in this paper – it will focus on control of another entity: *money velocity*. As this paper will show, control of velocity is much more effective, and it becomes feasible – for the first time in the history of money – with electronic money (i.e. no physical currency).

In a recession or even depression-like situation – the case in most countries today – the attraction of MMT is obvious: since a government with own-issued currency is not financially constrained, such a crisis can be remedied by running arbitrarily high fiscal deficits as long as needed, i.e. spending extra HPM into the economy to employ people and buy goods and services. A government issuing its own currency can always employ all the unemployed.

But there is a challenge to MMT that has hardly been discussed by its proponents: in the *opposite* scenario, if an economy is running close to full capacity or beyond (for instance after a crisis where a large amount of money was injected, remaining in circulation), and there are ensuing inflationary pressures: how can a government drain the system and curb money flows? This is a genuine problem, and is not easily solved in today's technical monetary environment. But there are solutions to this if all circulating money is electronic; transacted via the Internet and the mobile phone network, and residing only as accounts at a national depository facility.

Electronic money will mercilessly – sooner or later – take over simply due to technological progress. It offers a dramatic improvement in convenience and cost. Banks are already implementing it for that reason. The certain eradication of physical currency is only a question of time. The process is comparable to the advent of the digital camera, leading to the death of photographic film. Such processes cannot be reversed. Luckily, it turns out that fully electronic money systems are not only cheaper and more convenient, they also offer potent new opportunities for macroeconomic control.

2. A problem – injection and drainage asymmetry

There will be negligible opposition in a depressive situation if a government hires more people and buys more goods and services, with brand new HPM, created out of thin air at the CB – not even by borrowing. Such policy is possible with an MMT understanding of macroeconomics. In such a situation, people will gratefully accept this, in spite of alarms from deficit hawks and some financial pages pundits.

But when a government tries to drain money back later on in a boom, running a surplus over time by increased taxes, there will probably be strong popular resistance[1]. Furthermore, in a boom there will usually also be a widespread over-optimistic mood in the population, enhancing such resistance – which can take many forms: media campaigns, demonstrations, capital flight, tax avoidance, stashing away cash, voting for right-wing parties arguing for "small government" with low taxation.

MMT proponents have to address this issue, even if this is a hypothetical scenario diametrically opposite to today's. For it is difficult to convince the public, academics and decision makers today of the acceptability of large and persistent (over years) deficit spending, if one does not have a recipe for what to do in a later boom:

> It's true that printing money isn't at all inflationary *under current conditions*—that is, with the economy depressed and interest rates up against the zero lower bound. But eventually these conditions will end. At that point, to prevent a sharp rise in inflation the Fed will want to pull back much of the monetary base it created in response to the crisis, which means selling off the Federal debt it bought. So even though right now that debt is just a claim by one more or less governmental agency on another governmental agency, it will eventually turn into debt held by the public (Krugman, 2013).

3. Electronic money – the system

Today it is technically feasible to discard physical money completely – no bills and coins – and do all transactions by debit card, personal computers (both quite common in developed countries), and/or via the mobile phone network – not common, but on the rise. Mobile phone money transfers have a proven track record, for instance "M-Pesa" in Kenya (Hughes and Loonie, 2007). With electronic money ("EM") all transactions are reflected in movements between accounts. But there are in the proposed implemention here, no deposits with private

[1] This may be considered analogous to the well-known downwards "stickiness" of wages and prices.

banks[2]. All accounts are at the Central Bank (or at a National Depository – "ND" from now on – established for that purpose).

All citizens and firms have EM accounts at the CB (or ND). The advantages are obvious and many:

- The system is very cheap to run, compared to a system with bills and coins.
- Adjustments that turn out to be needed, can be implemented in software, therefore very easily and cheaply. No cumbersome and expensive printing/stamping and distribution of bills and coins.
- Forgery is impossible. So are robberies.
- This is a 100% reserve system. All deposits are HPM (base money), at the CB (or ND). No deposit insurance needed. Money cannot be lost, and this is clear to the public. No bank runs.
- EM is an extremely inclusive and convenient system, giving poor and rural sectors of an economy – where ATMs and bank branches may be far between and not all people have accounts – a tool for easy economic participation and exchange.
- A black economy in EM is close to impossible. The same with tax evasion. Intelligent software can monitor transactions 24/7, and flag human operators when suspicious patterns emerge. Knowledge of this implies a credible threat, so that agents to a significant degree will abstain.
- EM cannot be used for capital flight, since it only resides at the CB (or ND). All foreign transactions are logged and thus controllable, as suggested in the previous point.

Finally, two unconventional advantages/possibilities:

- Negative interest on money held (demurrage) may be easily implemented, to speed up circulation if that is needed.
- A new possible control tool with the opposite effect is feasible by money only existing as accounts at the CB (or ND): A tiny but adjustable *transfer tax between any accounts*. This would be incredibly more effective to damp an overheated economy, than today's blunt tool of a CB interest rate increase. It can stop too much spending in its tracks.

In the next section we will discuss how some of the above advantages enable the government to curb spending in an economically overheated scenario.

4. Spending control

4.1 Money velocity is a crucial factor

It is first necessary to make an important point about money supply and money flows. Demand in an economy is not decided by the aggregate money supply (a *stock*), but by the aggregate of money *flows Y,* where *Y* is GDP. In a continuous-time modeling framework, the denomination of *Y* is [$/year], as opposed to *M* [$]. In nominal terms we have

[2] But private and cooperative banks still have a role to play: to vet and lend to borrowers, using funds gotten by selling bonds, offering time deposits or borrowing from the CB. This is discussed further below.

$$Y(t) = M(t)v(t),$$

where *M* is aggregate money stock and *v* is average money velocity. This is the quantity equation, adhered to by monetarists, and (much for the same reason) derided by many other economists. In this author's opinion, the monetarists are wrong because they ignore *v* and focus solely on *M*. There are also mainstream economists who point to the insufficiency of using *M* as a control variable:

> In terms of the quantity theory of money, we may say that the velocity of circulation of money does not remain constant. "You can lead a horse to water, but you can't make him drink." You can force money on the system in exchange for government bonds, its close money substitute; but you can't make the money circulate against new goods and new jobs (Samuelson, 1948:354).

But many outside the current mainstream are also wrong – not because they (correctly) argue that *M* is not a sufficient control variable – but because they consider *v* of no importance:

> Unfortunately, most economists are brainwashed with the trivializing formula MV=PT. The idea is that more money (M) increases "prices" (P) – presumably consumer prices and wages. (One can ignore velocity, "V," which is merely a tautological residual.) "T" is "transactions," for GDP, sometimes called "O" for Output (Hudson, 2010).

This might be characterised as throwing the *Mv* baby out with the *M* bathwater. One economist who saw the importance of velocity, was Irving Fisher:

> Free money may turn out to be the best regulator of the velocity of circulation of money, which is the most confusing element in the stabilization of the price level. Applied correctly it could in fact haul us out of the crisis in a few weeks ... I am a humble servant of the merchant Gesell (Fisher, 1933:67).

Fisher argued for a parallel money in the depression-ridden U.S., and levying a holding fee (negative interest, *demurrage* – originally proposed by the German-Argentinian merchant and monetary theorist Silvio Gesell[3]) on this money to force agents to spend. Thus it would be possible to increase activity even for a small *M*, due to higher *v*. Fisher understood that *v* is not a "residual" as Hudson calls it, but an important behavioural variable, and that it would be low in a depression, and needed to be boosted. It is strange that this is not more recognised, since *v* is in a one-to-one relation to (inverse) liquidity preference, and liquidity preference is a concept that is widely accepted and used among macroeconomists – not the least by Post Keynesians, who are very much against the quantity theory.

4.2 Control with electronic money

[3] Gesell received a strong recommendation in the *General Theory* (Keynes , 1973:355)

In today's system with credit creation of money through bank lending, control of *M*, as emphasised in monetarist and mainstream economics, is not possible. For credit money – as opposed to HPM – grows endogenously as already mentioned. Giving the CB monopoly on money creation, so that all money is HPM, will make such control more feasible.

With electronic money one is able to not only enhance control of *M* , but also achieve control of *v*, which until now has been mostly ignored (in part because such control is very difficult in a system containing physical currency). While *M* cannot be changed significantly within a short time span (since it is a stock and needs time to change, and since draining M wil be a controversial extra tax), this may be done with *v* (since it is a behavioural variable, not a stock, and no liquid assets are taken from the holders). By having control of both *M* and (especially) *v*, one may exercise potent control[4] of their product, $Y = Mv$.

There are (theoretically) a quadruple of ways to do *Mv* control:

1. *A fee (negative interest, demurrage) on money held: M* decreases slowly, *v* increases strongly and immediately, therefore *Y* increases immediately. And the government can exploit shrinking *M* by creating a corresponding extra HPM flow and thus spend more. This is a bonus in a recession/depression.
2. *A fee on transferring money between accounts: M* falls slowly, *v* falls immediately, therefore *Y* decreases immediately.
3. *Positive interest on money held:* in checking accounts, the opposite of item 1. This is today's sole tool: *M* increases slowly, *v* may decrease a little but slowly, therefore *Y* hopefully decreasing, but this is very mood-dependent.
4. *A small reward for transferring money between accounts:* the opposite of item 2, *M* grows persistently and exponentially, *v* increases strongly, *Y* "explodes".

Item 4 is obviously absurd, since agents can then increase their money holdings just by transferring money back and forth. It will be ignored in the following. I will now discuss the new possibilities given by items 1 and 2, and especially item 2.

Negative interest on money held (item 1) works, as demonstrated by the Wörgl parallel local crisis currency in 1932 (Lietaer, 2010), where money velocity turned out to be 12 – 14 times the velocity of the Austrian schilling[5]. This was also an inspiration for Irving Fisher's (futile) attempts to get a similar solution implemented in the depression-ridden U.S. But the Wörgl technical demurrage solution was cumbersome: one had to buy a stamp every month and glue it to a bill, for the bill to uphold its validity. And with coins one cannot even do that. With electronic money however, it is exceedingly simple: every day a tiny proportion of the amount in a checking account is deducted. And this proportion may be easily adjusted as the state of the economy changes.

Now to item 2: a fee on transferring money between accounts. *As far as this author knows, this is a new concept* in the context of economics, and easily implemented in an electronic

[4] Note that I at this stage abstract from *fiscal* control tools. These are important, although not for the purposes of this paper. I will return briefly to them.

[5] After one year's successful operation it was prohibited and shut down by the Austrian Central Bank.

money framework. One could object that it resembles a value added tax, but the important difference is that the fee is on *all* transfers, not only for purchases from firms (one may of course have a VAT like today, in parallel with an account transfer fee). This property, combined with all money residing as checking accounts at the CB (or ND), makes avoiding the fee impossible and removes all need of human control. The size needed for such a fee to have an impact is difficult to decide ex ante, but a conjecture is that this measure will be quite potent, comparable to demurrage on money held. One could start with a very low (and therefore economically and politically harmless) level – say 0.1% – and monitor the impact. If the impact in a trial period is too small, increase the fee a little.

4.3 Fiscal policy with electronic money

From an MMT perspective, fiscal policy is more important than monetary policy. All money as electronic HPM in accounts at the CB (or ND) will make taxation and levying of fees easier. This will be the case both for collection, control and adjustment. Tax evasion and crime will be sharply reduced as already mentioned. The need for human control will be much lower, since detailed monitoring may be done by software which alerts human operators only when suspicious patterns are detected.

Possibilities for capital flight will be sharply reduced, even if this cannot be completely eradicated (capital controls in an electronic money environment should be a topic for further research).

5. Concluding remarks

Electronic money, applied with an MMT understanding, enables a revolution in macroeconomic control. But his insight will probably not be at the center of media hype and attention as electronic money becomes more widespread . The goal of this paper is to contribute to ensuring that the most important advantages of electronic money are not lost in the process.

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Productivity, unemployment and the Rule of Eight

Alan Taylor Harvey [Demand Side Economics, USA]

Abstract
Productivity is a central issue in the economy, but its causes are very poorly understood. The term "multi-factor productivity," for example, is attached to the greatest part of productivity gains year after year, but its definition remains amorphous. In this paper, we display the clear correlation between the unemployment rate and changes in productivity in the medium and longer term. We distill this relationship to the "Rule of Eight" — Eight minus the unemployment rate equals the change in productivity. We then contend that the causation runs from unemployment to productivity and discuss why this must be so, particularly focusing on two considerations: (1) In the real world, as a factor becomes more scarce, its use is husbanded, so when labor is scarce, its use is optimized, and (2) the rising marginal cost curve (which is the idea underlying the orthodox belief in declining productivity as labor is increased) does not correctly describe the real world of most firms. Finally we look at how the inverse relationship between the unemployment rate and productivity changes affects how we think about inflation, and in particular, the use of orthodox analytical tools of NAIRU and the Phillips Curve. That is, because productivity growth is higher during periods of low unemployment , and goods and services are being produced with fewer hours of labor, the price of goods (all other things equal) should tend to fall. This should reduce inflationary pressure, rather than exacerbate it as the two conceptual tools predict.

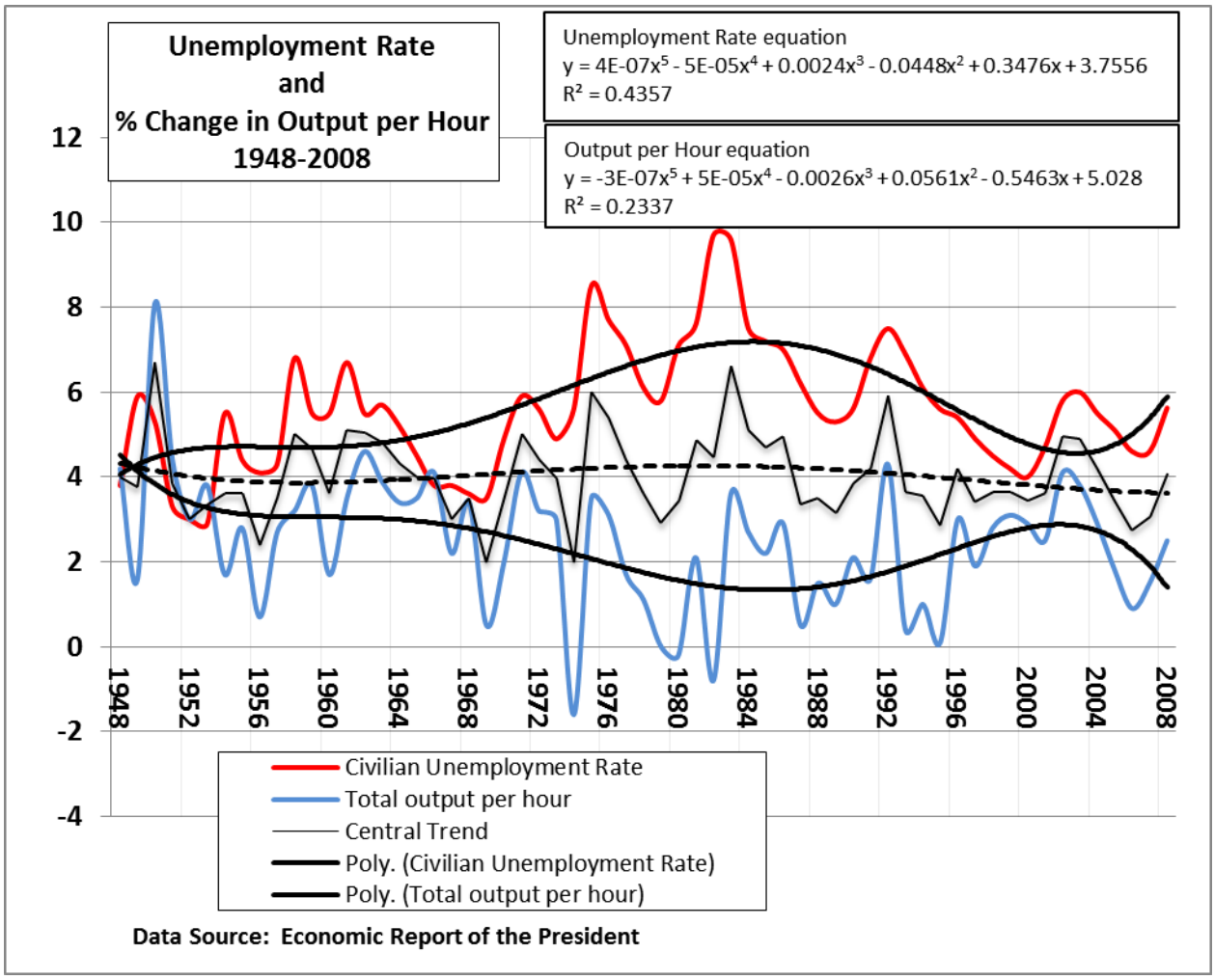
The Rule of Eight

> Eight minus the unemployment rate equals the change in productivity over the medium and long terms.

Graphing the civilian unemployment rate against the annual change in productivity, then applying the most complex polynomial function available on Excel creates the Figure 1 (below) for the period 1948-2008.

We are using here the most commonly cited data for each of these variables. For unemployment, the unemployment rate of all civilian workers, and for productivity, the changes in output per hour of all persons in the business sector, as reported in the “Economic Report of the President”. (Tables B-38 or B-42 for unemployment and Tables B-44 or B-50 for productivity, depending on the years.) We see the two functions are virtual mirror images of each other around a central trend of 4. At any point in time, the change in productivity will equal approximately eight minus the unemployment rate and *vice versa*. As productivity rises, unemployment falls. As unemployment falls, productivity rises. The correlation between the two smoothed lines is virtually complete.

Figure 1.



This relationship is likely more intuitive to real world economic actors than to academics or theorists. When labor is tight, managers manage, workers are shifted to more productive tasks, tools improve, capital is used more efficiently, processes are streamlined. Exploring the many ways this is done is beyond the scope of the present work, but this is in essence no different than the first law of economics, restated simply: When something is more scarce, less of it used.

It is important to acknowledge here that contemporaneous and short-term data often belie the medium- and long-term trend described by our polynomial functions. That is, for any particular quarter, when unemployment spikes higher, productivity may rise as well. A close look at the individual years in the graph above, for example, will show many examples where there is a short-term contradiction to the long-term relationship. Popular commentary often runs to the idea that workers work harder for fear of losing their jobs, or the least productive workers are fired; but so far as we are aware, there is no formal validation of this relationship.

We offer here two potential alternative explanations for these contemporaneous contradictions to the long-term relationship:

(1) When workers are laid off (i.e., unemployment rises), their contribution to subsequent production does not immediately leave with them. For example, an accountant may have developed procedures or methods which are used after he or she leaves the company, but the output of the company attributable to those methods does not immediately decline with his or her leaving. Thus – since the productivity statistic considers only currently employed individuals – the output per hour of a business unit may be calculated using fewer workers than are actually responsible for that output. The corollary is that, as businesses ramp up production, they hire and train workers, which may for a period of time depress the productivity statistic.

(2) Managers may not react to changes in labor availability immediately, either by reason of incompetence or oversight, or because adaptation is more complex, and changes in equipment or processes or work rules may not easily or quickly be accomplished.

In any event, the point remains that the stable correlation in the data is that suggested by the Rule of Eight, and the unemployment rate and the change in productivity are inversely proportional.

Causation

Three logical possibilities present themselves: (1) a change in productivity influences unemployment, (2) productivity and unemployment are both determined by a separate factor, or (3) productivity gains follow and are caused by drops in unemployment. We will accept by assertion the third of these alternatives, so as to focus on the most likely dynamics.

The theory is straightforward, but bears repeating: In the real world, as a factor becomes more scarce, its use is husbanded, so when labor is scarce, its use is optimized. The incentives are in place to motivate optimizing labor. But why, if it is so obvious, has this not been observed to this point? We suggest that it is because economic education, Neoclassical theory, has obscured the connection. A rising marginal cost curve is assumed, which by assumption mandates declining productivity as labor is added. That is, if costs per unit are going up, productivity per unit of the factors of production must be going down. The assumption of a rising marginal cost curve is the assumption that additional labor added results in lower output per unit of labor.

Although this is institutionalized in the "Big X" supply and demand curve taught to virtually every undergraduate, this construct of the Neoclassical theory does not generally hold in the real world. Rather, a more classical view applies: Prices are set by the cost of production and output is determined by demand. Empirically, it has been demonstrated that the marginal cost curve does not really rise as assumed in the view of decreasing marginal productivity. Surveys of actual businesses have shown, rather, a flat or falling marginal cost curve.[1]

[1] Eiteman, W.J. and G.E. Guthrie (1952), "The shape of the average cost curve," American Economic Review, 42(5) 832-8. (As cited in Keen, 2011)

NAIRU and the Phillips Curve

Finally, it is interesting to address the implications of the clear correlation described by the Rule of Eight on the Phillips Curve and NAIRU, two commonly used devices that relate unemployment and inflation. Neither of these conceptual devices produces the clarity of the Rule of Eight. The Phillips Curve produces a sequence of corkscrews when graphed. NAIRU — the Non-Accelerating Inflation Rate of Unemployment — fails to show any sturdy relationship. Both rely on the fervor of well-placed advocates rather than empirical validations.

The weakness NAIRU and the Phillips Curve have in describing and predicting the real world lies in part in the relationship to productivity we have been exploring here. That is, because lower unemployment leads to increases in productivity, it actually mitigates price rises, rather than encourages them, all other things equal. A second weakness is that both NAIRU and the Phillips Curve, in fact, have as the implicit causal factor not unemployment itself, but the incomes and related demand pressure associated with more or less full employment. That is, incomes are assumed to be bid up as unemployment falls, and it is these incomes which then lead to prices being bid up. Both also assume that demand pressure is not mitigated by expanding supply. Neither the demand (income) nor the supply (commodities) assumptions is particularly robust, and both depend on other factors.

A simple mathematical description of these relationships might be:

$$\Delta \text{ Prices (Inflation)} = \Delta \text{ Incomes} / \Delta \text{ Output} - \Delta \text{ Productivity}$$

Of course, this representation simplifies away some valid considerations. It assumes all incomes are spent on the commodities in question and all output is in the form of these commodities. In fact, when incomes rise, some will be saved; and when incomes fall, some savings will be used. But this consideration, again, acts again in a manner counter to that assumed by the Phillips Curve and NAIRU. That is, following from Keynes' work on the marginal propensity to consume, as incomes rise, proportionally less of those incomes go to purchasing commodities, since some is saved. Additionally, if output expands in response to increasing prices, as it would in the real world, the denominator here would mitigate against inflation. But the assumption that all output comes in the form of commodities is fundamentally not right, since it ignores investment goods and government services. Inflation in commodities may well rise when investment increases, or as during wartime when more government services are produced, and this may not be a bad thing. There is fruitful inquiry to be had in this direction (informed by the work of Michal Kalecki and Hyman Minsky, among others), but it is beyond the scope of this discussion.

NAIRU goes beyond bad in this arena, because it assumes that drops in unemployment do not only lead to price increases, but that there is a point where inflation actually accelerates. That is, NAIRU predicts an impulse in the opposite direction (with the image "wage-price spiral") that it ascribes directly to employment pressure. The Phillips Curve merely indicates we will observe a direct relationship between unemployment and inflation. Again, neither of these theories is empirically robust, yet both are favorites of orthodox policymakers.

A speculative example for the use of the Rule of Eight

Our current economic times are characterized by no significant investment by households, businesses, or government and no strength in incomes.

If workers decided to limit hours of availability unilaterally, and thus shrink the number of unemployed, as some have suggested (notably Dean Baker's work sharing concept), the unemployment rate would drop and the Rule of Eight would indicate we would expect productivity increases. Both NAIRU and the Phillips Curve would suggest higher inflation, but no additional incomes would (necessarily) be produced and thus we suggest there would be no impact on inflation.

Conclusion

There is a direct, clear correlation between unemployment and changes in productivity in the medium and long terms. There is theoretical consistency and empirical ratification of this relationship. Implications of this relationship illuminate the manifest weaknesses in orthodox assumptions and in analytical concepts such as the Phillips Curve and NAIRU.

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What I would like economics majors to know

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Introduction

I have been teaching microeconomics for more than four decades, and over the past months I have been seriously thinking about this question: "What are some of the most important things I would like economics majors to know before they graduate?" At first I was leaning to such important and well-known ideas as opportunity cost, marginal analysis, moral hazard, externalities, and the prisoners' dilemma game. Now I am leaning to important ideas that are not well-covered in economic textbooks, and indeed are often omitted entirely. Five of the ideas that I would recommend are:

1. people are not solitary creatures but social animals;
2. tastes are malleable and particularly so among children and adolescents;
3. there are lots of children and adolescents in the world (though few in economic textbooks);
4. retail purchasers rarely have detailed information about the products they buy:
5. large corporations (and other economic institutions) often have a substantial social and political power.

I am not claiming that economists do not occasionally write about these ideas, for economists write about virtually everything, but that these important ideas have not sufficiently made it into most economic textbooks. I will first discuss these ideas generally, and then with respect to an important market—the market for cigarettes.

Unlike most other social sciences, economics has a single basic model that is taught to all budding economists. Like all models, the microeconomic model abstracts from reality. The model has proven to be very powerful and useful, providing important insights and policy guidance, and raising economics to the "queen of the social sciences"—the only social science with a "Nobel Prize". The assumptions of the model are its strengths—and also its limitations

Two of the basic assumptions of microeconomics are that (a) people are rational, and (b) tastes or preferences are exogenous—they are well-defined and stable, essentially God-given at birth. The advent of behavioral economics has been a breadth of fresh air for microeconomics and much of the focus has been on the rationality assumption, particularly the rationality of individuals (rather than of institutions). However, aside from a growing literature on the desire for social position, there has been less emphasis on the fact that people are social animals and the effect that society and culture have on how tastes are formed and how tastes change.

In the economic model, people are largely solitary creatures, with fixed tastes. We are basically Robinson Crusoe's, each living on our own little island. Our major interaction with

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other humans is when we trade (including trading labor for goods). In other words, we are connected to each other primarily through markets. Economic theory in effect has, with mere punctuation changes, converted John Donne's famous saying into "No! Man Is an Island."

However, in the real world, humans are not like bears. Bears are solitary animals. An adult male spends almost all of his life away from other bears, living and dying by himself. By contrast, wolves, dolphins, and primates like ourselves, are social animals. We live in societies, and we are dependent on others of our species for most of our health and happiness. Humans "are social not just in the trivial sense that we like company, and not just in the obvious sense that we each depend on others. We are social in a more elemental way: simply to exist as a normal human being requires interaction with other people." (Gawande 2009).

It is now commonly accepted that human children require nurturing from others, not just for food and protection but also for the normal functioning of their brains. Caregivers teach children how to be human. Child neglect typically has worse long term consequences than child abuse. Even for adults, one of the most severe forms of punishment is solitary confinement, where one is denied contact with other humans. Indeed, it could be considered psychological torture.

As biologists, sociologists and psychologists know, people do extremely little individually or independently. Human nature is about grouping, flocking and herding. We are natural imitators of each other, literally "monkey see monkey do." Indeed that is how children learn.

Raising children involves not only helping them learn the natural laws of the planet they live on (e.g., how long a day is; that clouds can bring rain) but also the customs or rules of the specific society in which they live. Children must largely adapt to these customs if they are to survive and thrive. What to wear, what to eat, what to say, how to play. Each child is somewhat different, but they almost all go through similar stages at various ages, and quickly learn and mimic most of the conventions of their society.

Thus tastes are very predictable. For a boy growing up in Chicago in the 1950s, one could predict pretty accurately that his favorite sport might be baseball, football or basketball, and that his favorite sports team would be a Chicago team. By contrast, at the same time, soccer would probably be the favorite sport of a boy growing up in Caracas, Venezuela.

Parents are key influences on the tastes children will have as adults. For example, we know that a major risk factor for adult smoking is whether your parents smoke, and that the best single predictor of adult gun ownership is if you grew up in a home with a gun. We also know that children and adolescents brains are still in the process of developing and that they are more likely than adults not only to make poor long run decisions but to have malleable tastes.

Tastes are affected not only by parents, but also by peers. Adolescence is probably the most peer-driven of ages. Teens tend to move, play, and even commit crimes in packs. The importance of peer approval on the behavior of adolescents cannot be overstated. How else to explain that so many US teens are currently getting tattoos?

The desire for many products depends on the purchases of others. Teens "need" cell phones because their friends have cell phones, and they will be an outsider without one. Kids want baseball gloves if their friends have gloves and are playing baseball. A generation of children

wanted to read Harry Potter and go to the Harry Potter movies in large part so that they could be part of the group and talk about the stories.

Adults often want what other adults have for many similar reasons. If everyone else is watching the Superbowl, it is fun to watch it with others; you are an outsider if you missed it and everyone else is talking about it. Even adults are tied together in networks of individuals. We now know that even obesity can spread through social networks, just as fads and fashions spread. What you give as gifts and when you desire to retire is dependent in large part on what others are giving and when others are retiring.

The fourth, and perhaps the most controversial idea, is that most consumers have little real knowledge about what they are buying, instead relying (sometimes correctly) on the good faith of the seller, government protection, or perhaps the invisible hand of a perfect market. My belief in the lack of knowledge of retail purchasers was formed by my experiences working for consumer advocate Ralph Nader in the 1960s, writing my doctoral dissertation on standards and product specifications (Hemenway 1975), and my work in public health. With Nader, we used to document how buyers were mislead and/or incapable of knowing what they were buying—e.g., how a sizable amount of distilled water sold in supermarkets was actually tap water, how college educated consumers could not determine the low cost item among identical products, and how buyers had no idea how many rodent hairs were being sold in hot dogs.

Specifications, and standard specifications, I discovered were used almost exclusively by large buyers (e.g., corporations) who were buying in bulk and had the ability and financial incentive to know exactly what they were buying. By contrast, since learning about the quality of a product is largely a fixed cost that can be spread over the amount of the product that is being purchased, retail consumers are largely rationally ignorant. If you or I need paint, we simply go to the store. If General Motors wants paint, it writes or uses detailed purchase specifications.

Working in the health arena has also made me skeptical of the knowledge of consumers. For example, the public spends tens of billions of dollars each year on quack remedies. I am in the public health field, yet I personally know extremely little about the health and safety aspects of what I buy, and what little I know often comes from government reporting requirements. Test yourself. How flammable are the clothes you are wearing? How carcinogenic are the items in your bathroom? When you buy beef or poultry, do you know what the steers and chickens were fed?

The fifth idea, that corporations have social and political power, is well known, though rarely studied by economists. It is, after all, more in the domain of sociologists and political scientists. It is nonetheless important for economists to remember that policies affecting corporations typically affect not only their economic but also social and political activities. Politically, for example, corporations have the power to influence who gets elected, what laws are passed, what regulations are set, and how they are implemented and enforced. Indeed, unlike unions, churches, unincorporated businesses or even local governments, U.S. corporations have been given human rights, including the right to free speech, and presumably the right to privacy.

The cigarette story

A few years ago I read a fascinating history of the cigarette industry in the 20th century (Brandt 2007), written from a public health perspective. Because litigation against the industry forced it to reveal internal documents, there is probably more and better information about the behavior of cigarette companies than any other industry in the United States. The cigarette story can be used to illustrate these five ideas.

From a public health standpoint, tobacco-related diseases are the largest preventable burden of mortality in the United States, and will soon hold that unenviable position for the entire world. Were they a new product, it is doubtful that cigarettes would be allowed on the U.S. market. They not only cause a multitude of diseases to the smoker (over 400,000 deaths per year in the United States), but secondhand smoke significantly increases the risk of disease to others.

At the turn of the 20th century, cigarette smoking was widely considered a dirty habit, practiced by disreputable men and boys. Smoking was seen as a profound moral failing, and Henry Ford among others, vowed never to hire a cigarette smoker. A number of states even prohibited the sale of this noxious weed. All that would change in the next fifty years; by the mid-1950s half of American adults smoked cigarettes, and smoking was an integral part of the American lifestyle.

People are social animals with malleable tastes

The social aspects of smoking were crucial to its popularity in 20th century America. The first cigarette was rarely a pleasant experience, but smokers soon grow accustomed. Still, when asked, smokers overwhelmingly cited sociability as the essential attraction of a cigarette. Only a tiny percentage cited taste as one of a cigarette's pleasures.

While almost everyone smoked their own particular brand, in repeated experiments, although blindfolded smokers believed they were able to identify their regular brand, they typically failed. Still, brand loyalty was fierce for this largely undifferentiated product, whose identity was fashioned not through intrinsic qualities but by cultural meaning.

Cigarettes were promoted, not only through enormous amounts of advertising, but through many other means including parades, planted magazine articles and product placement. Cigarette advertisers, armed with evidence from psychology, were sure that the public didn't really know what it wanted. It had to be given ideas about what it should like. Individuals, they believed were in a constant struggle to conform and yet be different. The industry could thrive, they believed, if it did not focus on selling the product, but on selling a way of life, with cigarettes a mechanism of self-identity.

In the 20th century, the large majority of smokers began as adolescents, and cigarettes played an important role in the rituals of adolescent identity. To smoke had meaning—for example to refrain from smoking could be considered the same as joining the sissy group of boys. Many girls in the early 20th century began smoking to break with Victorian conventions about females, to show that they were modern and up-to-date.

For women, smoking became associated with physical beauty, sexual attractiveness, social and political equality. For men, it provided connotations of virility and strength. Movies were filled with the cigarette smoke of the leading stars.

The importance of promotion was highlighted when the Marlboro brand was successfully transformed from a luxury cigarette for women into a macho smoke for men, solely through mass marketing. Marlboro ads had little copy and instead conveyed the message almost exclusively through image.

Unfortunately for the cigarette companies, by the end of the 20th century in America, the image of smoking had changed dramatically. Anti-cigarette ads, shown on TV because of the fairness doctrine, smartly focused not only on the health aspects but the social aspects of smoking (e.g., "nobody wants to kiss an ashtray") and significantly reduced the level of smoking. In the late 20th century an RJR memo would correctly report that "the general public and its leaders are of the opinion that smoking is messy, indulgent, down-scale, non-family oriented, non-fashionable habit—one that is increasingly a smaller part of contemporary lifestyles". The companies saw that they were losing the cultural battle.

Smokers reported a declining pleasure from smoking. What was fragrant had become foul, what was attractive had become repulsive. Social conventions moved to stigmatize smokers as irrational, dirty and self-destructive. Yet while the cigarette was losing its connotation of glamour, sophistication and sexual allure in the United States, the industry was able to construe meanings of social status, cosmopolitanism and affluence in developing nations, turning Western cigarettes into status symbols among teenagers. Worldwide, each DAY, some 80,000-100,000 individuals become new smokers (mostly children and young people).

Youth and children

Adolescents play a crucial role in this industry. In the United States, over 80% of smokers begin regular use before the age of 18. The first brand one smokes is likely to be the one that is kept for life, and the younger one starts smoking, the less likely one is able to quit smoking. By the 1970s, with smokers dying off or quitting, the companies clearly understood the need for "replacement smokers"—that their future rested on the illegal buying decision of teenagers. Not surprisingly, cigarette companies promoted their cigarettes to youth and children. A 1991 study found that for children aged 3-6, the recognition rate of a tobacco company cartoon character "Joe Camel" approached that of Mickey Mouse. Internal company documents made it clear to whom the appeal of Joe Camel was focused.

Consumer misinformation

Cigarettes have been called a delivery system for nicotine. Nicotine is addictive, in the same way that heroin or cocaine is, leading to dependence, tolerance and withdrawal when ingestion is halted. In a typical year, more than 2/3 of American smokers express a desire to quit, but fewer than 10% who try are able to quit. To keep people smoking, the companies sometimes added nicotine. For example, they knew that "light" cigarettes required increased nicotine to help sustain the addiction.

As is true for many goods, retail consumers had little detailed information about the product they were consuming. For example, cigarette companies not only secretly varied the levels of nicotine in their cigarettes, but often included additives--at least 13 of which were substances

banned in food products. At mid-century, most consumers and even some researchers believed that smoking could not be very harmful, relying largely on the fact that so many people smoked. Surely everyone would know if it were deadly.

After research linked smoking to cancer and other diseases, the companies introduced filter cigarettes, with the clear implication that these would reduce the risk of disease (e.g., Kent's micronite filter, "just what the doctor ordered"), which they did not do. Most filter cigarette smokers believed the claims. Similarly, the introduction of low tar and light cigarettes did not reduce the risk of smoking, but as the companies understood, many smokers were convinced, switched to low tar and light cigarette brands, and kept smoking.

When the science began overwhelmingly to show that cigarettes caused many diseases, the industry undertook the PR strategy to produce and sustain scientific skepticism and controversy. Although there was virtual consensus even among industry researchers—who were not permitted to publish their findings—for decades the companies were able to create the impression of strong controversy and scientific debate about the relationship between cigarette smoking and disease. The press, responding to industry urgings for fairness and balance, dealt with the issue as it would a political debate and willingly provided "both sides" of the science.

As a judge concluded in 2006 in a suit against the industry, "over the course of 50 years, defendants lied, misrepresented, and deceived the American public--including smokers and the young people they avidly sought as replacement smokers--about the devastating health effect of smoking and environmental tobacco smoke." Recognizing the role they inadvertently played in fanning the so-called controversy, many universities have banned the acceptance of tobacco money, historically used to gain status and legitimacy while influencing the scientific process.

Corporate power

Crucial to the rise of cigarettes in 20th century America was its promotion and use among soldiers during wartime (e.g., World Wars I, II, and Korea). The industry often provided the cigarettes, which were included as part of supply rations.

The tobacco lobby for decades was considered the most powerful lobby in Washington D.C. It was able to avoid the regulation of its product by the Federal Trade Commission (FTC), by the Consumer Product Safety Commission, and even by the Food and Drug Administration (FDA). In the 1980s, for example, the FDA approved Nicorette chewing tobacco which was intended to help smokers quit. The FDA was in the strange position of regulating products to help individuals quit smoking, but having no jurisdiction over the cigarette itself.

The tobacco industry had more political power at the federal and state than at the local level. They thus wanted and were able to have most states pass "preemption laws" which forbade local authorities from passing more restrictive tobacco legislation than passed by the state.

Even when the industry appeared to lose legislative battles, it typically was able to promote its own interests. For example, a year after the 1964 Surgeon General's report concluding that smoking was hazardous to health, the Federal Cigarette Labeling and Advertising Act mandated warning labels on cigarette packages. But the law, in effect, rebuked the FTC for considering cigarette regulation. The label themselves deterred few smokers but provided

cover for the companies to defeat lawsuits brought against it. The *New York Times* called the warning label requirements "a shocking piece of special interest legislation."

Similarly, in 1969, the industry acceded to the Federal Communication Commission and agreed to a ban on TV advertisements for cigarettes. But the ban meant that the effective anti-tobacco ads, which had been required by the FCC fairness doctrine, also disappeared. It also made it harder for new firms to enter the industry.

After industry duplicity was disclosed through internal documents, it appeared that the industry would be sued successfully by the Attorneys-General in each state for contributing to state medical costs. But the "Master Settlement" effectively imposed only a long term excise tax on the industry which made the state coffers dependent on the firms' survival. This meant the states were against lawsuits that might threaten the financial viability of the industry and the Attorneys-General sought to protect the companies' cash flow from other litigants.

In more recent years, the industry has sought and received support from the U.S. government to help open markets, especially in developing nations. U.S. tobacco companies have successfully made major inroads, particularly in those nations where health regulations have yet to be firmly established. Public health observers compare U.S. international tobacco policy with the opium wars of the 19th century. While we are pleading with foreign governments to stop the export of their cocaine, we are pushing for the export of our tobacco. Former Surgeon General Koop asserted "I think the most shameful thing this country did was to export disease, disability and death by selling our cigarettes to the world." It is now estimated that the 21st century worldwide death toll from tobacco will be 1 billion people.

Allan Brandt, who wrote the history, calls cigarettes a "rogue industry." Economists, I believe, would largely see the companies in this industry as simply acting to maximize their profits, as companies tend to do in all industries. For example, I would suspect that if all the internal documents were available for the soft drink industry, we would see many of the same sort of activities. The companies successfully sell flavored sugar water to youth, in large part by promoting lifestyle choices, and for many years managed to promote and sell their product in public schools. It is not an industry focused on improving the public's health.

Conclusion

I am sure that other economists will have very different opinions, but I would like economic majors to know that markets often work well, and sometimes have major problems. I would like them to realize that the simple model they have learned leaves out, or de-emphasizes, important aspects of the world. Five ideas that I personally would like them to recognize is that, at least at the level of economic texts, there is an under-emphasis on that fact that (a) people are social animals; (b) their tastes are malleable and particularly so for children and adolescents, (c) there are lots of children and adolescents in the world (d) consumers are rarely knowledgeable about the products they buy, and (e) large corporations (and other institutions) often have a great deal of social and political power

If they understand these ideas, along with all the others they have learned as economic majors, I believe they will be better economists and better citizens.

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