Session 1. Money and Banking in the Digital Age: Facts, Trends and Problems
Comments by Paul Grignon

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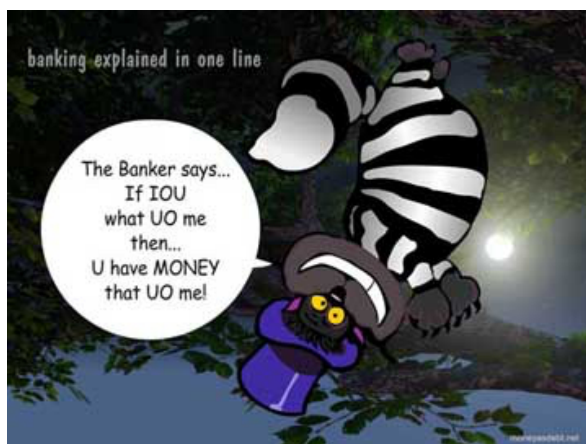
1. Samuel Orrefur

It's only the introduction but I must make one objection. Samuel used the phrase "Banks create money out of thin air". I always call people on using this phrase as it leads *away* from a proper understanding. A bank creates bank credit "money" as a liability against itself balanced by an asset. In the case of loans it is actually the *borrower* that creates money by promising to pay it back and extinguish it. With his/her signature, the typical borrower creates the new "money" as a demand upon themselves to produce value now and into the future (up to 30 years) that others will be willing to pay for. The lifeblood of mortgage borrowers is *not* "thin air". That's why the title of my movie trilogy is *Money as Debt*. There is no money. There is only our collective principal debt to banks - in circulation as money.

A bank monetizes borrower debt (worthless to the general public but accepted by the bank) into bank credit "money" by making itself liable for extinguishing the borrowed principal from its own earnings if the borrower fails to do so. Most "money" in our system is created out of the expectation of productivity by the borrowers and requires that borrowers have the economic opportunity to deliver that productivity to avoid default. To make it into a similarly short phrase: "Banks create money from our ability to pay it back" or as I put it in *Money as Debt* (2006) "Banks can create as much money as we can borrow".



from Money as Debt III

In the case of a bank buying a stock or real estate by creating new liabilities against itself, the asset is what was bought. Thus the value of the new money is created by the market value of the asset purchased. The liabilities the bank spends to buy the asset will come back to the bank as a claim on the bank's central bank reserves (real money to banks). To avoid paying in reserves, the bank needs the equivalent liabilities it spent to return to it as deposits (deferred liabilities). Those deposits could have been used to offset liabilities created as interest bearing loans. Thus there was an opportunity cost to buying the asset.

At no point in either of these cases (the vast majority of money) is "thin air" involved.

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2. Michael Kumhoff

At my bank, and I do believe at ANY bank, I can buy shares in a money market mutual fund. No new money is created when I do this. My account is debited and the fund's account credited. The fund then lends this existing money to a (generally very short term) borrower at interest. This is the lending of “loanable funds” with the bank as an intermediary. It isn't, as Michael paints it, an issue of one OR the other. Banks do BOTH. Private non-bank lenders, which include bank savers, cannot be ignored when examining the money system and yet economists and bankers universally do just that.

Banks create money as one principal debt and then it is either saved and replaced with a new loan or lent as existing money by a non-bank, institutional or individual. This can happen over and over to the same mortgage euro during the passage of 30 years creating uncountable *multiple concurrent principal debts* of the *same money*. Thus all principal debt is impossible in the aggregate without perpetual growth of the “money supply” i.e. principal debt to banks. New money creation must always match or exceed the current rate of money extinguishment or defaults will be *mathematically inevitable*. Mathematically inevitable default will occur any time new money creation slows down for *any* reason.

Michael mentions 3 recent publications by central banks that make it very clear that money is created as principal debt to banks. The first of these was *Money Creation in the Modern Economy* (2014) by the Bank of England which was published 8 years after I informed the world (in at least 26 languages) of this fundamental truth in *Money as Debt* (2006).

I challenged the authors of that report about what they omitted from their otherwise accurate description of the banking system – namely bank savings and the lending of existing money by non-banks, both of which create multiple concurrent principal debts of the same money. My challenge boiled down to three very simple arithmetic questions the bankers refused to answer. Read my report and the challenge itself at this link.

Digging Deeper into Debt-Money
The Bank of England’s confessional isn’t the whole story
http://paulgrignon.netfirms.com/MoneyasDebt/MAD2016/DiggingDeeper_Grignon2017.pdf

“… just consider what might happen if mortgage holders realized the money the bank lent them is part of an invisible trap, a game of musical chairs designed by the bankers in which losers are mathematically predetermined to default whenever the creation of new debt to banks slows down, for any reason. The only way to keep the music playing is for all of us as a whole to go further and further into debt to banks forever.”

I explain the basics in *Economists and a Pile of Nuts* a cartoon just over 2 minutes long.
https://www.youtube.com/watch?v=KcOtu28O8IQ

The animated calculus explanation takes longer.
http://paulgrignon.netfirms.com/MoneyasDebt/MAD2016/ThirstySwans.htm

This movie resulted from an email debate with a very senior central banker at the IMF and the Fed whose simple mental image of the money system as a garden fountain inspired me to think it through as a flow model. Evidence is provided by the Fed’s own statistics.

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3. Steve Keen

One would hope that such convincing proof as presented by Professor Keen, as well as the central bank admission of fact would have already been taken as gospel in economics education. But, given that both Steve Keen and Michael Kumhoff feel it is necessary to make these presentations, that must not be the case.

Steve Keen comments that the public understands money better than the “experts”. To illustrate the truth of that statement, with regards to some people, certainly not all, I would like to tell the story of how I, a member of “the public” and creator of the *Money as Debt Trilogy* of movies, initially came to understand that borrowers create money by promising to pay it back to a bank; and how I came to the subsequent revelation that has been my mission to communicate ever since.

My Awakening
It was 1993. I was the founding president of a conservancy determined to preserve the central forest and watershed of our island from being clearcut and developed into residential properties. In the process of seeking an economically viable alternative, I was given a free lesson in development economics from Mike, the logger-developer who eventually bought it. Mike told me that he never spent his profits to finance a new logging and development venture. He always went to the bank with his business plan and had the bank create brand new funds simply by his promising to pay it all back with interest. That was revelation #1.

He went on to explain that the mathematical imperative behind clearcutting the forest and rapid development and sales is the need to pay back the principal and extinguish it as quickly as possible because every dollar paid in interest is a dollar of profit lost. That was revelation #2: the “interest clock”, as Mike called it, necessitates environmental rape and rapid development rather than careful, slow and thoughtful development.

At the time I was sitting with him in front of his computer looking at the many millions of dollars of mortgages he owned. He explained that he put almost all of his profits into buying mortgages.

I asked him “Is all money just created by promising to pay it back to a bank?”
He answered “ As far as I know, yes.”

I looked at the computer screen again. Suddenly it occurred to me that all of the unknown people who borrowed Mike’s profit money into existence will only have that money available to them to earn and pay back after other people, namely those listed on Mike’s computer screen, have borrowed it from Mike and spent it into the economy. That was revelation #3.

By simple logic, once one knows how money is really created, it follows that, when the original creator/borrowers pay back their loans to their banks, that bank credit money ceases to exist. However, any additional principal debts of that money, like the debts to Mike, continue to exist.

There is no “other” money to make up the shortfall. All money is committed to the principal debt that created it. Therefore, the logical conclusion has to be that this second concurrent debt of the same money constitutes an actual shortage of principal that will *carry forward forever unless eliminated by default.*

Mortgages can last up to 30 years, and viewing the amortization curve for a 30-year mortgage, it is typical that half of the principal is still in existence after 19 years. During the amortization period of the original bank money creation loan, how many times could non-bank lenders, both institutional and individual, acquire and re-lend money that is by definition someone else’s “current principal debt to a bank”? No one knows. It is estimated that non-bank lending of existing money is bigger than bank money creation.

Ignorance serves Class War
From Professor Keen’s presentation we learn that mainstream economists are stuck back at the completely inaccurate loanable funds model and that government debt is their paramount consideration. This ignorance serves to conceal the truth about money creation from the public and put the blame for whatever is hurting on government spending; thus the rationale for “austerity”.

This misconception, foisted on us by the so-called “experts”, is perhaps the most important stealth weapon in the class war we like to pretend doesn’t exist. But large portions of the public worldwide now see through this game and the central bankers at the mother bank have decided to admit the truth and admonish the economics profession for false teachings.

Both Keen and Kumhoff, self-declared “renegades”, are focussed on proving the loanable funds model wrong which is a most worthy crusade and has to be the first step in grasping the reality of our money system. However, I have been on a crusade of my own against the false simplicity of seeing the money system as a case of *either* loanable funds *or* money creation by banks. The real situation is that *debt-created money becomes loanable funds.*

The whole money system includes a lot of non-bank lenders who re-lend bank credit money they *own* debt-free. Most are just ordinary folks but some of them are “Mikes” - not just doubling principal debt on every dollar they lend but also adding interest to lending capital in logarithmic fashion, creating massive amounts of impossible principal debt for others (and thus system instability) in the process of enriching themselves.

Anyone can be a Non-Bank Lender
Anyone can use existing money (someone else’s principal debt to a bank) to purchase shares in money market mutual funds that then lend out the existing money they received from investors. The inescapable conclusion is that the re-lending of existing bank credit, be it through a bank, a mutual fund, or person-to-person, must always create multiple concurrent principal debts of the same “money”.

Bank Savers are also non-bank Lenders
And now to take this further, I will illustrate why, despite the fact that banks always create new money for their borrowers, there is no difference between the money creation model and the loanable funds model when it comes to the matter of bank savings and system stability.

To start with, let me define savings from the borrowers' point of view. Savings are "someone else's current principal debt to a bank that is not available to be earned and extinguished".

Savings are *deferred liabilities* of the bank at which they are deposited. In a fixed term deposit, the term of deferment is defined. In more flexible savings offerings, the full term of deferment is incentivized by a higher interest rate. Early withdrawal is a calculated risk of the bank. The point to grasp is that, once money has been saved at a bank, the bank's liabilities are deferred but the original borrower's liabilities are *not.* The principal debt that created that money is not deferred. Principal and interest payments must be made on time. Deferred liabilities of a bank are not "money" to anyone. Only current liabilities of a bank are "money". Therefore savings always represent someone else's impossible principal debt for as long as the bank's liabilities remain deferred.

As the bank creates new loans, it "replaces" those savings creating a total principal debt that is double the amount of "current liabilities" that are possibly available to be earned to repay it. From the borrowers' and system stability point of view this is mathematically identical to the savers' funds being lent directly person-to-person: there are 2 concurrent principal debts of the same money either way you look at it.

Perpetual Debt
The unavoidable result is that we can borrow from Paul to pay Peter and we can borrow from Peter to pay Paul but we can never get out of debt without default - and if either lender lends less than the original amount, for any reason, the resulting default is as mathematically inevitable as someone losing out in musical chairs. In the real world, it is more often the borrowers failing to borrow at least the original amount on time that stops the music.

So long as there are savings there will be a need to pass the resulting principal shortage onto the next borrower. The greater the ratio of savings to checking, the greater the shortage of principal, and the greater the need for more monetary/debt expansion by borrowers on time to meet current repayment schedules.

Federal Reserve Statistics tell the Tale
In the USA, M2 - total savings plus checking (i.e. total current principal debt to banks) is normally 4 times M1 (total money in checking accounts). During the very prosperous part of the 90s the ratio fell to 3:1. After a steady divergence due to increased corporate savings and income inequality, the M2/M1 ratio hit an unprecedented 5.26:1 at the start of the Crash of 2008.

This means that for every dollar of "current liability of a bank" (i.e. money) there was $5.26 in principal debt to banks on a fixed schedule to be extinguished. And that was just within the reported banking system. How many debts of this same bank credit were outside the reporting system? If we go by the estimate of non-bank lending (excluding bank savers) being at least as big as bank credit creation, then there would be at least another 5 or 6 principal debts of the same money to add on. I'll estimate the total at 11 concurrent principal debts of the same money.

This is a fundamental reason for the magnitude of the Crash of 2008.
The "impossible principal debt" was too large to service with velocity - and bank credit creation failed to keep up with bank credit destruction.

Economics and Ecocide
This was (and remains) a highly fragile situation. A $1 shortfall of new money on time has the potential to result in a much larger multiple of defaults. At all times, the potential for a disastrous economic crisis drives the desperate need for ever more bank credit to avoid mathematically inevitable default on a massive scale. In turn, this requires constant growth of the real economy with its resultant stress on the environment.

This expansion-dependent money system cannot be allowed to continue if humankind hopes to reduce our environmental demands upon the Earth and stop the Sixth Great Extinction currently underway.

Misunderstanding the money system has deadly consequences for All Life on Earth.

4 Ulf Dahlsten

About halfway through this presentation by a very affable man truly concerned about the future, he admits that, in his view, “we still don’t know what creates these financial crises”. He also admitted to being mystified by how everyone except economists now seems to “know” about money creation. He seems like a man who aspires to have an open mind so I hope he and others will read the following with one.

I published my initial 47-minute *Money as Debt* animation in July of 2006 explaining how money is created by the borrower, that “banks can create as much money as we can borrow” and explaining why a mathematically inevitable default crisis would result whenever new money creation slowed down, for any reason. I made the movie with the encouragement and reference help of two elderly sovereign money reformers, both now deceased, one a retired Canadian high school teacher, the other a senior member of the American Monetary Institute. Both had seen the initial private-use 2002 version I made for United Financial Consumers, a Canadian borrowers’ advocacy group.

For the most recent explanation of my analysis see my comments on Steve Keen’s Debt Trap video.
https://conference2019.positivapengar.se/steve-keen/

I received emails from people who watched *Money as Debt* at the London School of Economics and the Koffi Annan School of Economics. A young banker from the City of London told me every banker he knew had watched my animated cartoon. I was also thanked by bankers for explaining their business to them. University professors thanked me as well. I have more glowing reviews than I deemed necessary to post on my Reviews Page.

Sample comment: “I have only had the opportunity to view the original *Money as Debt* video, but it is hands down the single most important and eye opening educational video of our time.”
http://paulgrignon.netfirms.com/MoneyasDebt/reviews.htm

Money as Debt is online in at least 26 languages, 4 of them full versions that I did, the rest were sub-titled and/or dubbed by anonymous volunteers. My wife mailed DVDs to buyers in over 50 countries.

My idea to explain money creation as an animation, with cartoon characters and animated diagrams, made the information accessible to millions world-wide who watched the movies on Google Video and Youtube. From November of 2007 to March 2008, if you searched the term “money” on the internet, *Money as Debt* was usually the #1 Google video in the world. It regularly stole the Pink Floyd music video’s perennial top spot until, on the first day of the first international financial emergency conference, Google took it down in all languages falsely claiming I had told them to do so. It did not take long for many more online postings of *Money as Debt* to be back online, along with many more volunteer translations.

A variety of groups were eager to learn about money creation. It was shown by the original Tea Party, the Occupy Movement worldwide, the Indignados in Spain and similar anti-austerity groups elsewhere in Europe. And, most recently, I was asked for permission from someone in the Yellow Vest Movement to use my French versions to educate the public there. That is why so many ordinary people know more about money creation than most economists.

In *Money as Debt 2* (2009) I predicted the emergence of “digital coins” - cryptocurrency, well before Bitcoin was launched. As a result, I received a phone call 2 years later offering me first opportunity to explain blockchain and promote Bitcoin to the world. Bitcoin was at 1/3 of a cent US and the promoter predicted it would go to $10,000 US. My reaction was that such a thing should never be money, so I declined the offer. It would have been possible to create a stable Bitcoin by definition, but since the universal motivation on the nascent Bitcoin forums was about getting something for nothing, stability was not on the agenda.

The invitation to promote Bitcoin occurred while I was just wrapping up *Money as Debt III*, my 2 1/2 hour animated proposal (in great detail) for a radical yet non-disruptive solution that even the mega-corps Ulf mentions would like. In *MAD 3*, I put the entire blame for our money crises on our limited concept of money as “a single quantity of anything made valuable by its own scarcity”. That applies equally whether money is cowrie shells, gold or silver coins, fiat cash, bank credit or Bitcoin and its thousands of conceptual imitators. Most crypto currencies are cutting edge technology applied to repeating the fundamental money mistake that plagues the current system.

The current system, as Ulf notes, serves the interest of speculators - gamblers not producers.
It is a house of cards by design.

The remedy is to put the producers, both large and small, in control of their own credit, making the source of this new money promises of current short-term production redeemable *only* in the products or services the Issuer of the credit offers for sale.

In shorthand, it is “crowdfunding” production by having the producers borrow directly from the customers with such credit creation strictly limited to proven demand for the promised goods and/or services. This second form of money is actually ancient, preceded the invention of coins and has always been with us in one form or another. Customer reward points like Air Miles and Canadian Tire money are Producer Credits.

This alternate concept of money, implemented with modern technology, could enable anyone from an individual with a market garden to a global corporation like Toyota to spend these Producer Credits rather than borrow money from a bank. Banks would be wise to add Producer Credits to their system for self-preservation purposes as this parallel form of money (an actual “note” - a promise of something in the real world) offers them the mathematical solution to the fundamental flaw in the current system.

Also, the job of due diligence in researching and verifying any Producer’s credit creation worthiness would be a social role worthy of compensation. According to a report prepared for the City of London some years ago, about 20% of world trade in real goods is already done business-to-business in “common tender” money systems with credits payable only in the goods and services of the credit issuer. In the report linked to below, the current practitioners themselves are proposing banking involvement and government regulation to make the system more effective.

https://paulgrignon.netfirms.com/MoneyasDebt/BC_RS_CapacityTradeandCreditSummaryFindings_web.pdf

I propose to go further and make these disparate systems compatible and linked to the current bank credit system so that savings always take the form of pre-bought goods and services (which can also be spent or traded as “money”). Initial implementation could be as simple as selling Producer Credits as savings at retail outlets. This is just buying what you were going to buy anyway but maybe 6 months to a year in advance. For extending this existing bank credit to the Producer, on redemption the buyer gets a time-proportionate discount on prices as “interest” equal to or better than the banks are paying. The bank credit is, thereby, always in the process of being spent and made available to the borrowers that need it, rather than unavailable or lent a second time.

The debt to savers is demonetized. It is removed from the money accounting. This solves the fundamental mathematical problem with the current system which also stays in place because, with this addition, the two systems are not just mathematically stable, they are entirely compatible and synergistic.

It is an expansion of the concept of money, something that is inevitably happening anyway. Some software startups I have read about have financed their development by pre-selling their services as “digital coins” the way I imagined. Across the street from my home stands a beautiful artisan bakery that was built in part by trading “bread credits” issued by the individual baker/builder for Canadian cash and bank credit. Synchronistically, I had already made this 7 1/2 minute cartoon illustrating how Producer Credits were used in medieval times using a trustworthy baker and in-demand bread credits as the stars of the show.

http://paulgrignon.netfirms.com/MoneyasDebt/MAD2016/essence.htm

Naturally, any tax-collecting government has “assured demand” and the right therefore to issue Tax Credits in the Producer Credit system. Thus I support “sovereign money” but not as a national fiat monopoly. Government is a service provider. Producer Credits are defined in value by what the Producer offers in real goods and/or services to get them back. It makes no difference at all how much “money” exists relative to GDP. It’s a different money paradigm altogether.

There’s much, much more at moneyasdebt.net

5. Panel discussion

Michael Kumhoff presents his opinion that the study of money creation by economists is still in its infancy. Worse still, as noted by both Ulf and Steve, the understanding of money creation by economists seems to lag far behind that of the public. There's a good reason that is the case as I explain in my comments on Ulf's presentation. https://conference2019.positivapengar.se/ulf-dahlsten/

I was initiated into an un-ambivalent understanding of money creation in 1993. My mentor was a logger/developer. This was confirmed by my good friend and close ally in local politics, a "renegade" senior economist retired from the World Bank.

In 2002, I was tutored by Canada's foremost forensic economist in the history of third party debt being enforceable in court - the requirement necessary for such debt to be usable as money (explained in *Money as Debt II - Promises Unleashed* 2009). I made the initial 2006 *Money as Debt* movie at the urging and with the references help of a senior member of the American Monetary Institute, now deceased, who complained to me that no one at AMI understood what he was trying to tell them - which is the same thing I am trying to awaken everyone to now and which I first illustrated at great length in *Money as Debt II*.

Money is created as principal debt to a bank and then lent as loanable funds concurrently multiple times within the lifespan of mortgage principal. Impossible principal debt and the grow-or-collapse imperative are therefore *mathematically inevitable by design of the system.*

Since 2006, I have made several movies explaining the subject in great depth to many millions of people worldwide, some translated into at least 26 languages. I have written several essays that go well beyond the false dichotomy of money creation OR loanable funds with the aim of providing logical proof that the root of the problem is money as "a single quantity of anything made valuable by its own scarcity". A gold coin lent into circulation is "money as debt" as surely as is bank credit.

In 2013 I was invited and helped by the Editor to write a paper for peer review that was published by the World Economics Association (link at bottom of page). It is exactly the same argument I have been making in my comments here and in the following short cartoons designed to educate the public.

• Economists and a Pile of Nuts ... 2 min, 17 sec.
http://paulgrignon.netfirms.com/MoneyasDebt/MAD2016/economists_play.htm

• Credits - 3 Kinds ... 6 min.
http://paulgrignon.netfirms.com/MoneyasDebt/MAD2016/credits.htm

• Conference on the political economy of economic metrics
Jan. 8 - Feb. 25, 2013
Title: *Proposed new metric: the Perpetual Debt Level*
Abstract
It is my contention that a critical metric in economics is missing. I call it the Perpetual Debt Level. This is the amount of bank credit money in circulation that is not available on time nor free of any other debt, to extinguish the debt to a bank that created it. This creates a borrow from Peter to pay Paul and vice versa Perpetual Debt situation in which the amount of the principal involved can never shrink, and the timing of its delivery can never slow down without causing mathematically inevitable defaults. Therefore, to avoid such defaults, it is, in practice, necessary to maintain growth of the money supply at all times. (1)

I further claim that there is no escape from this destructive arithmetic problem within the concept of money as a quantity of a thing-in-itself, and especially within the current practice of money created as a debt-of-itself. The only remedy is radical - a total transformation of our concept of money.

http://paulgrignon.netfirms.com/MoneyasDebt/MAD2016/WEA-PEEMconference2013-Grignon.pdf