Nate Hagens (00:00:02):

You're listening to The Great Simplification with Nate Hagens, that's me. On this show, we try to explore and simplify what's happening with energy, the economy, the environment, and our society. Together with scientists, experts, and leaders, this show is about understanding the bird's eye view of how everything fits together, where we go from here, and what we can do about it as a society and as individuals. Joining me once again today is my friend and ecological economist, Josh Farley of the University of Vermont, Department of Applied Economics and Community Development.

Nate Hagens (00:00:46):

In our first conversation on this podcast, Josh and I talked about the past, present, and future of human cooperation. Josh has deep knowledge about many aspects of our coming cultural transition. And today, we talk about one of those, money. Where it comes from, what is it, how is it created, how is it tethered to our biophysical balance sheet, what is on the horizon with our monetary system, and how might we create and use money differently in the future during a source and sink constrained system? The link between money, energy, and the economy is about to become a lot more central to all of our lives. I hope you enjoy and learn from this educational discussion with my friend and colleague, Josh Farley, on money.

Nate Hagens (00:01:51):

Hey, Josh.

Josh Farley (00:01:51):

Hey, good to see you.

Nate Hagens (00:01:53):

So Josh, my old friend, do you realize that it will be 18 years coming up where I met you and started my PhD program at the University of Vermont. And you know what I was thinking today on my bike ride? The same entrance essay that I sent to you and the rest of my committee, I believe the same things. I think the same things about energy, money, thermodynamics, ecology, externalities, evolutionary psychology. I know them deeper with some nuance, as do you, but it's kind of the same story, which in some ways makes it robust, and in some ways, it's fricking depressing because the world is... GDPs almost twice as much as when I started. And more people are aware of climate and some other things, but the ecological cultural consciousness has still not really happened.

Josh Farley (00:02:49):

The annual increment, the harm it's done to our planet is probably growing.

Nate Hagens (00:02:53):

Right. So you and I can talk... Well, I call you on a Saturday morning and ask you a short question and we end up talking for an hour, so I'm sure we can talk about many subjects that we care about. On our first podcast, we talked about the evolution of cooperation and competition. And one thing that you are a wide boundary expert on, and I think it's a topic that is central to people understanding what's ahead, is the concept of money. And so that's going to be the topic today that I'd like to delve into your wisdom and insight on. I don't know about you, but we both teach college age students, and after my class, of all the things I teach them about, the myths underpinning the modern mainstream view of the world, it's what is money and where does it come from is the thing they find hardest to swallow. Is that the case for you too?

Josh Farley (00:03:51):
Yeah. I mean, it's not just my students. I mean, I teach students, for example, that money is loaned into existence by banks, and econ professors tell the students, "That's just not true. Banks can't create money."

Nate Hagens (00:04:03):
Yeah. Okay.

Josh Farley (00:04:04):
And then I'll send those econ professors papers from the central Bank of England explaining that banks create money.

Nate Hagens (00:04:10):
Yeah.

Josh Farley (00:04:10):
So it's not that surprising that students don't get something that our leading politicians and economists also don't understand.

Nate Hagens (00:04:17):
Yeah. No, we're going to get to that in depth, but it's almost like sometime when you're a teenager, your parents sit you down and explain where babies come from, but they never explain where money comes from, which is kind of a fundamental aspect of our reality. Okay, so let's start from the top. What is the conventional, taught in finance and economics classes, the conventional definition of what is money?

Josh Farley (00:04:46):
All right. So there's two parts to this really that in my PhD program, the only thing I learned is that money facilitates barter and plays no other role, so they didn't even teach us anything. But in general, when they're going to teach something about money, they'll say money has essentially three purposes. It's a means of exchange, a unit of account, and a store of value, but it's basically neutral. It plays no important role. So all the mainstream theories of economics work just the same in a barter economy, money is unnecessary, for mainstream view.

Nate Hagens (00:05:19):
So did we ever have a barter economy? Is that true?

Josh Farley (00:05:22):
No. So the deal is... I mean, there have been elements of barter economies, but Adam Smith introduced this story that money evolved to facilitate barter. But when anthropologists look at that question, they actually find there was never a barter economy in the context of I'm going to give you something now and you're going to give me something of equal value in exchange immediately. It was always like a reciprocity based economy. When I have a surplus... So for example, I go out and get an elk, and prior to refrigeration and stuff, that's more food than I can use. So really low marginal value to me, but for the rest of my community who didn't get an elk that day, immeasurably high marginal value. And so I would bring home this elk and I would share it with everybody low cost myself, enormous gains to everybody else, and really strengthening all our social ties as a community.

Nate Hagens (00:06:19):
So the origin of money was almost a part of a social agreement of reciprocity?

Josh Farley (00:06:25):
So it's very difficult to pin down the exact origins of money, and it seems that money evolved several different forms, but it's kind of converged on our current approach. But what I view it as is that we really did have a society in which tracking reciprocity... We're a very social species and we need to know that if I am doing something for somebody else, they are, in the future, going to reciprocate either to me or to somebody else in my community. And it's really tough to keep track of all those different reciprocity relationships, whereas...

Josh Farley (00:07:02):
So my view, and I think it's very a well supported view, is that money evolved to track those reciprocal exchange. So I bring home an elk and I give some to you, you give me money. And that means there's nowhere enduring social connections. The money just tracks that reciprocity immediately. The other big element of money is it allows us to coordinate economic activity with people we don't know or trust around the globe. You don't need trust, I don't need to know if you're going to be a good person and pay me back in the future, because you're doing it now.

Nate Hagens (00:07:38):
So back in the day, this is another indirect aspect of the agricultural revolution and the industrial revolution, is that we started doing a mass surplus. And before the days of surplus, we didn't need any counter to keep track of the reciprocity because we were all in the same band, in Africa, and you could remember Dunbar's number and the associated accounting who you owed favors to, and everyone was kind of part of a group. But then once we had this boost of surplus where we had more stuff that we could carry with us, and started to have digital representations and stock piles and vaults of gold and then claims, paper claims on the gold, we needed some unit of account that people could keep track, yes?

Josh Farley (00:08:27):
Yeah, yeah. It definitely has to do with that surplus, but it was also just... Yeah. And basically, that idea is our society expands in size to the point where it's impossible to keep track at an individual level, we need new mechanisms. But there was an awful lot of effort expended tracking reciprocity back in the hunter-gatherer days as well. And if somebody didn't reciprocate, they could be ostracized from the community, and that was like certain death, there were punishments involved.

Nate Hagens (00:08:54):
But that was all done in the head, really. There were no scorecards-

Josh Farley (00:08:58):
Right.

Nate Hagens (00:08:58):
... of that, right?

Josh Farley (00:08:58):
There were no... Exactly, exactly. Yep.

Nate Hagens (00:09:00):

Okay. So let's dive into it here. This is something that I wrote about and I spoke about, and as my PhD chairman, you're aware of this, and where money comes from. And for the longest time, I was ridiculed, and until 2014, when the Bank of England came out with a report and some other writers like Richard Werner explicitly stating where money comes from. But how does money come into existence and how does this differ from what's taught in conventional textbooks?

Josh Farley (00:09:36):

Yeah. I mean, there's really two paths by which money comes into existence. We always hear right now, about the government printing too much money, which is driving inflation. And that's a red herring. The government actually, only the treasury only issues coins, so it's not like too many coins are driving inflation. The Federal Reserve issues notes, but they are given to banks to back up their reserves accounts with the Fed. And so government money is, essentially, you could think of as the Federal Reserve notes or as a central bank note, but that's a very, very small fraction of all money available. The vast majority of money is loaned into existence by banks as interest bearing debt. Banks are explicitly allowed to lend money they don't have. And there's two ways to think about this.

Josh Farley (00:10:33):

One is that we have fractional reserve banking, that's what the Fed says. That banks, essentially, have to keep 10% of their money in reserve and can loan out... So if I deposit a hundred bucks in a bank, they can loan out 90 bucks, but that money gets deposited in another bank and they can loan out $81, which gets deposited in another bank, which can loan out 72, and that hundred dollars turns into a thousand. So that story says that if the bank wants to make another loan, somebody approaches them with a really good project and can guarantee they'll pay back the loan, the bank won't say, "Oh, I can't do that," because they don't have enough money on reserve with the Fed.

Josh Farley (00:11:09):

Actually, the Fed targets interest rates, wants to keep interest rates down. So if banks have more people wanting to borrow money than they can make available, that would drive up interest rates. So the Fed will actually loan money to the bank, so the bank can make more loans. So the bank is essentially allowed to loan as much money as credible borrowers want to borrow. So the quantity of money, it's not that my deposits allow banks to loan, it's the demand for loans to create deposits. Business demands alone, borrows money from the bank, then that money ends up deposited in another bank. Banks are essentially loaning money based on the demand for consumers and investors of good reputation who can repay it.

Nate Hagens (00:11:50):

So you're distinguishing between vertical money and horizontal money. And most people think that it's just the government, somehow, in this shadowy thing between the treasury and the Federal Reserve, that create and destroy all our money. And the reality is that's only three to five percent-ish of our total money, and that 95% of our money is created from commercial banks when they make loans to people who are credit worthy, and there is no cap, really, on that money creation. And the other thing that happens at that point is the interest is not created. So when we create money, and it's not quite... A lot of people say it's created out of thin air, that's also not correct, because it's based on the productive capacity of the borrower and the viability of the system based on historical productivity of the economy. So it's not truly out of thin air, but it is out of thin air when it's referenced to the ecology of the Earth and to the amount of biophysical capital, energy, materials, minerals that we have available, right?

Josh Farley (00:13:04):

Well, so I have a couple comments on that actually is that first of all, most people don't even realize... Everybody says, "Well, the government's got to tax you in order to get money to spend." And so we always have this idea that you tax and then spend. What are we taxing? We're taxing money. Where does the money come from? The money has to be created before it can be taxed. So logically, government would need to spend money into existence before they could tax it back. So when government spend money into existence, it creates it. When they tax it back, it destroys it. When banks lend money into existence, it creates it. When it's repaid, it destroys it. As you point out though, banks are lending the principle, but not the interest. The question is where does that interest come from? The one point I was making too is that interest bearing debt obeys a mathematical law of exponential growth. And money is a claim and real resources.

Josh Farley (00:14:00):

And we watch now debt growing exponentially, and it's several multiples. It's almost four times GDP, either at the national or the global level, even. And so this exponential growth of debt can't be matched by a finite planet. What we could do... So if banks collected interest and spent it back into the economy, then it would be available to pay the interest on the principle. But banks tend to reinvest, it is more interest bearing debt, so that's really problematic. So we get this... It's almost impossible to repay all the debt without continued economic growth. One more comment I wanted to make quickly is that I said banks create money out of thin air, you said, "Well, actually, money is a claim on resources, and therefore, has to be in some way backed by those resources so it's not out of thin air." But a lot of money, in fact, overwhelming amount of money right now, I would argue in the United States, is loaned into existence to buy existing assets. And you can bid up the value of existing assets, there's no physical limit to the value of existing assets.

Nate Hagens (00:15:05):

What do you mean by existing assets?

Josh Farley (00:15:07):

So for example, the stock market, when you... So people think, when you... Well, when you're buying stocks, you're giving money to corporations to invest in real goods and services. But the fact is that it's only initial public offerings that actually create money for investment. And when Exxon stocks are... Exxon's not issuing new stocks, Microsoft is not issuing new stocks to give them new capital, the existing stock's being recirculated. So there's a kind of a fixed supply of stocks.

Nate Hagens (00:15:37):

Not always though, right? There's secondary offerings when they need new capital.

Josh Farley (00:15:41):

But it's a tiny fraction of the total. So I think... Tesla's talked about some secondary... But the vast overwhelming share of stocks being sold now is existing stocks. And in fact, over the past 10 years, stock buybacks by corporations have exceeded new issue of stocks by 10 to one. So really, corporations, stocks are pulling money that could be invested.

Nate Hagens (00:16:09):

Why are they doing that and what is the impact of that?

Josh Farley (00:16:12):

So it's anecdotally, my brother used to be vice president of VFI, William Ruckelshaus, the founder of the EPA was the CEO. And he was telling his stock brokers, he wanted to invest in real physical production of waste management. So more waste sites, more truck, but the investors said, "No. Look, if you increase the size of the garbage industry, you've increased supply, price goes down. On the other hand, if you buy back stocks, the price goes up. Your investments in real production will make a 7% rate of return. Your investments buying back our stocks will drive up the value of stocks by 16% in a year." And so stockholders want that 16% rate of return, not that 7% rate of return, even though, when you're investing in real physical production, you're creating new wealth. When you're buying back your own stocks, there's no new wealth being created.

Nate Hagens (00:17:10):

Well, there's paper wealth. So there's real physical wealth and then there's monetary wealth. And this gets at the core of ecological and biophysical economics is most economists and technologists view the world from a monetary lens. If we have enough money and the money math works out, we can do anything. Whereas, you and I know, we need energy and materials mostly, which are from finite stocks, and the environmental sink capacity is also finite and growing or declining. So every time that we create new money, it is a claim on future energy and resources and ecological sinks.

Josh Farley (00:17:53):

Yep.

Nate Hagens (00:17:53):

So let me go back to that to make sure that this is crystal clear. Could we start with an example. You're at the university of Vermont, so the First National Bank of Burlington, let's say they have a hundred million dollars in assets on their account. And you are a handsome, full professor who is very creative and has a stellar credit rating, and you ride your bike every day to school instead of using a car, and all these other things that impress the bank manager. And you want to start some ecological sequestration thing around Lake Champlain, and you want a million dollar loan from this bank, okay? So walk me through what happens.

Josh Farley (00:18:36):

So I would go to the bank and give them my plan and say, "Okay, you loan me a million dollars, I'm going to invest it this way and it's going to generate returns in these ways." And so the return, from what you're talking about, maybe there'll be payment for ecosystem service programs that will pay me for restoring ecosystems or payment for carbon sequestration, either way, this gives me the money that allows me to pay back the principle plus interest, and so the bank loans me the money.

Nate Hagens (00:19:05):

But what mechanically happens at the bank, their balance sheet and yours?

Josh Farley (00:19:09):

So what mechanically happens is the bank says... Well, the bank needs to balance its books. So the bank is going to give me a loan for a million dollars and deposit in my bank account, and that count is a liability of the bank, but it counts for me as an asset. On the other hand, I give the bank an IOU, I've got to repay that. That IOU counts as an asset for the bank and a liability for me. So assets and liabilities perfectly balance out for the bank. So on their books, boom, they're balanced, and it perfectly balances out for me, except that I also owe interest, so I've got to pay that.

Nate Hagens (00:19:47):

But the other thing that happened is that now, the total balance sheet of that bank is $101 million. And another million dollars of purchasing power in the global economy just came into existence. So from a creditor versus debtor relationship, everything is balanced, everything is neutral. But from a biophysical perspective, suddenly, at that flick of the switch on the bank manager's computer, a million dollars more of potential claims on coal and ocean absorption and energy and timber and everything else came into existence while those things stayed the same, or actually, slightly, slightly declined.

Josh Farley (00:20:35):

So in the example you gave though, I was actually investing in ecological restoration, which in some ways is rebuilding the system. If instead though, I had wanted to invest in a coal plant or a talc mine, or a... Something that actually does use resources. And that would be very explicitly just a drain. Or if I want to build cars, they would loan me the money and that would just be a net drain on raw materials and energy, and it would increase the claims on that. But quickly getting back to another point, though, what happened right now, land prices are skyrocketing here.

Josh Farley (00:21:10):

I could go to the bank, borrow money to buy a chunk of land, and sit on it for five years doing absolutely nothing, and sell it in five years for twice what I paid. And I would now have more money that entitles me to more goods and services without having created any new wealth whatsoever. In fact, I could buy a piece of farmland, kick the farmer off, because there's just too much hassle, and the value of that land would go up and then I would sell it, and having created more wealth for myself with less wealth for society. And that's an awful lot of what's happening today.

Nate Hagens (00:21:44):

Well, it was also happening in the 19th century when Thorstein Veblen made the distinction between business and industry. Industry makes our shoes and our sandwiches and things like that, whereas business uses money to make more money. And so now, that's represented by the FIRE economy, finance, insurance, real estate. And how big of a portion of our economy is is the financial sector, do you know?

Josh Farley (00:22:13):

So it's growing dramatically. I think right now, finance counts about 8% of GDP, about quadrupled in the past few decades. Paul Volcker commenting on that, former chair of the Fed, said the share of the financial sector is quadrupled. And in that time, the only innovation they've had is the ATM machine. So really, there's not much going on in the way of useful innovations in finance that actually create more value. There's a lot of innovations that allow the financial sector to suck more wealth from the rest of the economy, in my view.

Nate Hagens (00:22:42):

So why does money being loaned into existence by commercial banks? Why does that matter and what would a standard economist think about hearing this conversation?

Josh Farley (00:22:57):

So first of all, why it does matter exactly as you point out? There's two reasons it matters. One is when it's loaned into existence to increase productive capacity... Let's say I'm borrowing money to build new fracking infrastructure. So that is money that's there's all the materials required to build the wells, and then I'm pumping out wealth from the soil, and we actually count that, I'm draining our net resource stock, yet we count it as pure gain. We don't mention

the fact I'm depleting our well stocks, but that money loaned for production is directly increasing the claims and our finite resource base. And because it's growing exponentially, I have got to get more money in the future. A good example of this, extreme example like Brazil, where interest rates might be 40% a year. I borrow money to build a sawmill, I've got to pay off that 40% interest. That gives me a huge incentive to chop down trees growing at 3% to pay off debt growing at 40%. And so I'm just rapidly depleting.

Nate Hagens (00:24:02):

Okay. We'll get back to your second point, but on this one, how long has inflation been kind of a standard expectation? Because my understanding was if you would've asked an economist in the 1950s, will prices go up next year, and it would've been a coin toss. Half the time they went up, half the time they went down. But since you and I have been alive, we've been alive during a period of pretty much consistent every year inflation, but how long... Were there ever monetary regimes where there was very low interest rates or no interest rates? Or... I don't know a lot about that.

Josh Farley (00:24:38):

Yeah. I'm not a true expert on the history, but interest rates have been a thing for thousands of years. Some societies had rules where you could charge 10% interest for seven years, which means you're paying back twice what you borrowed essentially, and that was it. Other societies had jubilees periodically, where all that would be canceled because a lot of these traditional societies understood that that exponential growth can't continue. And if you look at old literature, actually, you'll see they talk about people's income. Read The Brontë Sisters or something, they'll tell you how much somebody earned or how much things cost. That never happens anymore because every writer now knows that that is useless, five years from now, you don't know what that even means. So we did have a long period with inflation free societies or where inflation was periodic episodes.

Josh Farley (00:25:34):

Now, it's kind of built in, it's expected. Although, for many years, I actually never taught my students about inflation because we went about 20 years without really much worry about it, where our concern was deflation. And one of these things is if you're loaning the money and you are increasing the production of goods and services, then there's not inflation. So in fact, if you think about it, when the price of oil skyrocketed... So 2008, July, reached 140 bucks a barrel, lots of firms saying, "Oh, we want to invest in oil." So they borrow a lot of money to invest in oil, they increase the supply of oil, and because demand for oil is what they call really inelastic, a small increased supply leads the price to plunge, the price plunged. Actually, loans for productive capacity can drive deflation in the short run. Of course, it also exhausts our oil sooner. And then given the importance of oil, that triggers future inflation. But with a lot of things, loaning money into existence to increase output can drive deflation.

Nate Hagens (00:26:38):

Here's the way that I think of it. I got my MBA at the University of Chicago, and people look at the future with a financial technology lens or if they've taken ecology classes or read books on ecology and energy, it widens the boundaries of how you look at the future. And most people at the business schools around the world have never taken an ecology class. And so I think the models that they're using are correct in a very short term and narrow boundary sense. During this moonshot of economic growth period where, yes, next year the economy grows 3% from this year, and therefore, this whole econometric logic, Rube Goldberg machine makes sense, until the divergence between all the monetary claims on reality that we've created is so distant from a soon to be declining amount of energy and materials coming into the economy every year. And then we have... Well, we have the onset of The Great

Simplification in my vernacular. What would a standard economist say to debunk what we're saying right now? What is taught in contrast to what we're saying?

Josh Farley (00:27:59):
Well, one thing I think that is taught is this... You and I believe that resources are finite.

Nate Hagens (00:28:04):
Right.

Josh Farley (00:28:04):
Economists are often accused of being cornucopian. Their argument is as a resource becomes scarce, the price increases creating an incentive to innovate substitutes or demand less. And so technology will always step in and solve the problem. And so far, it's true that empirically, technology always has come up with solutions to our major predicaments. Empirically, the day before Thanksgiving, a turkey has the most evidence that humans are benevolent and kind. Inductive reasoning doesn't always work.

Nate Hagens (00:28:34):
No, exactly right. And that's what you and I are doing with all of our work. It's a few weeks out, metaphorically, from Thanksgiving for our culture. And we're trying to educate and inspire more people to start looking at how we can live better or the same with less, because less is probably coming. Because at some point, it very much is a musical chair situation with the amount of... Well, here's the other thing is when we have a financial problem and we have to tighten our belts and we have to use less, it's so politically difficult to sell or explain the necessity of using less that we just create more credit. It's amazing, Josh, to look at the debt ceiling of the last 30 years. It's these flat lines and then a jump up, and then a flat line and a jump up.

Josh Farley (00:29:26):
Yeah.

Nate Hagens (00:29:27):
Every single time we've hit a debt ceiling, there's a bunch of wrangling and political arguing and Chicken Little doomerism. And then all of a sudden, we raise the debt ceiling. And it's almost like the boy who cried wolf because we've been warning about a fiscal cliff and a debt crisis, some people have been warning for a long time, and it doesn't seem to really matter. What really is the problem with debt? Is debt necessarily a bad thing? Unpack that a little bit.

Josh Farley (00:29:58):
Yeah. This is a big topic. So debt itself, it does... If we go into debt with interest bearing debt, that means our future obligations continue to expand, which in and of itself is highly problematic. What a lot of economists worry about with debt, they compare governments to households, and they think, "Well, the government can't repay the debt." What they forget is that the government is the sovereign issuer of money. It says in our constitution that the Congress has the right to coin money. We could, at any time, issue a coin equal to our entire outstanding debt and pay it all off. That could lead to too much money, chasing too few goods and services, which is inflation, but the government is not going to go bankrupt. Modern Monetary theorists harp on this constantly. And they say as long as we have unused resources, by which they mean labor and capital and firms operate typically with about 25% excess capacity, even now with really low unemployment, it's still like 3 or 4%, or 4% probably, which is quite a number of people.

Josh Farley (00:31:03):

So they argue the government can spend money to employ those unused resources without driving inflation at all. What the modern monetary theorists forget though, is we don't have unused ecological capacity. We have vastly overused ecological capacity. And when the government spends more money on things that create demand for oil and raw materials, that is growing our ecological debt, which is easy to hide, because if you have a huge forest, you can keep cutting it down every year, and without really noticing in your income stream. So if you inherit a huge trust fund, you can spend it out pretty fast and you live well until it's gone. You have to live on the interest, not the capital.

Nate Hagens (00:31:46):

Well, that's a microcosm for our culture. We're like a 12 year old who inherited large amount of money and is spending it down as if it were interest when it's actually capital. Okay. So on MMT, Modern Monetary Theory, you said that one of the things that's in their view that is flawed is they ignore the ecological debt. I would argue two other things are problematic with MMT. Number one is as we issue more and more debt to pay off our claims like a trillion dollar coin, like you said, that's true domestically, but it sends a signal to people internationally that our currency may not be trustworthy forever, so there's that. And then the larger issue is it's energy blind, like so many things today. So we have a hundred billion barrel of oil equivalents per year of fossil carbon and hydrocarbons we're extracting.

Nate Hagens (00:32:41):

We only pay for the cost of extraction, not the cost of creation, nor the pollution. So we have, basically, a labor force of 500 billion human worker equivalence added to our global economy. And as those retire, and it's more costly to wake new ones, and we go from 500 billion helpers to 450, to 400, to 300, as we're creating more monetary claims in a Keynesian sense, our workers, five billion of us, real humans, and 500 billion of these energy armies, they're getting weaker or are less productive over time. And that, you can't print that. You can only extract it faster. So I get the point by MMT-ers that you can't go bankrupt. The difference between a person having a four to one debt to income ratio, and a government having a debt to ratio of four to one is, yes, the government can print the money, the individual cannot. And by the way, there aren't that many countries that can actually do that. I mean, the US can, Japan can, China can, but a lot of countries in Europe can't because Slovakia or some of-

Josh Farley (00:33:57):

The Euro.

Nate Hagens (00:33:58):

... those satellites, they have to look to Germany and France to call the shots on the Euro. Out of all the aspects of the story that I've put together, with your help over the last 20 years, it's the disconnect between our monetary expectations of reality and our actual physical situation is probably one of the most underappreciated, under-recognized risks to the next decade, because we are growing our debt as a world, we are doubling our debt every eight to eight and a half years, and we are growing our economy or we're doubling our economy every 20 to 25 years. And that's before energy starts to decline. So we have a massive financial recalibration coming in the future, in my opinion, and it could be the very near future, or it could be five to 10 years from now. I don't know.

Josh Farley (00:34:58):

Yeah.

Nate Hagens (00:34:58):

So let's just briefly talk about that before I forget. Before and after The Great Depression, we had a similar situation that before 1929 and after, we had the same productive capacity in the economy. So what happened in the early 1930s with money and productive capacity and could that be an analog for what's ahead?

Josh Farley (00:35:21):

Yeah. So I mean, prior to The Great Depression, most money was not being loaned to increase their productive capacity, it was being loan to invest in existing stocks. And because, as I said, the supply of stocks, it's not totally fixed, but it's very rigid, so the price of stocks is determined by demand. Demand is determined, primarily, by how much credit is available to buy those stocks. So banks were loaning money, hand over fist, to buy stocks. Stocks were collateral on the loans. The value of the stocks was going up, so the banks saw themselves as making very, very safe loans. Same thing happened with the housing bubble, 2005 through 2008. The more money you loan to buy stocks, the more money you loan to buy land, the more demand there is for those, the higher the prices, the more collateral you have for the loans. Until eventually, you reach a point where people get too overly optimistic. They're borrowing too much to buy too much, they can't find a seller.

Josh Farley (00:36:20):

As soon as they can't find a seller for the land or the stock, then they can't pay off their loan. And so as soon as a few people can't find sellers, they have to start selling their assets. And as soon as the supply of assets for sale goes up, the price plunges. And this is known as debt deflation. So when you loan a huge amount of money to buy stocks, all these people owe money to the banks, contingent upon rising stock prices, stock prices start to fall, people can't repay the banks, banks, therefore, stop making loans. And they stop making loans, not only to the speculators, but also to the real investors. So people who need money to borrow money to make payroll or to buy the goods to do real production, banks stop making those loans as well.

Josh Farley (00:37:08):

The amount of money circulating in the economy tends to go... It really goes down. And so we have a banking system that exacerbates bubbles and exacerbates busts. So it's a cyclical system when you really want one that's pro cyclical. You want one that when the economy is doing poorly, you put more money out there to stimulate investments. And when the economy is booming, you want one that reduces the amount of money to stop the overheating of the economy. And overheating in my view is extracting too many resources faster than the planet can sustain.

Nate Hagens (00:37:42):

Well, in that case, we're already on fire.

Josh Farley (00:37:44):

We're on fire.

Nate Hagens (00:37:45):

Yeah. But the other thing you said is kind of what we've done, right? In 2009 and in 2020, the Treasury and Federal Reserve came in and printed bazookas worth of stimulus and guarantees and everything because otherwise, we would've tipped into a depression. Here's the other thing people never really think about, the Federal Reserve is amalgamation of private banks that have paid in capital. And the amount of paid in capital... If you were to start a bank in Burlington, there would be some investors that put together capital to create the bank. Then you start loaning out and you get paid higher interest on your loans than you pay

out to your depositors. So over time, you make money and the whole model is leveraged so you do well. The Federal Reserve has 50 billion or so in paid in capital. And their balance sheet now is $8 trillion, or... I haven't looked in the last month or two, but they're the most leveraged hedge fund in the world.

Josh Farley (00:38:46):
Yeah.

Nate Hagens (00:38:46):
The European Central Bank is even worse, as far as leverage ratio. But since it's government, quasi-government, no one really worries about that. But at some point, in the future, when we have all this vast amount of paper and electronic claims on reality, and we start to call those in on real reality, houses and money in my own bank account and things like that, there really is a musical chair situation. And my belief is contrary to 2009 when we had a too big to fail situation, the next crisis, there will be a too big to save situation, where some country, some entity, the Bank of France or something, will need so much money to be bailed out that all the other central banks in the world won't be able to do it. And that will cause some sort of a recalibration currency reform, Bretton Woods III. Something like that is coming because when we have a financial crisis, like in 2009 or 2020, we have options, right?

Nate Hagens (00:40:00):
We could say we've consumed beyond our means, we need to tighten our belts. There's going to be some austerity for a few years. We're going to let companies fail that we're not doing well, or we're going to add some non-renewable tax to save and marshal our natural resources and our ecosystems, any one of those options could have been taken. But instead, we wanted to make everyone whole, and people that were gaming the system with the PPP loans and things like that. And so we had this Monty Hall campaign of just massive stimulus and central bank, artificial guarantees, low interest rates, negative interest rates. And what that did was you're solving a credit crisis with more credit, which cannot... Who was it that Hyman Minsky said that that can never happen in the long run? So it's bizarre to me that we are so deep into this, yet no one even thinks about it. And I think it's because it's happened twice now in 2009 and 2020, and no big deal, look, we came out of it, but I think this is central to our future.

Josh Farley (00:41:12):
One thing I'll say is that if you think about it, what we often do when there's a recession, we lower interest rates, with the argument that this is going to lead firms to invest in new production, hire people, create more goods and services, create more wealth, end the recession. But in reality, when there's a recession, firms can't sell what they're already producing. They have no incentive in investing an additional consumption. What they tend to invest in is speculation. So it's like March 23rd, 2021, Powell, as the stock market is plunging, he says, "I'm going to make credit available to prevent asset prices from collapsing." And people interpreted that as if necessary, he would actually buy stocks. He ended up purchasing bonds, traded in the stock market. I don't understand a lot of this stuff to be honest, but it triggered the biggest 50 day increase in the price of stocks because the price of stocks is determined by the demand for stocks, which is determined by credit availability.

Josh Farley (00:42:09):
And this didn't, in any way, it didn't create more jobs. It actually triggered one of the biggest increases in inequality we'd ever seen, where billionaires were just getting phenomenally richer, at the same time that people were losing their jobs and living in misery. So this idea that we can reduce interest rates to stimulate the economy during a recession... If you can't sell what you're already producing, you're not going to invest in more production, you're going to invest in speculation. And if you can't speculate in the US, we'll go speculate in Brazil or South Africa

or Turkey or India as we did in following the quantitative easing in response to the 2008 crash.

Nate Hagens (00:42:47):

So getting back to this core question, because I know people listening to this, there's a lot of big words here and our fundamental point that we're trying to make is that commercial banks create most of the money in our world. When they make a loan, and the loan... They're not loaning out someone else's money from their bank, they're actually creating the money. And when that happens, there's no reference to ecology or how much oil we have. So what would a Larry Summers or a standard economist, what would be their core argument saying that we're wrong?

Josh Farley (00:43:24):

So first of all, according to all their models, it doesn't matter where money comes from, money is neutral. So they say that there's... Who creates destroys money has no impact on the economy, which in my view is absolute nonsense. The right to create money is incredibly powerful. Our constitution says it's reserved for Congress to coin money. We've interpreted that as, "Oh, only Congress can make coins, but banks can essentially loan money into existence," which I think is a misinterpretation of the constitution, personally. And so when I did my PhD, none of this stuff was even mentioned.

Josh Farley (00:43:59):

And still, a lot of economists buy into this idea that banks serve as the intermediary between savers and borrowers. So I put my money in the bank, I get 3% interest from the bank. They loan it at 6%, they keep 3%, and they're just an intermediary. In reality, they're ignoring the fact that 95% of the money is created by the banks, so that's largely just ignored it. And as I said, this has come up in my university with students coming to me saying, "You told us that banks create money, our other econ professor says, 'No, they don't. If they did, I'd be a banker.'" And so there's just a certain amount of ignorance.

Nate Hagens (00:44:35):

It's amazing. And we're going to make sure to put in the show notes the hard references from the Bank of England and other places explaining exactly how this works. But you know that I talked to mostly retired politicians, some current politicians, they don't know this either.

Josh Farley (00:44:49):

No. They interviewed politicians in England and found that 85% did not know that banks could create money. So how you make decisions about economy not understanding the basics is beyond me.

Nate Hagens (00:44:59):

So money is not neutral. Can you describe why money is not neutral?

Josh Farley (00:45:03):

Yeah. I mean, the fact that if you can create money out of thin air and loan it at interest, interest rates are higher than the growth rate of our economy, and the debt is growing faster than our economy. And I don't know the exact numbers, I've tried to look it up, but if our debt right now is 360% of GDP, which it might be a little bit more than that, but you can find that on the Federal Reserve sites and we can post that in the notes. And let's say the average interest rate was a little under 5%, that means 15% of our GDP is being transferred to the bankers every year. And typically, as we get technological innovation and advancement in the

sector of the economy, like computers or cars, they become cheaper and cheaper, and you get more for your buck. In finance, it's the opposite. There's no innovations that are saving our money, instead, we are spending more and more and more of our GDP is flowing to the banking sector.

Nate Hagens (00:46:01):

One of the reasons that debt hasn't been a front page issue is we just crossed 30 trillion in government debt. Of course, our debt, in reference to our underlying resources, isn't just government debt. You have to add personal debt, household debt, corporate debt. And so there's lots of claims that add up to around, like you said, between 360 and 400% of GDP, which would be the equivalent, as an individual, if you made $50,000 a year and you had to pay taxes on it, but you owed the bank 180 grand a year in debt. At some point, the bank is going to say, "You know what, Josh? You're a good guy, but I can't continue to loan this money to you, you need to pay this back." So what happens, from a biophysical perspective, if the profits from our aggregate economy are not enough or are less than the interest?

Josh Farley (00:47:02):

Yeah. So I mean, what basically happens is, as we say, we have money growing exponentially fast in the economy as a whole, which really does mean we have way more money chasing a finite pool of resources, borrowing these magical technological innovations.

Nate Hagens (00:47:20):

Right. Which are possible, but nothing that I see as happening right now in that level.

Josh Farley (00:47:24):

And ultimately, it boils down to inflation. And so I actually... People are stressed out about this current inflation crisis. What they fail to acknowledge is that household debt right now is 80% of GDP. That means if we get 7% of inflation, and inflation is a general increase in the price of goods and services, and we've actually seen wages for the poor are rising faster than inflation.

Nate Hagens (00:47:50):

The last couple years. Yeah.

Josh Farley (00:47:52):

The last couple years. But basically, to the extent that in wages, a company inflation, the real value of debt is going down by 7% per year, which is 5.6% of our GDP. That's just for household debt alone, what we owe. That's a massive transfer of resources from creditors, who are the rich, to debtors.

Nate Hagens (00:48:12):

Unpack that a little. I didn't understand that. The real value of debt is 7%, what do you mean by that?

Josh Farley (00:48:18):

Yeah. A student loan of $50,000, but if we have inflation, that means prices of wages and goods and services are going up. So with 7% inflation overall, you could expect your income to be rising 7% faster per year that otherwise would be. If your income is rising faster, your ability to pay off your debt is rising faster-

Nate Hagens (00:48:40):

Because your debt is capped at 50,000 and you just have to pay the interest.

Josh Farley (00:48:44):

Yeah. Or actually, your debt has interest, but if the interest rate is 5% and inflation is 7%, the real value of your debt is going down. But in general, the value of the actual principle you owe goes down with inflation. And so there's some kinds of inflation are absolutely terrible. Like when a lot of corporations right now are just using their market power to jacket prices and making record profits. So across, we see tons of corporations who are jacking up their prices right now making record profits. They're not jacking up prices because they need to stay afloat, they're just doing because they have market power.

Josh Farley (00:49:22):

But the general phenomena of inflation... So the fact is that we have exponentially growing debt, finite pool of natural resources, on which debt is a lean. And basically, when the demand exceeds supply, you have two choices actually. We can just go and deplete the hell out of our supply, we can chop down all the forests, fish out the oceans, suck dry the oil wells in the short term, and then kick the can down the road, is the phrase you like to use, and delay that. And when we actually make more credit available at low interest rates, that facilitates that.

Nate Hagens (00:49:59):

That's what we have been doing.

Josh Farley (00:50:01):

That's what we have been doing, exactly what we have been doing.

Nate Hagens (00:50:03):

And what's the other option?

Josh Farley (00:50:04):

And the other option is just to acknowledge that we have too much debt, and really, we need, essentially, as they used to do in the past, a jubilee. But what people don't pay attention... I lived in Brazil during a hyperinflation and you can... 50% a month. And if I had had a million dollars in debt at a fixed amount of money, at interest rate... And they weren't expecting hyperinflation so it was like at a 5% interest rate. The value of that debt... My salary was going up by 50% a month. So if I had a fixed amount of debt, the value of that debt would've been plunging. At the end of one year, it essentially would've been a jubilee, except that what people do is they build in expectations. So there's a lot of debt contracts out there right now with fixed interest rates at low levels, they're actually negative interest rates. If you're paying a negative interest rate, the value of your total debt is going down.

Nate Hagens (00:50:59):

All right. So this is not a question I had planned to ask, but I think consuming less and telling our society that we have to use less is, in my opinion, a viable, cultural direction to go, it's just never going to happen. So we are going to try to inflate our way out of this debt, eventually. And so what you're kind of saying is if that is the problem, the correct game theoretical response is actually to go into debt, that would be at a fixed level, expecting there to be inflation that the real value of the debt declines, while you do something productive with that money. I'm not recommending that as a outcome of this conversation, but I could see how that would be a logical way to think about this. What's wrong with that idea?

Josh Farley (00:51:49):

I mean, I'm not calling for more debt, I'm just calling for the inevitable fact that when we have exponentially growing debt and therefore exponentially growing demand on a non-growing supply, you end up with too much money chasing too few resources, so I view inflation as unavoidable. Since inflation is unavoidable, we should manage it in a way that really helps transfer credits or resources from creditors to debtors, from the rich to the poor, essentially use it to reduce the value of debt. What Powell is suggesting right now and what Volcker did back in the '80s is raising interest rates higher and higher and higher, which means that any new debt will be at those much higher interest rates, and therefore will be growing exponentially even faster, which I believe exacerbates the problem. I think we need other ways to manage overuse of resources than just raising interest rates.

Nate Hagens (00:52:48):

So the way that I look at it, not from a near term perspective, but from a longer term perspective, the main input to our economy is the non-renewable carbon pulse sort of materials. And as our energy return on investment declines, from 50:1, back in the day, to 20:1 for most of the last 30 years, to 15:1, now, down to 10:1, as EROI declines society wide, inflation is the inverse of that. So as EROI is going up, we're going to have very little inflation because the productive capacity is so boosted by this fossil pixie dust we're adding to the system.

Nate Hagens (00:53:32):

But as that stuff gets harder to extract, it's going to act as a tax on all of society. You see it right now, people are posting pictures on Facebook, it costs them $130 to fill up their truck. Yes, oil's only $110 right now, but the refined products from oil, because of some refinery glitches for diesel and gasoline, is effectively the same as if oil was $150, which is where it was in 2008. So I think inflation and the inability of poorer people to afford basic things is very much in our future. So on that topic, is there a difference between good inflation and bad inflation?

Josh Farley (00:54:17):

Yeah. And here's where I think that bad inflation, in my view, is what Powell triggered in March 2021 when he actually encouraged people to invest in the stock market. So last year, we saw the price of the stock market increased by 30% to twice total GDP. So really, we saw this massive increase in wealth. So with the wealth of billionaires increased by like 50% at GDP, just in response to rising stock prices. And same with land prices, skyrocketing land prices. When you increase the demand for assets that are available in a fairly fixed quantity, that's really bad inflation. We don't even count it as inflation. So when we see the stock market going up, everybody cheers vigorously. When we see even land and housing prices going up, people cheer, not the people trying to get a house right now. But we have always treated that as good inflation, but it is inflation.

Josh Farley (00:55:16):

It's more money chasing the same amount of goods and services, and that leads to a higher value. What's interesting about that though, is that as soon as those people who own stocks, and we saw this with Elon Musk, he sold $5 billion worth of Tesla, and the price of Tesla falls. So as soon as the owners of those stocks try to liquidate that and turn the value of their stocks into real purchasing power on goods and services, as soon as they start to sell in large enough numbers, the price plunges. So it's absolutely impossible to realize that wealth. But in the meantime, it does give people this enormous claim at the margin to more and more goods and services, but it's simply redistributed wealth, so I think of that as bad inflation. I think of corporations with market power rising their prices because they can, making record profits, as bad inflation.

Josh Farley (00:56:08):

But I think inflation that reduces the overall value of money, and hence, the demand on our finite supply of goods and services is good inflation. And inflation that deflates the value of debt, and therefore, transfers resources, essentially, from creditors to debtors is good inflation. And it's pretty complicated, you have to manage it carefully. But I think it's also, we have unavoidable inflation locked in. We just can't possibly allow... And we just have too much demand for too few resources. And one quick comment to say, though, that in response to what you were saying earlier is that you had this idea of selling lower consumption is untenable. We invest like a trillion dollars a year through advertising to convince people to buy stuff they don't want, to impress people they don't like.

Nate Hagens (00:56:57):
Yeah. That's right.

Josh Farley (00:56:59):
And to spend all their time working like hell to do so, at the expense of time with their friends and family and community, because you can't make money, advertising people to work less, buy less, and spend more time doing the things that really makes life good.

Nate Hagens (00:57:13):
So we could spend a trillion dollars in Madison Avenue Marketing on the exact opposite message, and it might actually, at this point, wake people up.

Josh Farley (00:57:22):
Or make advertising illegal, or at least not tax deductible.

Nate Hagens (00:57:25):
Let me probe that a little bit, because I've watched some of your... And I've sat in some of your lectures on money. How does money itself change the way that we behave?

Josh Farley (00:57:36):
And so that's very, very important. If you think about it, back in the day, before there was money... And we get old, we get decrepit, we got to rely on others at some points in our lives. In a pre monetary economy, you better be damn nice to people your whole life, so that when you're old decrepit, they'll take care of you. In a monetary economy, you're not building up... You don't need to build up this goodwill, you don't need to build up social relationships.

Nate Hagens (00:57:59):
You better have a bank account though.

Josh Farley (00:58:01):
You better have a bank account, right, which might be sketchy in the future too. And I'm not super confident about any of my retirement.

Nate Hagens (00:58:08):
You have a lot of friends and neighbors though.

Josh Farley (00:58:10):
I have a lot of friends and neighbors. But I think that money, the idea that every monetary transaction, the social relationship ends. I go to the store, they give me something, I pay them, over and done. I don't write them a thank you note, I don't owe them anything. On the other

hand, when my neighbor does something nice for me, I feel an obligation to do something nice for them, I feel stronger social bonds, every interaction strengthens social ties, and overwhelming evidence is social ties really are what give us meaning and value in life. I mean, there's a new study. I'm reading a book right now arguing that our brain used our pain mechanisms to avoid bodily harm, to also the same mechanisms to avoid social harm. So when we're having social problems or not connecting well, we feel almost physical pain, same part of our brain, which is one of the reasons opium just, ah, takes care of all that.

Nate Hagens (00:59:03):

Well, if I was a politician, either local or national, and I had to describe that money is created from a pen stroke in commercial banks, and that we are in a musical chair sort of situation with the amount of monetary claims relative to our underlying ecological and natural resources, I would feel social pain from telling my constituents that story, which is probably one of the reasons it's not being spoken.

Josh Farley (00:59:31):

Well, the story I would actually tell is that right now, we are allowing the private sector to loan money into existence in the pursuit of profit. And you make profit pumping out oil, you make profit building things. You don't make profit sequestering carbon or restoring ecosystems or investing in... Right now, there is an article recently in New York Times saying that businesses that want to invest in alternative energy and green technologies can't compete with crypto or NFTs, non-fungible tokens. So right now, the decisions about who gets money is based in the profit motive. The problems we face aren't likely to be solved by the profit motive. If I was a politician, I would say it's time for the state to reclaim the right to issue money, which we gave up to the private sector.

Josh Farley (01:00:22):

And then we can dedicate new money towards actual social good, kind of like the state bank of North Dakota, which they use their bank to meet the needs of the state. Good cheap loans for their students, cheap loans to rebuild areas destroyed by disasters. You change the goals of your monetary system. And instead of the money flowing to the financial sector, interest payments would flow to the state, it would function just like taxes. You could cut other taxes because if the bank, the state bank is accumulating all the interest, that's just a flow of money that it, essentially, destroys money, or you could think of it as giving the state that money to spend.

Nate Hagens (01:01:06):

Is that the only bank in the US that does things that way, the only government bank?

Josh Farley (01:01:11):

So there's a lot of other states talking about it right now. But I think right now, the only state bank is in North Dakota. I'm an advocate of municipal, state, and national banks, but all... So the publicization of banks and not the nationalization, but making them public and ending all subsidies for the private banking sector. No more bailouts, no more guaranteed deposits or anything, for the private banks.

Nate Hagens (01:01:33):

Integrating ecological economics, anthropology, and the biophysical models. What, in your opinion, might be some more sustainable monetary models going forward? You had told me once, and I forgot the example of some province in Brazil, where they would issue money that could be used for something. Can you unpack that a little bit?

Josh Farley (01:01:57):

So I think the core point about money is the reason I accept money is I have to pay taxes. If I don't pay taxes, I go to jail. And I've got to pay taxes in the national currency, so I accept money so I don't go to jail. And because I accept money, money is backed by my productive capacity. So this creates a lot of opportunities for banks to create new... Or for governments to create new types of money. One I'm exploring right now is Brazil's Atlantic Forest is maybe 20% forest cover right now. The ecologists say that if they don't get forest cover up to 30%, the system's going to collapse. So there's going to be a massive die off of biodiversity, it's going to affect water flows, it's going to affect huge numbers of things. So the government of Brazil, I'm suggesting, could create a new currency.

Josh Farley (01:02:42):

The Atlantic Forest in Brazil is Mata Atlântica, so the Mata Atlântica Reserve currency or the MARC, they would say, "We're going to Institute a new tax only payable in this currency." And they could tax carbon emitters, they could tax wealth, they could tax activities they don't want, and only make it payable in this currency. To get this currency, you actually have to restore the Atlantic Forest, and it would be georeferenced. It's very easy to, say, if you claim this currency exists, I can look on a map and see it's georeference point, so it's very verifiable. And that would allow the government to, essentially, use monetary systems to achieve specific goals. And there's a lot of evidence psychologically that people prefer, if you're being taxed, that actually you could see exactly the benefit from it. So that's one type of option, there's a lot of ways money could be used to achieve other goals.

Nate Hagens (01:03:41):

That would be, not only would that maybe work, but I don't know what percentage of the population would also feel like they're doing something of meaning, instead of just frivolous consumption and Netflix and deep dish pizzas, they're actually working and getting paid for their work in something that improves the ecology of their area. And other people are doing it too, everyone's doing it, they have to, because that's where the money comes from. Could that model work in the United States towards all sorts of non-GDP as a metric of how much stuff we burn, ecological restoration, community restoration, that there's a parallel currency that we have to pay a certain percentage of our taxes every year in this X, Y, Z Farley dollars to help our future, and so that everyone has to get paid in those, at least a portion of their income, are people working on this, is this a crazy idea? Or...

Josh Farley (01:04:40):

There are people who have suggested it. So Bernard Lietaer is one of the architects of the Euro, and I have my concern to the Euro, but he has a book called Money and Sustainability: The Missing Link, which lays out some of these ideas. And the Modern monetary theorists advocate for a job guarantee. So we'll just print money to pay people. You could have variations of that like... So as I say, I think Modern Monetary theorists don't pay enough attention to the ecological limits, and therefore say, "Well, we can just create more and more debt without respect for ecological limits." But I think what we could do is have a jobs guarantee, with people investing in regenerative agriculture and alternative energy, and they could potentially be paid in carbon credits that correspond to the amount of carbon they sequester.

Josh Farley (01:05:25):

And you could tax, you could impose taxes in those carbon credits that would drive the value up to a living wage. So if you're working in regenerative ag, you're going to get paid in this carbon credit, and the taxes will be high enough in that carbon credit that the amount you are paid gives you a living wage and allows you to meet your basic needs, which then, of course, obviates the need for minimum wage. Because if you have a job guaranteed living

wage, then every firm would have to match that, and you're actually alleviating ecological constraints.

Nate Hagens (01:05:56):

I swear, I think I understand our monetary system and its relationship to ecology and human behavior, but I still learn from you every time we talk. And this is just a horribly Byzantine complex subject, money. Seriously. It's so central to our lives and it's so fraught with confusion. And to me, it's clear that our current monetary system is unsustainable. And so there's two things that have to happen. One is the little avalanche guns and the Alps that do the mini avalanches so that there's not a huge one, we need something like that. And we're going to have to navigate this musical chair's moment in the next decade where the amount of financial claims versus the underlying reality, there's a great depression-ish event on our horizon, so that has to be dealt with.

Nate Hagens (01:06:50):

And then in the next century, we have to have some more sustainable and more tethered to some other outcome other than just GDP monetary systems, because exponential growth, because the interest isn't created, is embedded in our system right now, and has been for a long time. Here's one thing that the gold-bugs were pumped saying that, "Oh, the 1970s, we went off a gold standard and that's when we started to decouple from sound money practice." That's not true because they're only talking about the vertical money-

Josh Farley (01:07:29):

Absolutely.

Nate Hagens (01:07:30):

... from the governments. They're not talking about the 95%, which is created from commercial banks, basically out of thin air. And that's happened ever since the early 1900s when the Fed came into existence.

Josh Farley (01:07:42):

I think it's happened since before that. I mean, some of the theories is some of the early banks were goldsmiths who had safes for storing gold, people would deposit it. Rich people would put their gold there for safe keeping, and then get a certificate and titling them to that gold. But then the goldsmiths would lend out some of that gold, knowing that the certificates circulated independent of the gold. So you kind of created that loaning money into existence. So they figured if I have no more than 10% of the people will come demanding their gold for me, so I can loan out 90% of the gold on deposit. And that functions like our current banking system.

Nate Hagens (01:08:16):

So what would be a more sustainable system? Let's ignore for the time being this widely coyote moment we have on the horizon. Once we make it through that, what would be something more sustainable? Meaning that it would be a... I mean, if you look at the average length of a fiat currency, fiat currency being something that's not backed by something physical, it's around 30 or 40 years, that's how long they last. So what would be something that would be longer lasting? How could we tether our monetary claims, how we keep track of things, to something that would last for a long time, either as a nation or as a world? Do you have any speculation on that?

Josh Farley (01:08:58):

Yeah. And this is challenging and I'm not even sure... So these are where the things get really difficult. So inflation, as I said, I think is kind of necessary. If you had enough inflation to create a debt jubilee, the deal is people, as you pointed out, people lose trust in the currency. When I was in Brazil during their hyper inflation, people lost trust in the currency so they introduced a new currency, two currencies at the same time. One with hyper inflation, one with deflation, and that actually worked quite well. And it remains... That was done in 1994, and the Real remains the most stable currency or the strongest currency in Latin America. There's things... Well, maybe with the way our system currently works, we could inflate away debt and then issue some kind of insurance or inflation backed bond, which would be inflation proof.

Josh Farley (01:09:47):

So you could have two currencies, one would erode away. And I'm not... This is speculation. But my main view is that finance is kind of essential to the way our economy currently works. You need to get money to invest in things that later generate returns. But the focus on all money being loaned for the profit motive, which is built into a private banking sector, I think is fundamentally destructive. We don't need... What we need to invest in is things that have collective benefits, public goods, the individual doesn't get the benefit, society does, like ecological restoration, regenerative agriculture. So I think a very powerful tool we could use is, it's already legal, but public banking solves so many of our problems.

Josh Farley (01:10:35):

And the problem is people don't understand it well enough, but if you had public banks, then the public sector would loan money into existence or give it out as grants. They could adjust interest rates according to the societal benefits being generated. You invest in a coal mine, 50% interest, invest in ecological restoration, negative 10% interest. I mean, you could have a lot of flexibility. And even then, when you're loaning money, even if you're loaning it into existence as interest bearing debt, the interest gets paid back to the government who then spends it back out, allowing the debtors to get that money and pay their interest. You don't need continually generation of more money.

Nate Hagens (01:11:17):

I think that's a fascinating idea, granted, quite speculative. Realistically, how would something like that come to being? Because you would almost have to have all the research, all the constituency built many years before some sort of crisis where it would have to be implemented. For instance, you have Democratic Congress and a Democratic president right now, and they got elected and they took the mantle from Trump and the Republicans, but they were too busy playing whack-a-mole since moment one, and it seems like we're going to perpetually be playing whack-a-mole no matter who wins the elections. So how could something like you just described actually come into existence?

Josh Farley (01:11:58):

Yeah. It's not that difficult. I mean, it's already legal. There's other approaches that would take major legal changes, but already, any state can start its own state bank. I'm pretty sure any city could start its own city bank or municipal bank. So this is an option that already exists, it doesn't need to be done at the Federal level, it can be led at the state level. We put forward a proposal to the Vermont state treasurer to do this, and she was skeptical. I think the main problem is overcoming people's total lack of understanding of how the banking system works and how it systematically transfers resources.

Josh Farley (01:12:36):

I mean, if interest bearing debt, the rate of return on it exceeds the growth rate of the economy, and the debt exceeds the size of the economy, I mean, this is... It's a Ponzi scheme for transferring resources to the financial sector. So we don't need legal changes, we need

mental changes. We need people to be aware of what the possibilities are. At next semester, I'm doing a course, part of which we'll look at outlining what a public bank would look like for Vermont and presenting that to the new state treasurers, since the old one just retired. And a lot of other states are talking about state banks right now.

Nate Hagens (01:13:10):

I think that's awesome. Okay. If you were benevolent dictator and had no personal status risk or danger from doing so, what would be the one thing you would implement, regarding money or advertising or our system, to help our future?

Josh Farley (01:13:27):

So having to do with money, what I would actually do is essentially create a national bank that functions like a conventional bank, except with the interest rate and everything accruing to the government, and remove all support for the private banks, so we would... Right now, we need a financial sector. When they do stupid things, they know they'll be bailed out. If you took away the guarantee that they would be bailed out, first of all, they wouldn't do stupid things. Second of all, people would be much less confident about investing in private banks or putting their money in private banks where it's not really backed up versus investing in a public bank, which is backed by the full liquidity and full government. So I think that alone would switch from... It would move us to a system of public banking. Although, if the goals of the public bank managers were exponential growth and profit, they wouldn't make a bit of difference.

Nate Hagens (01:14:26):

Right.

Josh Farley (01:14:26):

They would have to have goals that align with a socially just, sustainability transition, which is another thing.

Nate Hagens (01:14:33):

Well, on that note, I just think that cities and counties and regions, states are going to have to try that model and people are going to have to see that it works and then it might happen at a larger level. It's just my opinion. Okay. Go on. What would you do generally, not money related if you were benevolent dictator?

Josh Farley (01:14:52):

Perhaps here's what I would do. If I was going to do one thing, I think perhaps the most powerful tools at our disposable right now for affecting culture are social media. Unfortunately, social media is entirely driven by the profit motive. And this means that the algorithms that determine what we see are designed to get us to spend more and more time looking at advertisements, which means they're promoting consumption. And what gets us to spend more time is polarizing content, extremist views. So at a time we need global cooperation, our most powerful corporations are driving consumerism through polarization, exactly the opposite of what is required. So if I was going to call for one thing, I would actually call for making all knowledge, required for a socially just sustainability transition, I would make all that knowledge free, on the condition that no improvements were patented.

Josh Farley (01:15:49):

And this creates a knowledge commons that would also include a common control over social media, instead of public sector control, that's used too much to manipulate and to push propaganda. But I look at a commons sector as being transnational across the knowledge

institutions like universities. And if they were in control of social media that was directed at reducing polarization, reducing consumerism, educating people on the real causes of the problem, that would begin to change our culture in profound ways. You would be getting advertising saying, "Spend more time with your family and friends, take a break from your work, you don't need a bigger car, you don't need..." It would just be really changing our goals.

Nate Hagens (01:16:35):

Could you imagine if we had advertisements like that? Spend time with your family and friends, don't go to the store and buy a bunch of crap you don't need, a public servant's announcement brought to you from the anti polarization commons.

Josh Farley (01:16:48):

Yeah. And interestingly, when we first gave the airwaves to the corporations, it was on the condition that they provide public service announcements. Then Ronald Reagan said, "Nope, we'll actually just give our airwaves away worth billions and billions of dollars to private corporations to use as they like." And all the private corporations, the messages, what we see, is driven by advertising. And ultimately, advertising is geared towards making you feel crappy about your life, unless you go out and buy this thing.

Nate Hagens (01:17:19):

Yeah.

Josh Farley (01:17:20):

So they're really focused on undermining our quality of life. And we gave the airwaves away to the private sector so they could undermine our quality of life is one way of looking at it.

Nate Hagens (01:17:30):

I think I gave a presentation to your students, maybe six or seven years ago, where I said the single best invention ever by humans was the golden retriever, and the single worst was marketing and advertising, or something to that effect. So on that note, as a college teacher, Josh, what advice do you give students after learning about all this stuff, about money and climate and our Wile E. Coyote moment and everything? I know you struggle with it like I do, but on our first podcast, I didn't ask you that and I just wanted to hear what do you generally tell your kids as you push them out the door at the end of the semester?

Josh Farley (01:18:08):

So first off, I actually tell them that throughout the course, I tell them in the beginning and at the end, that if what you learn in an economics course doesn't help you understand reality, it's useless. If it's contradicted by reality, it's wrong. It's your job to test all the theories you learn in this class against reality. And I also say that I am far from infallible. The fact I'm standing up in front of you doesn't make me right. If you took a course in the econ department, you'd be learning totally different things. So you are the ones who kind of have to decide what's right. But I also say that to solve the problems we face with overshoot, it's going to be much, much more difficult than a lot of... You hear from the mainstream. It's not going to be technology stepping in and solving everything.

Josh Farley (01:18:53):

It'll be very, very challenging, but the impacts on your life... I say one of the things that gives people the most satisfaction in life is cooperating with friends and community overcoming difficult challenges. And working endless hours at some job to buy more crap has very little to increased your benefit, so that the sacrifices we have to make to achieve sustainability are far

less than you believe. We're sacrificing our wellbeing on the alter of endless growth and consumption. And so it's going to be a huge lift, but the actual lift of collaborating and working with people to achieve those goals could be the most fulfilling moments in your whole life. And it will be challenging, but it's doable. And we have to take that approach that these things can be done.

Nate Hagens (01:19:43):

So based on your last three minutes, that is evidence of why I chose you to be my PhD chairman and why you're one of my best friends 18 years later. So thank you again, Josh, for your time. Our first podcast was about cooperation, this one was about money. Thanks so much, Josh.

Josh Farley (01:20:01):

All right. Good to see you, Nate.

Nate Hagens (01:20:03):

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