

**Demetri Kofinas:** 00:09 What's up, everybody? Welcome to this week's episode of Hidden Forces with me, Demetri Kofinas. My guest for this episode is Nevin Freeman, founder of Reserve, a developmental-stage stable-value cryptocurrency project based in the San Francisco Bay Area and backed by Peter Thiel, Coinbase, GSR, Distributed Global and 40 other funds and angels that have collectively invested five million dollars in the project seed round. Reserve is composed of a 20-person team including engineers from Google, and OpenAPI, an algorithmic hedge fund founder, and former members of other startups. Strategic advising relationships include monetary economists, sociological experts, hedge fund founders, and Patomak Global Partners, a financial services consultancy led by former SEC Commissioner, Paul Atkins, that includes former officials from the SEC, CFTC, Federal Reserve, OCC, and Treasury.

**Demetri Kofinas:** 01:07 For more information about today's episode, or if you want easy access to related programming in blockchain and cryptocurrencies, visit our website at [hiddenforces.io](https://hiddenforces.io) and subscribe to our free email list. You can follow us on Twitter, Facebook, and Instagram @hiddenforcespod for regular updates and audience feedback including the latest information about future episodes, topics, and guests. And now, let's get right to this week's conversation.

**Demetri Kofinas:** 01:36 Nevin, welcome to Hidden Forces.

**Nevin Freeman:** 01:37 Thank you.

**Demetri Kofinas:** 01:38 Are you excited to be on the show?

**Nevin Freeman:** 01:40 Yeah, very excited.

**Demetri Kofinas:** 01:41 How has your trip to New York been?

**Nevin Freeman:** 01:43 It's been pretty great. And we spent the week just starting to talk to the press for the first time. We kind of been in stealth up until now. And then got together a bunch of our supporters last night to kind of get the extended family that we've been building together for the first time and get everyone to meet each other, which is good.

**Demetri Kofinas:** 01:59 Yeah, I know that was great. I was there as well. And I should actually mention for disclosure of the audience that I'm also an investor in Reserve, which is the company that we'll be discussing a little bit about today. But we're going to spend some more time in the coming months, we're going to do

another episode together where you're going to explain the mechanism, the stablecoin mechanism that you employ. I think it's really interesting and I think this is a fascinating topic. But I thought it would be really cool to take this opportunity today to speak with you about the ... get a little bit of your own background, Nevin, you have an interesting background, and then kind of lay out the landscape of the problem in cryptocurrencies with stable coins, specifically, the volatility, what some of the current solutions are on the landscape and what remains to be desired from those. And to the extent that we can discuss sort of your thinking and the team's thinking around that without divulging too much, that would be great.

- Demetri Kofinas:** 02:54 I actually intend to do a number of episodes in the coming months dealing with currencies. I have a couple of economists scheduled, one of whom is an expert in ERMs, in exchange rate mechanisms and the currency pegs. So I look forward to kind of geeking out on that. And anyone who knows me in the audience knows I'm a finance econ geek and I love this stuff. Stablecoins are, for me, like the perfect intersection, the intersection of economics, and financial models, and cryptocurrency tech stuff.
- Demetri Kofinas:** 03:29 So we're going get into all of that stuff today. But before we do that, Nevin, I want to give the audience a sense of who you are and your background. Now, you're 30 years old. Is that right?
- Nevin Freeman:** 03:38 Yep, that's right.
- Demetri Kofinas:** 03:39 30 years old. Where'd you grow up?
- Nevin Freeman:** 03:40 I grew up in Ashland, Oregon, which is a little hippie town of 20, 25 thousand in Southern Oregon.
- Demetri Kofinas:** 03:46 What is a hippie town?
- Nevin Freeman:** 03:47 I mean, just a town that's, I mean, just, yeah, classically speaking, there just are a lot of hippies there, but it's still a very liberal place. And it's interesting because it's surrounded by a conservative area. So it's kind of this little bubble. There's a little bit of a sort of sense of entitlement in the town because people sort of feel like they're better than the other surrounding communities. But-
- Demetri Kofinas:** 04:07 You guys are like a reservation?
- Nevin Freeman:** 04:09 A little bit, yeah.

**Demetri Kofinas:** 04:10 Yeah. Joaquin Phoenix grew up in like a hippie commune, but you're not like exactly a hippie commune.

**Nevin Freeman:** 04:15 It's not a commune exactly, but there is that sense of community. People don't lock their doors in the same way as you would in a big city. It was a beautiful place to grow up.

**Demetri Kofinas:** 04:23 Progressive Northwest?

**Nevin Freeman:** 04:24 Yeah.

**Demetri Kofinas:** 04:24 Yeah. That's a beautiful part of the country. What did your parents do?

**Nevin Freeman:** 04:28 My dad is actually a drummer and recording engineer, and my mom was a therapist.

**Demetri Kofinas:** 04:33 Oh, a psycho therapist?

**Nevin Freeman:** 04:35 Yep, yep.

**Demetri Kofinas:** 04:36 What kind?

**Nevin Freeman:** 04:37 She did a lot of child therapy. Also, worked with adults with drug and alcohol problems.

**Demetri Kofinas:** 04:41 Like talk therapy, psychotherapy, Freudian, Jungian?

**Nevin Freeman:** 04:45 You know, you learn different things in school, but then you kind of you learn a lot as you go. And so I think that she integrated a bunch of different schools of thought eventually. She's been practicing for 20 or 30 years at this point, so ...

**Demetri Kofinas:** 04:56 And where did you go to school?

**Nevin Freeman:** 04:58 So I went to school in Portland at the top of the state, Portland State University, big commuter school where I studied transportation engineering.

**Demetri Kofinas:** 05:06 What's that?

**Nevin Freeman:** 05:07 Well, so it's kind of the intersection of thinking about, on the one hand, like the vehicles themselves, like on the mechanical side, how do you design more efficient engines, all the way to the systemic components of how do you manage like the urban growth boundary of a city in order to lead to different

transportation patterns over the course of decades that are more efficient or more effective just for people getting around.

- Demetri Kofinas:** 05:31 Oh, that's interesting.
- Nevin Freeman:** 05:31 Yeah. So I sort of span that whole spectrum of mechanical to the sort of systems in like city planning kind of stuff.
- Demetri Kofinas:** 05:37 So, like understanding what parts of the city need to get built out, or need to get renovated, or upgraded, or whatever, and incorporating a certain long term vision of the type of sustainable-
- Nevin Freeman:** 05:48 Yeah, yeah-
- Demetri Kofinas:** 05:48 ... efficient traffic infrastructure?
- Nevin Freeman:** 05:49 Yeah. There're these planning firms that get hired by cities to think through like, where should we install bike lanes, or which arteries are causing problems the way that they work, and you're constantly balancing a bunch of different factors, thinking about the economic productivity of the region and how it's affected by the transportation system, and the amount of pollution that exists as a result of whether people are driving or biking, and the sort of traffic patterns, and incentives, and so on.
- Demetri Kofinas:** 06:14 I guess you were very into environmentalism.
- Nevin Freeman:** 06:16 That's right, yeah, yeah. That kind of came from growing up in Ashland. That was sort of the natural thing to focus on. And I sort of had this plan up until about age 20 of trying to revolutionize transportation, because I sort of saw that as the root cause of a bunch of environmental problems. Yeah.
- Demetri Kofinas:** 06:33 Hmm. So at the age 20, so that would have been like what? 2008? 2007?
- Nevin Freeman:** 06:37 Yeah, yeah, around there.
- Demetri Kofinas:** 06:39 And so how did you get into crypto? I mean, what was the transition there? Did it happen right after college? What did you do after you graduated?
- Nevin Freeman:** 06:46 There was kind of a step right about the time I was graduating college I started thinking about how I was going to go solve this

problem of essentially global warming, and realized that I really didn't have-

**Demetri Kofinas:** 06:56

Ambitious problem solver.

**Nevin Freeman:** 06:58

No, I was very ambitious, but I realized I did not have a good plan at all. And it was this bizarre experience where I realized that a bunch of people in my department have the same sort of ideology as me and the same sort of plan, but none of us really knew what we were doing at all. We didn't understand the large systems in the world that we had to interface with. And it caused me to reflect and think about, had I really picked the right problem to go after? It's like, if I haven't been strategic about how I'm going to solve it, why would I think that I've been strategic in picking the problem? And I really hadn't been. It's just something that was part of my plan since a very young age when I wasn't really thinking carefully about anything.

**Nevin Freeman:** 07:32

And so I pretty quickly stepped away from that and started looking much more broadly at what are the big problems for humanity? What are the big opportunities for humanity? And I discovered people thinking about this category of global catastrophic risks in general, of which environmental problems are one category, but people are concerned about pandemics, people are concerned about artificial intelligence-

**Demetri Kofinas:** 07:54

Asteroids.

**Nevin Freeman:** 07:54

Asteroids, yeah. People are thinking about political problems, etc. And I really thrived to getting into that community and finding all these people who are thinking much more carefully than I was at the time.

**Nevin Freeman:** 08:05

And so it was kind of in the midst of me burrowing into that community and starting to work with these really interesting strategic people trying to figure out what we can do to guide the future of the world that I ended up discovering Bitcoin. That just happened to occur contemporaneously. So-

**Demetri Kofinas:** 08:20

When was this?

**Nevin Freeman:** 08:21

So I think I discovered it in 2011. And it was interesting to me because currencies are this fundamental coordination mechanism for humanity, where the existence of currency makes it so that someone can do a favor for someone else and have a record of that, and then that favorite can be paid forward instead of payback. And so we're kind of in this

constant cycle of paying favors forward because of currency, which is really interesting. And-

- Demetri Kofinas:** 08:46 Can you elaborate a bit on that? When you say favors, how is it that you think about currency in terms of a favor?
- Nevin Freeman:** 08:52 Yeah, no, it's an uncommon perspective I think, which I actually kind of think is unfortunate. So to tell a backstory a little bit here, part of growing up in Ashland was, money was seen as bad. And if you're a rich person, you're sort of seen as being greedy or evil. And so I didn't really have it in my plans to make money, because that seemed like kind of a thing that people wouldn't want me to do.
- Demetri Kofinas:** 09:12 You didn't know God wants you to be rich?
- Nevin Freeman:** 09:15 And so upon discovering Bitcoin, it kind of caused me to stop and think about what money really is. And so when I say that it's a system for tracking favors, it's like, if you go to the grocery store and you buy a carton of milk, if you sort of subtract the concept of buy from that event, you go into a building, there's some people who are carefully managing this large stock of goods that you might want, you just walk in, you pick up one off the shelf, and then you leave. They're just waiting there for you to go get it. And that's really convenient for you. You don't have to go produce the milk yourself. And then that process when you're in the checkout line of handing over some bills or swiping a card, all that's happening there is you're tracking the fact that a favor was done for you, right?
- Nevin Freeman:** 09:59 So all those people taking all the time to have that cold milk in that carton ready for you to go pick up, that was a favor. That was something they did that was convenient for you, not necessarily for them. And then the process of paying is just essentially, yeah, marking the fact that that favor was done. And so now, the sort of favor credits, as I think of them, are in the hands of that business, and you don't have to pay back that favor that was done, it was a one way favor. And now they can use those credits to incentivize someone else to do a favor for them. And so when I say that there's kind of the cycle of everyone paying the favors forward, that's what I mean.
- Nevin Freeman:** 10:35 I think that for people who come from a background like me, who kind of have the sense that money is generally bad, the thing that I like to say to get people to think through this is, sit and think about, for five minutes, what the world would be like if we didn't have money, if we weren't allowed to use money. I personally think that what would happen is you could really

only have a highly cooperative circumstance amongst small groups of people who could mentally track who had done favors for whom, and you'd sort of have these like very, very small groups collaborating. But it would be very difficult for people to do favors for people that they don't know because there's just this possibility of defection.

- Nevin Freeman:** 11:10 So essentially, the existence of currency allows this enormous collaborative process and that I think just wouldn't be possible without it. And I think that's kind of the fundamental good thing about money. And there are surely bad things about the way the monetary system works as well, but I think that people sort of get caught up in thinking about all the bad things and they kind of forget about this amazing good thing about what money allows us to do.
- Demetri Kofinas:** 11:32 Are you familiar with David Graeber's work on Debt?
- Nevin Freeman:** 11:34 I'm not, no.
- Demetri Kofinas:** 11:35 The history of debt. I think it's less so today, but there was a predominant misconception that money originated with currency, that somehow it was a bunch of people creating ... you taking seashells and that they were able to create commerce. And in fact, quite the opposite, it was credit that proceeded money, and it was exactly that point favors-
- Nevin Freeman:** 11:53 Yeah, I'm familiar with those ideas, yeah.
- Demetri Kofinas:** 11:55 And then in today's system, money is credit, credit is money. And we have, as you said, cold milk. The fact that it's called is the expectation that there will be someone to be there, and you have an entire economy that's built off of this pyramid of credit, which is why the financial collapse in 2008 was so dangerous, because if the system imploded, as you sort of point out there, this network of favors would collapse and we wouldn't be able to actually expand our economic capacity and do the things that we'd otherwise do.
- Nevin Freeman:** 12:24 Yeah. And so you asked a moment ago about getting into bitcoin. The thing that excited me about it was that this fundamental coordination technology of money works well when the government institutions that are supporting the monetary system are functional. And when they're not functional, either because of corruption, or incompetence, or just bad luck, the monetary system can start to degrade. And this is less common in the developed world, but it's fairly

common in the developing world. So what that means is that there are a lot of situations around the world where there's like 16 countries right now with 20% or higher inflation, and that's a situation where this favor tracking mechanism is just not working in the same way. You have a situation where essentially you do favors for people or for a society in some fashion and you get some credits for that, but just naturally over the course of time, it's like that record is being wiped clean. And so you can't call in those favors at the same rate next year as you could this year. That's really sort of what inflation is, is sort of 20% or higher sort of devaluing of your past favorite credits.

- Nevin Freeman:** 13:28 And so when I discovered Bitcoin, it was interesting because it was a sort of first way that I'd ever seen to have a currency that didn't depend on any functional institution in particular to keep it working. And so that was pretty exciting to me. And so I got excited about it, I bought some. But about a year later, I think in 2012, I decided to sell it all because I became convinced it wasn't going to work as a currency.
- Demetri Kofinas:** 13:52 What made you feel that way?
- Nevin Freeman:** 13:53 Yeah. So basically, I landed on the line of reasoning that because of bitcoins, relatively or entirely deterministic monetary policy-
- Demetri Kofinas:** 14:01 The supply schedule.
- Nevin Freeman:** 14:02 Yeah, the supply schedule, it would either be volatile in price or deflationary in price if it's adopted. Deflationary in the sense that prices denominated in Bitcoin would continue to go down over the course of time because of the relatively fixed supply. And that didn't seem like a good favorite tracking mechanism to me, because you can imagine being the person who's holding some Bitcoin, and then some other currency where you think that the other currency is going to either have a stable purchasing power or maybe go down a little bit over time with like inflation targeting, and then you're also holding Bitcoin that you expect to appreciate slowly over time. Which one are you going to spend? Probably not going to spend the thing that you think is going to be worth more later.
- Demetri Kofinas:** 14:41 That's the key, that's the key takeaway point.
- Nevin Freeman:** 14:42 Exactly.

**Demetri Kofinas:** 14:43 Is the reason why Bitcoin hasn't been... one of the reasons why people haven't been willing to use it, because they're speculating it's going to go up in value?

**Nevin Freeman:** 14:49 Right. It's like either you don't want to get in because you think it's going to go down, or you don't want to get out because you think it's going to go up.

**Demetri Kofinas:** 14:54 You don't want to be the guy that bought the \$50 million pizza.

**Nevin Freeman:** 14:56 Exactly.

**Demetri Kofinas:** 14:57 How much is that pizza worth?

**Nevin Freeman:** 14:57 Yeah, I don't know.

**Demetri Kofinas:** 14:58 And I think it was Poland, wasn't it?

**Nevin Freeman:** 15:01 Yeah, I think it really happened over the internet. Well, anyway, so that was the basic takeaway at that point. And so I sort of wondered over time, is cryptocurrency capable of helping with these inflation problems given that I think Bitcoin is not positioned to do that? And then it was only last year that I settled on a plan for how I think we could actually do it.

**Demetri Kofinas:** 15:20 The other thing that's interesting is that you're affiliated with an organization called Prodigy?

**Nevin Freeman:** 15:25 It's called Paradigm.

**Demetri Kofinas:** 15:26 Paradigm?

**Nevin Freeman:** 15:26 Yeah, Paradigm Academy.

**Demetri Kofinas:** 15:27 Paradigm Academy. And as I understand it, this organization is focused on trying to identify essentially really brilliant people, great potential problem solvers, identifying them, bringing them to the organization, and then inculcating them with a certain value set. And I don't know if it's so much skill set, value set, or mindset, and then attempting to sort of deploy them at appropriate problems.

**Nevin Freeman:** 15:51 Yeah.

**Demetri Kofinas:** 15:52 Would that be considered like a sort of advanced type of incubator?

**Nevin Freeman:** 15:55 Yeah, it's a little bit like an incubator, but instead of bringing in people who already have startups or project that they're set on, we sort of try to pick people before they have necessarily settled on what they're going to do.

**Demetri Kofinas:** 16:05 So who else was involved in this organization? I mean, I know there were some pretty prominent, pretty smart people that you were working with.

**Nevin Freeman:** 16:12 Yeah. So the investors behind Paradigm mostly prefer to remain anonymous, but essentially, they're successful tech entrepreneurs who are looking for interesting outside-the-box ways to spend their wealth in order to dramatically improve the world in the long run. And the proposition to them is essentially, hey, look, you can help us on this project where we're trying to actually sort of fundamentally change the talent landscape. And kind of the promise there is that, we think that some problems and some opportunities for humanity are kind of too big for the current society and the current set of entrepreneurs to handle. It is just too complicated. And then it might be possible to sort of train a set of people to become significantly more effective than they otherwise would have been, and really sort of modify the talent landscape in a way that normally doesn't happen intentionally.

**Nevin Freeman:** 16:58 Normally, we think that if someone becomes a really amazing entrepreneurs, a scientist, or a leader, it's kind of a quirk, it's kind of happenstance as a result of all their experiences throughout their lives, and that we, as humanity, don't even really understand the details of how that happens. It's really hard to study a person's life and figure out exactly why they ended up the way they were. And so what's happening at Paradigm Academy is, essentially, we're trying to intentionally produce those kinds of people. And so that's why our investors are excited about our project.

**Demetri Kofinas:** 17:25 I feel like that's an interesting conversation in itself.

**Nevin Freeman:** 17:29 Yeah.

**Demetri Kofinas:** 17:29 That's a very interesting conversation for a different show. But I've met, obviously, many people from the team and you guys are an impressive, interesting bunch of people, and you have a really great background and think it's a talented team, and I think it's what a lot of people who have met you or who have invested in Reserve see.

**Nevin Freeman:** 17:46 Yeah.

**Demetri Kofinas:** 17:46 And I think that's what you value in the team as well. And I think, generally speaking, it's always a good thing to bet on a good team, because even if the project that they're working on doesn't work, sometimes they can sort of pivot in a way that other people wouldn't be able to do. There is a lot more that's interesting in your background, Nevin. There are many things that I know about you that we've left out. But I want to pivot now to the problem, which is this volatility in cryptocurrencies that make it unusable, impractical. This isn't some we've discussed, but for me, it's actually less, and in fact, you mentioned last night about, you alluded to legal tender laws and how it's illegal to mint another currency to use in the United States. I actually have found that the bigger deterrent to a competing currency are not the laws against competing currencies, but actually taxes, the IRS and the federal taxes, because you have to pay in the local currency. And if each time you transact in a currency which is fluctuating in value, visibly, the dollar, it's a taxable event.

**Demetri Kofinas:** 18:46 So I think that's actually the biggest deterrent to actually adopting these currencies, but they need to be able to be pegged to the local currency or you're paying taxes in. But let's talk about this sort of, what made you choose this problem, and how big of a problem is it, in your view?

**Nevin Freeman:** 19:00 So, the kind of story is that my team and I were wondering, could we fix all the problems that exist with Bitcoin to produce a cryptocurrency that really was a currency. And we kind of got together at the end of last summer and made a list of all the problems that we saw on the whiteboard, where price stability was number one, but there are many more. I think we had like 14 or so, and just sat there and thought through, do we think we actually could fix all of these? And we came up with enough preliminary ideas to think that the answer was yes. And so we see lots of applications for actual cryptocurrency inside of the crypto space itself. Being able to lock up something that's really like money inside of a smart contract is a pretty cool thing, and that we think that that's going to permit interesting innovations. But sort of the most direct real world impact that we think this could have is essentially offering a stable store of value to people who don't have access to that in these countries that have inflationary currencies.

**Demetri Kofinas:** 19:58 In the developing world primarily?

**Nevin Freeman:** 19:59 That's right. Yeah, that's right. And so interestingly, a lot of the folks who are trying to build a stable coin are pretty focused on the means of exchange use case. They're talking about how crypto is really not a means of exchange yet, and they're going to build one. And I think that that's interesting, and I think that we will get there. But I actually think that the natural starting place for a price stable cryptocurrency is still store of value. And the reason for that conceptually is that the network effect on a means of exchange is very, very strong, because a means of exchange is only useful to you if everyone else wants it.

**Nevin Freeman:** 20:32 And so it's sort of already has to be in use as a means of exchange before you want to use it as a means of exchange. Whereas with the store value, each individual person is only going to care about the sort of risk and return profile and the liquidity. They just want to know how valuable is this store of value going to be in the future, and am I going to be able to convert it to something else that I can then spend or consume?

**Demetri Kofinas:** 20:52 Doesn't have a high fidelity also.

**Nevin Freeman:** 20:54 And so we think that in creating a price stable cryptocurrency, the first application is going to be the one that's not subject to that extremely strong network effect. And then perhaps once a large number of people have started to adopt it as a store of value, once enough people are holding it and comfortable with it, then it starts to become a natural means of exchange. And that's how we see that playing out.

**Demetri Kofinas:** 21:14 And where does stablecoins fit in this? First of all, what is ... Let's define this for the audience. I don't want to take anyone's knowledge for granted here. What is a stablecoin?

**Nevin Freeman:** 21:22 Yeah. A stablecoin is just a cryptocurrency that has a stable purchasing power. And there's kind of the question of, well, stable with respect to what? In theory, you could potentially create a cryptocurrency that just had a stable purchasing power where you're doing some sort of measurement of consumer price index, kind of like it's done with a dollar and stabilizing directly. But in practice, what's happening in the stable coin space is people are implementing an exchange rate peg to an existing fiat currency that already has a relatively stable purchasing power, at least in some currency zone. And so essentially, it's interesting because there's a lot of innovation happening in stable coins, but in a sense, we're just porting over a technology that's been used for a very long time. New currencies are started and pegged to major currencies over and over again, throughout history. And so a lot of lessons have

been learned from that, and a lot of that knowledge can be applied to this process of creating a paid currency inside of the crypto space.

- Demetri Kofinas:** 22:18 I'm not really familiar with any case of a currency peg that has worked long term. That doesn't mean there aren't, there may be. Maybe Hong Kong is one of them, I'm not sure. But of course, we're familiar with the ones that haven't, right?
- Nevin Freeman:** 22:29 Yeah, yeah-
- Demetri Kofinas:** 22:29 ... because they stand.
- Nevin Freeman:** 22:30 Yeah, yeah, that's right. Yeah, I know the Hong Kong dollar is an interesting example where it really has worked over time. I've spoken to some people who think that it could be threatened currently, I'm not actually sure myself. But throughout the Asian financial crisis in the 90s, a lot of currency pegs broke. And sort of the lesson that was learned, it was kind of believed before that by some that a 30% reserve was sufficient to maintain a currency peg. But in those extreme circumstances, that was proven to not be enough. And so a lot of pegs broke because they were only holding about 30% in reserve, whereas the Hong Kong dollar did fine because they were holding significantly more than that.
- Demetri Kofinas:** 23:03 So cases like Mexico, Argentina, Thailand, of course, these countries, like you said, they're small, they're trying to attract capital with their currencies vault out. If their interest rates, or they're high because they reflect risk, investors may be unwilling to invest in those countries, foreign direct investment is low, and the economies can't grow. In order to bootstrap it, stabilizing their currency is very important. That's how these countries have done that so they get a flood of capital, that they also get a huge interest rate carry trade, and then you can have that snapback. That unwind. So it's very unstable. In other words, dropping the volatility of the currency leads to instability in the financial system. And that has been a traditional problem in these cases.
- Nevin Freeman:** 23:45 Yeah. And another interesting consequence that I was just discussing with someone today is, apparently, and check this fact for yourself, but apparently in Argentina when they pegged to the peso, 1:1 to the dollar, and this led to an interesting circumstance where essentially, all of these Argentine people are holding what amount as dollars, and the amount of imports went way up because they had the dollar, like purchasing power is just like being in the U.S. and importing a lot of goods from

China and so on. And so internal production went way down and unemployment went way up as a result of that.

**Demetri Kofinas:** 24:17

Same thing peripheral Europe.

**Nevin Freeman:** 24:18

And so an interesting consequence of that was they had enough reserves via taxation in order to maintain that peg for a while. But the tax revenue went down as a result of the drop in internal production, and they eventually ran out of reserves, and that peg broke. And so this sort of wasn't a sustainable circumstance.

**Demetri Kofinas:** 24:35

Yeah. Well, decimating the local economy reduces your ability to attract foreign exchange which you need to purchase back your currency. So I mean, we could go on and on here giving examples for why it's so difficult to maintain a currency peg in the physical world, right? But now we're transitioning to this digital financial market, and there is a similar sort of landscape of problems. And the solutions so far have been proposed by projects like Tether. There are few other ones that I think you're in a better position to talk to us about. But why don't we sort of talk about the two or three sort of proposals, or alternatives, or versions of this that are currently out there? And then what works about them, and then what doesn't work, and what could not work. And let's kind of explore that landscape.

**Nevin Freeman:** 25:16

Yeah. So I want to start by describing a bit about the basics of how a currency peg really works. And this is just for listeners who haven't spent time thinking about the market mechanisms. So you imagine if you're like a middle income country and you want to peg your currency to the dollar, the Euro. Essentially what you have to do is you have to maintain a buy wall for your currency against the currency you're pegging to in a sell wall. And that just means basically having enough assets held in reserve of the currency you're pegging to so that you can always make good on the promise to repurchase your currency for the rate that you've promised.

**Nevin Freeman:** 25:54

And so let's say that you have a made up currency, Demetri coin, and you want to peg it to the dollar in the Demetri country, you have to make sure the-

**Demetri Kofinas:** 26:03

Sorry, this doesn't sound very great. I'm not onboard.

**Nevin Freeman:** 26:04

Yeah. Let's see if we can make it work.

**Demetri Kofinas:** 26:08

No, that's fine, that's fine.

**Nevin Freeman:** 26:11 So let's say you have 100 Demetri coins in circulation and you want to pick them 1:1 to the dollar. Well, if you have \$100 held in your central bank reserve account, then anyone who comes knocking and wants to trade one Demetri coin for a dollar can always do that, because you always have enough dollars, you have 1:1 backing. And so, then the only question is, are you going to make good on that promise? Are you always going to be willing to make that trade to give the person a dollar for that Demetri coin? And so the situation where a peg breaks, there's kind of two things that can happen. One, is the body that's maintaining the peg runs out of that foreign currency and they can no longer make good on that promise, even if they wanted to, because they just don't have any money left over to be [crosstalk 00:26:53]-

**Demetri Kofinas:** 26:52 That's a hard currency reserve.

**Nevin Freeman:** 26:53 Exactly. And then the other thing that can happen is they don't necessarily run out of money, but for some reason, they decide not to spend the money to maintain the peg because they need it for something else, for some political reason, or they just need it for the government budget for something else. And so effectively, even though the money is there, it's no longer really part of the reserve, and so that peg can break.

**Demetri Kofinas:** 27:13 But in both cases, the issue is defending the peg in a depreciating environment as opposed to an appreciating one.

**Nevin Freeman:** 27:19 That's right.

**Demetri Kofinas:** 27:19 You can always omit more versions of your currency and simply buy up foreign exchange.

**Nevin Freeman:** 27:23 Yeah, exactly. You can [crosstalk 00:27:26] mint as many Demetri coins as you want to.

**Demetri Kofinas:** 27:27 Right.

**Nevin Freeman:** 27:27 But you can't just create others. And so, we found this to be a really useful sort of simple framework for thinking about stablecoin designs, where basically you look at two factors. You look at, number one, what is the size of either the actual reserve, or if there's no actual reserve in the system, the size of the implied reserve? And we found that you can always take a stablecoin design and translate it to think about the size of the implied reserve, which I'll explain in a moment. And then the second question is, what is the sort of credibility of the promise

to spend those reserves maintaining the peg? Because, again, in the stablecoin design, sometimes that promise is highly credible, and sometimes it's not. And so if you have sufficient reserve size, or implied reserve size and a highly critical promise, then you have a pretty good currency peg. And if you don't, then you don't. So we can go through-

- Demetri Kofinas:** 28:18 One of those is entirely subjective, which is problematic.
- Nevin Freeman:** 28:21 Yeah, the credibility of the promise. Well, that's true, but you can make it easier or harder to assess depending on the design. So you asked about some examples, we can talk about sort of three major stablecoin design types that have been proposed, and in some cases, implemented. So I would say that the most successful stablecoins so far obviously is Tether. And people have issues trusting Tether because it's hard to tell if the assets are there. But if you look at the track record, it's actually worked quite well.
- Demetri Kofinas:** 28:47 So how does Tether work?
- Nevin Freeman:** 28:48 So the way that Tether works is essentially that you can trade dollars for Tether tokens. And then, it used to be that you could trade Tether tokens back for dollars, no matter who you were. At this point, it's no longer the case that it works that way. But as far as I understand it, and again, do your own Google searching-
- Demetri Kofinas:** 29:04 You mean, they have ... Just to be clear, you're saying no matter who you were, you mean they have preferred buyers, they have sort of prime brokers that are able to purchase?
- Nevin Freeman:** 29:11 So I believe that that's how it works Now. I think that the original vision was to have any consumer be able to trade dollars for Tether tokens, and then go trade those Tether back for dollars. That's no longer the case. If you look at the Tether website, they'll explain that they don't actually do that anymore. But-
- Demetri Kofinas:** 29:26 That's kind of more like the Bretton Woods system, you move to a ... I mean, and Bretton Woods central banks could exchange their dollars for gold if they wanted to-
- Nevin Freeman:** 29:32 That's an interesting point, yeah.
- Demetri Kofinas:** 29:32 ... but the average person couldn't do that.

- Nevin Freeman:** 29:33 Yeah, yeah. And so my understanding is that something like that is going on now where there are some parties that are able to trade Tether tokens for dollars whenever they want to. And so, now let's analyze this in our framework. So question number one what is the size of the reserve? Well, so long as it's the case that Tether actually has all the dollars held in reserve, and which I personally think is pretty likely, then the reserve size is sufficient, you have 1:1 backing. And because the reserve is held in the currency that it's pegged to, then even if the value of the dollar fluctuates, that doesn't change the question of whether or not they have sufficient value held in reserve because it's all denominated in dollars.
- Nevin Freeman:** 30:11 And then there's the question of the credibility of the promise to spend the dollars maintaining the peg. And I think this is another part that's difficult for the audience to assess, not your audience, but the sort of crypto audiences, is it the case that Tether or Bitfinex is going to choose to spend those dollars maintaining the peg? And it seems like up until now, they probably have given the track record, but there's always a question of whether that will continue. And that's something that's difficult to assess because-
- Demetri Kofinas:** 30:36 Well, to be clear, there's a breaking point for anyone. I mean, there was a breaking for the United States in 1971, when they closed the gold window. No one maintains a peg indefinitely. So I mean, you're touching on a central problem. You've studied this market much more than I have. We've discussed it a bit between us and I think you've caught on, in my amazement, that people have been willing to invest in such a scheme from my standpoint, not just because it's a very centralized way of doing things, but also you have to rely so much on the credibility of the institution, or the body.
- Nevin Freeman:** 31:08 That's right, yeah. And I think people are then kind of forced to assess how well is Bitfinex doing as a business. As long as Bitfinex is a cash machine, well, then probably they have the money in their incentive to maintain Tether. I mean, if something were to happen to compromise that business, that could be the moment where the [crosstalk 00:31:23]-
- Demetri Kofinas:** 31:23 And who is their intermediary, and this then introduces counterparty risk.
- Nevin Freeman:** 31:26 That's right. That's right. So that's one example. That's kind of the simplest version of a stablecoin. And then there's another mechanism is to sort of issue collateralized debt. And this is a really interesting approach. This is the approach that MakerDAO

is taking and bitUSD has taken in the past. And so essentially, in this system, someone deposits some collateral into a smart contract. To keep it simple for now, let's just say they deposit ether into a smart contract on Ethereum, and then they can take out some new token against that that functions as a loan, where the reason why it's a loan is because you have to eventually send that token that you've just received back to that same smart contract to get your collateral out. And because you value the collateral, you're going to probably want to do that at some point. And so this is interesting because-

- Demetri Kofinas:** 32:11 And you have this ... Just to be clear, and you have a set price where you can do that. You have a convertible price target?
- Nevin Freeman:** 32:16 You mean the price at which ... Which price do you mean?
- Demetri Kofinas:** 32:17 Will you be able to buy back the collateral?
- Nevin Freeman:** 32:20 Yeah. So there are different ways of doing this. In the Maker system, the amount that you have to pay back goes up slowly over time, because there's essentially an interest rate on that loan, yeah.
- Demetri Kofinas:** 32:28 But it's not based on the market forces, and it's not based, in other words, on the price at which ether is trading or anything else?
- Nevin Freeman:** 32:35 No, not algorithmically. I believe the interest rate can be changed through a voting process with the Maker token holders, yeah. And so the way that the system works then is that you have all of this collateral that's locked up, that's in a sense backing the stablecoin, kind of like money that's in a reserve account. But the difference is that it's not the case that you can trade one of these newly issued stablecoins for a collateral, because the collateral all belongs to some person, right? It's not just collateral that's held in one big bucket, it's sort of collateral that was deposited by each different individual. And so, that doesn't really permit you to then spend that collateral to defend a currency peg in a direct way. Instead, what can happen is that if the price of the stable token diverges from the pegged price for a long period of time, at least in the Maker system, the token holders can trigger what's called a global settlement, which is a process that essentially, as one part of it, at least, allows you to trade one of the stable tokens for a dollar worth of that collateral. In a sense, the system kind of winds down and then can spin back up again.

- Nevin Freeman:** 33:37 And so this means that our job and assessing what the reserve is, is a little bit more complicated. I want to try to walk people through that because I think this is a really useful way to think about a stablecoin. So at any given point, if the price of the stablecoin is below, let's just say one dollar, then what can happen in order to support that price, is speculators might want to buy that token at say 90 cents, because they believe that one of two things could happen. Either the price will return back to a dollar just via broad market forces, and they can sell their token for a profit. Or if that doesn't happen, then in theory, a global settlement will occur, and they can trade the token for a dollar worth of collateral. And that depends on the token holders deciding to cause a global settlement, and it depends on the collateral still being worth enough at that point.
- Nevin Freeman:** 34:24 And so there's some assumptions to be made there. But so then if we ask the question of like, well, what is the capital out there that's actually available on a moment to moment basis to provide the buy wall for the stable currency? The answer is, it's the capital that's held by all those diverse individual speculators who will make the choice whether they want to buy the stable coin when it's worth 90 cents, or 40 cents, or whatever. And so there's no central reserve account. And so you kind of have to ask yourself, well, how much capital do I believe that the sort of crowd is holding that they would be willing to spend on this particular financial proposition?
- Demetri Kofinas:** 35:00 It's a confidence game also, though. You're talking about the latent demand to appreciate the currency.
- Nevin Freeman:** 35:05 Right. And you have to wonder, will those speculators want to spend the capital on this, versus some other financial proposition at the moment that the price needs to be supported for the stablecoin. And so it makes it so that the implied reserve size is opaque. So that's sort of criterion one. And then criterion two is the credibility of the promise to spend those assets maintaining the peg. And so again, there's no central body that's going to make a single choice, there's no piece of code that's going to make a single choice on whether or not to spend those assets to maintain the peg. Instead, there're going to be perhaps hundreds of thousands of people making the choice of, do I want to spend some money to purchase this token based on this line of reasoning that it could be worth more later based on either the market forces or this global settlement process. And so I think that that means that it's not an easy currency peg to assess and trust-

**Demetri Kofinas:** 35:53 It doesn't make any sense as a currency peg. I'm just speaking personally. You've done a lot more work in this area, I've done close to zero. Just coming at it from my experience in financial markets and having studied economic crisis, that doesn't make any sense whatsoever, because you can't control people's subjective perception of value. And that's what you're relying on in order to maintain the peg. That's not enough. Yeah.

**Nevin Freeman:** 36:17 Yeah, yeah. I think that I agree. It's interesting because if you look at how Bitcoin works, Bitcoin functioning really depends on people having a particular set of economic incentives that sort of caused the miners to, in a sense, be misaligned with one another. Where if they were to all collude, then the sort of whole process could break down. And so it's interesting that we do see this example in practice where certain assumptions about this big amorphous crowd do seem to be working. And so, there's kind of the argument from that perspective that like, well, maybe the Maker system will work, maybe they've thought through the incentives properly and everyone will act the way that they predict they'll act in those circumstances. But I think it's as you heard on Proven, and it's the sort of thing that's hard to assess. But I think it's a clever and interesting system-

**Demetri Kofinas:** 37:02 What happens if you develop a future's market where you can short the currency, then you create a market and central people that gang up on it.

**Nevin Freeman:** 37:08 That's true. And so proponents of the system would say that if you do short it, you might drive the price down, but there'll be plenty of people who would be willing to go long on it at that point.

**Demetri Kofinas:** 37:17 Yeah, also not true. Not true at all. Totally, totally not true.

**Nevin Freeman:** 37:20 Well, find out with time.

**Demetri Kofinas:** 37:22 We've talked about the attack against the Bank of England on the show here with Robert Johnson. That was a trade where it wasn't just a matter of what were the physical reserves that the Bank of England had, it wasn't just a matter of what were the political dynamics in the UK and in Europe, but it was also a matter of what did the market perceive about the wounding of the animal? And did they see an opportunity to profit by piling on Soros' trade.

- Nevin Freeman:** 37:46 Absolutely, yep. Yep, that's a good point. So yeah. So the third example we can mention is instead of talking about a particular system, we can talk about a sort of whole class of systems that's really interesting. And if you really want to understand the innovation happening in the stablecoin space, I recommend you look into this whole class. So a guy named Robert Sams had an interesting idea that he published in 2014 in a pretty informal paper called Senior Shares. And the basic idea behind Senior Shares as you have a two token system, you have the stablecoin and a sort of share token. And the idea is that anytime the price of the stablecoin goes above the pegged price, again, let's just say it's one dollar, that indicates that the demand for the stablecoin has gone up, and you want to have demand and supply always match one another to have a stable purchasing power. So you can issue new stablecoins and essentially auction them off for share tokens. And so the number of shares tokens goes down, the number of stablecoins goes up, and the price is brought back down to one dollar.
- Nevin Freeman:** 38:45 And then you can do the same thing in theory in reverse, where if the price of the stablecoin is less than one dollar, let's say it's at 90 cents, then you mint new share tokens and auction them off for stablecoins in order to reduce the supply and bring that price back up. That's sort of the basic idea behind Senior Shares. And so the sort of idea here is that if you are a purchaser of share tokens, in theory, at least, you can spend N stablecoins to purchase a share token now, and then trade that share token for more than N stablecoins later, if it's the case that demand for the stablecoin is going up and up, and the prices in those auctions end up getting pushed up as a result.
- Demetri Kofinas:** 39:21 This is difficult for the audience to follow. It will be if they haven't read anything about this. But what you're getting at here is this is a system for aligning value to accrue in the sort of entire mechanism somewhere where speculators can capture that value, while at the same time allowing the medium of exchange to remain constant. So it's almost in a sense, I never thought about it like this, Nevin, but it's almost like you take a currency and you decouple-
- Nevin Freeman:** 39:46 Exactly.
- Demetri Kofinas:** 39:47 ... the value proposition. You take the store of value and you decouple it from the medium of exchange component. Normally, those two are combined in every single currency we see in human history. This is where we break those two apart.

**Nevin Freeman:** 39:57 Yeah, the way I think about it, it's sort of like if you take all the people who are using Bitcoin, the ones who do want to use it to transact, and the ones who just want to hold it to speculate, you can sort of separate those population.

**Demetri Kofinas:** 40:07 Exactly.

**Nevin Freeman:** 40:08 And then one population wants to buy one token, one population wants to buy the other. And it's sort of like you're sort of splitting the currency apart, and then forcing all the volatility onto one side. And so, one person can choose the safe version, and the other person can choose the volatile version that could lose value or could appreciate in value.

**Demetri Kofinas:** 40:24 Mm-hmm.

**Nevin Freeman:** 40:24 Yeah, that's the basic insight. And it's a really cool idea. And so then to sort of apply our framework to it, we can ask ourselves, well, what is the size in the implied reserve? And what's the credibility of the promise to spend the reserves? The size of the implied reserve is just going to be sort of the number of dollars' worth of share tokens you can mint and sell at any given time before people stop wanting to buy them anymore, right? Because minting and selling share tokens will cause some dilution to the whole share class. And if you were just mint and sell them infinitely, eventually people will be like, "All right, this is no longer valuable. I don't want to buy this anymore." And so let's say that you have one billion dollars' worth of stablecoins in circulation, and you have-

**Demetri Kofinas:** 41:04 Just to be clear just to drive this point home, you're issuing shares when you want to be able to buy more tokens, right? When you're issuing shares you are taking more stablecoins out of circulation.

**Demetri Kofinas:** 41:15 Out of circulation.

**Nevin Freeman:** 41:16 Exactly.

**Demetri Kofinas:** 41:16 Right. So your ability to issue shares effectively is your capacity to destroy money. It's a deflationary monetary policy.

**Nevin Freeman:** 41:23 Yes, exactly. And so let's say you have a billion stablecoins in circulation, and let's say you have \$100 million drop in demand. So you need to take 100 million stablecoins out of circulation. The question becomes, do people want to, at that moment, buy \$100 million worth of share tokens? If the answer is yes, then

your reserve size is sufficient. If the answer is no, then it's insufficient and you won't be able to reduce the supply to match the new demand. And so you should expect the market price to go down, your peg will have broken.

- Demetri Kofinas:** 41:53 The equivalent in the U.S. monetary system would be the Federal Reserve selling bonds from its portfolio, selling U.S. Treasuries, purchasing dollars, destroying those dollars. But if there's no appetite for U.S. credit-
- Nevin Freeman:** 42:03 Exactly.
- Demetri Kofinas:** 42:04 ... interest rates are going to skyrocket and they won't be able to maintain the dollar value, and that's when you get hyperinflation.
- Nevin Freeman:** 42:09 Right. And so, yeah. So I think that with a system like this, if it's the case that that currency has caught on and really becomes substantially adopted, and it's kind of just growing slowly over time, with small fluctuations in demand, in that situation, it makes sense to expect that the market will always be interested in purchasing a large number of the share tokens because it's sort of an obvious investment. In the world where you've just started a system like this, that seems like an unsafe assumption, right? Because how can the market know whether this particular currency is going to catch on versus something else? How can the market know what the actual latent demand for currency like this is? And so I think that it's much more likely that there'd be periods of time where nobody wants to buy share tokens for any substantial price, and so your reserve size could be too small and your peg could break.
- Nevin Freeman:** 42:54 The interesting thing about this though, out of all the examples we've looked at, this is the first case where on the one hand, there is a benefit to the credibility because you can see that the system is always going to react deterministically, it's always going to mint and sell new share tokens to try to back the stablecoin. But then there's the same issue of, even if people have plenty of capital that yesterday they were willing to spend buying shares, it could be that today they're not willing to.
- Demetri Kofinas:** 43:20 You have a mechanism, you have an algorithm. You have a mechanism that actually works that makes sense.
- Nevin Freeman:** 43:25 Yeah.

**Demetri Kofinas:** 43:25 But you still have the problem of subjective value and animal spirits.

**Nevin Freeman:** 43:30 Yeah, that's right. Yeah. So that's kind of the basic framework that we've applied to thinking through these different types of stablecoin designs that other people have proposed and ones that we've come up with and considered ourselves.

**Demetri Kofinas:** 43:41 Basecoin uses this.

**Nevin Freeman:** 43:42 Yeah, Basecoin is a sort of Senior Shares like design. They have some interesting twists, but they kind of have that same basic mechanism.

**Demetri Kofinas:** 43:48 Yeah. Tell me again, the name of the person who authored that paper.

**Nevin Freeman:** 43:51 Robert Sams.

**Demetri Kofinas:** 43:52 And what year was that you said?

**Nevin Freeman:** 43:53 2014.

**Demetri Kofinas:** 43:54 2014. So I was not aware of this mechanism until a couple months ago. In fact, if someone had mentioned Basecoin to me ... I had looked at it, I don't know how much I delved into it, but it was really meeting you that caused me just to delve into it deeper, and it's clever. It's very clever. It's something that I'd never thought of before. So I think it's actually a very brilliant idea. It's something that everyone should look at. Certainly, if you're curious about their stuff, and you're sort of a geek on finance, it's a fascinating thing to look into.

**Nevin Freeman:** 44:21 Yeah, absolutely.

**Demetri Kofinas:** 44:22 So these are sort of the solutions that exists currently. You guys have an implementation, and I think we've laid it out I think pretty well, what the sort of issues with these things are. I think we both agree these are not viable mechanisms for various reasons. You guys have an interesting sort of, I think, evolution., I would call it. And it's something that I don't know how much you can share it today. As I said to the audience at the beginning, you really can't share much, although we will be doing an episode in a few months, I hope where we'll be able to go into detail. That's something that I want to do. But what can you share with the audience?

- Nevin Freeman:** 44:56 Yeah, yeah. So the basic insight in how our system works is we wanted to produce something that really passed both of these tests right from day one, that had obviously sufficient assets held in reserve, and then also a highly credible promise. And so the basic way that our system works is by locking up a portfolio of different crypto assets in a smart contract that we call the vault, and then just deterministically spending those assets in order to defend the peg. And so, we thought through a way to make sure that we have enough assets held in that vault that we never end up not having enough to defend the peg. And then because it's just a smart contract, people can just look at the code and see, okay, anytime the price of the stablecoin is less than the pegged price, this contract will deterministically repurchase tokens to support that peg.
- Nevin Freeman:** 45:46 And so we think that ... Well, okay, there's actually a really interesting point here, which is, in monetary policy, there's been this long running debate between rules and discretion, where some people say that managing a currency is a complicated process, you really need to involve human judgment, because sometimes things need to be done in nuanced ways and there you enter novel situations. And other people say, it's actually better to lay out a system in advance and sort of codify it, and then have whatever that the body is sort of carry that out deterministically. And we've thought about this ourselves. And the conclusion we came to is that in the case of managing a floating currency, like the dollar, it seems quite plausible to us that discretion is necessary, because that process is really, really nuanced. As far as I understand it, there're things that the Federal Reserve has to do. They have to predict what's going to be happening in the economy like a year from now-
- Demetri Kofinas:** 46:39 Which they suck at, and they'll never be good at it.
- Nevin Freeman:** 46:42 Well, they have to do the rest to predict what's happening a year from now to make changes, to interest rates and so on, because it takes that long for those changes to propagate through the system. And that's a process that I think is very nuanced and not the sort of thing you could easily automate in a smart contract. But in contrast, a country that's not doing it independent monetary policy, that's just implementing a currency peg, often has what's called a currency board, and their job is way simpler. All they have to do is make sure that there's enough assets held in reserve, and then just continue to spend those assets to defend the peg. And that's the sort of thing that we looked at and we thought, "Oh, we could easily automate that part." And so, yeah, so that's kind of the core to

our design is making sure there's enough assets held in reserve on chain, it's all totally decentralized, and then spending those assets directly to defend the peg.

- Demetri Kofinas:** 47:30 Right. And you combine that with an algorithmic trading sort of mechanism.
- Nevin Freeman:** 47:34 Yeah, yeah. This is all automated by smart contracts. Yeah.
- Demetri Kofinas:** 47:37 So it's combinatorial in a way you're taking some of the best stuff that's worked and sort of jiggering a little bit.
- Nevin Freeman:** 47:42 Yeah, that's right. Yeah. Some of the ideas, we had independently, and some of the ideas came from interacting with the community and being inspired by [crosstalk 00:47:49]-
- Demetri Kofinas:** 47:49 There's obviously, this is just my two cents, obviously, there's a huge unknown variable in terms of the balance sheet of the asset itself, which is a huge challenge, and that's like a big thing that you're going to have to work through. This is not a magic bullet. There's no sort of solution that is perfect, but I think it's very interesting what you guys have put forward and I'm excited to delve into it. I want to say a few things to the audience because there's a good reason that I want to do this, because, like I said, we're going to be covering this base. I think it's really important and I think it's the next evolution. There are a few things that I want people to read if they have the time. One is, you recently put out a paper, Nevin, on Medium, and I think it was called, Why Another Stablecoin? Is that right?
- Nevin Freeman:** 48:28 Yep.
- Demetri Kofinas:** 48:29 How can people find that? I mean, we can put a link up on our website. I mean ...
- Nevin Freeman:** 48:33 It's pretty easy. You can find it at reserved.org, and then just click on our blog.
- Demetri Kofinas:** 48:38 All right. So there are a few books that I also want to recommend to the audience that have been very helpful to me. Unfortunately, I did not write these down ahead of time, but I was writing them down as Nevin was speaking. One I've mentioned before on the show. I don't remember the name of the author, but the book is called Secrets of the Temple. And it's a history of the Volcker administration. And I think this is a great book, and it's, I think, my favorite ever, and I've read many books on financial history and monetary mechanics. It's my

favorite because it really shows you how the monetary system works, how the Federal Reserve creates and destroys money. And I think the most instructive thing of that period of the Volcker administration is that Volcker stopped targeting the interest rate and began to target the actual money supply, which caused volatility in interest rates. So you can see that one of the huge challenges in cryptocurrencies and in this whole space is relative values, and that's what Nevin and I were discussing here, which is you have to really appreciate the power of subjective value.

- Demetri Kofinas:** 49:30 So also any great books, Charles Kindleberger's history of manias, and panics, and crashes. Also, Monetary History of the United States, Friedman and Schwartz, amazing book, very dense, though, and very chart heavy. There's also another great book, I don't know, Nevin may have read it. It's called, And the Money Kept Rolling In, and it's a history of the Argentine peso collapse, in the early 2000's
- Nevin Freeman:** 49:52 Yeah, I haven't read that yet, but I'm looking forward to it.
- Demetri Kofinas:** 49:53 Paul Blustein. Yeah. I think he headed up the Rio de la Plata region in Argentina and sort of Uruguay and that area. So that's another great book. I'm blanking on a bunch of other ones. But, I mean, this is a fascinating sort of subject area to cover, and I think it's going to yield dividends for the audience to learn about it over time.
- Nevin Freeman:** 50:12 Yeah, absolutely.
- Demetri Kofinas:** 50:13 So, Nevin, I appreciate you coming on, and I look forward to having you on in a few months when we can really nerd out on everything.
- Nevin Freeman:** 50:20 Yep, sounds good.
- Demetri Kofinas:** 50:21 No holds barred.
- Nevin Freeman:** 50:22 All right.
- Demetri Kofinas:** 50:23 All right, man, thanks for coming on.
- Nevin Freeman:** 50:25 All right, thanks for having me.
- Demetri Kofinas:** 50:29 And that was my episode with Nevin Freeman. I want to thank Nevin for being on my program. If you're a regular listener to the show, take a moment to review us on iTunes. Each review

helps more people find the show and join our amazing community. Today's episode was produced by me and edited by Stylianos Nicolaou. For more episodes, you can check out our website at [hiddenforces.io](http://hiddenforces.io). Join the conversation at Facebook, Twitter, and Instagram @hiddenforcespod, or send me an email at [dk@hiddenforces.io](mailto:dk@hiddenforces.io). As always, thanks for listening. We'll see you next week.