



**Jake** 00:59

Thank you so much vj for taking the time and joining me on the show today. I really appreciate it and looking forward to this conversation for a while your piece the bullish case for Bitcoin was one of the very first pieces that really helped me flip the switch from from really not understanding Bitcoin to really feeling like I got it. And, you know, it's been a eventful path for me for me since then. So I want to thank you for that. In addition to join me on the show today, I think the best place to get started for people who may not be familiar with that piece or may not be familiar with you would be to sort of share your story and bring us up to speed on how you got to where your auditor.

**Vijay Boyapati** 01:41

Cool. Yeah, well, thanks for having me, Jake. And, you know, thanks for the kind words, it always makes me happy to hear about people having that light bulb go off in their head about Bitcoin, I always find that everyone gets it eventually, if, if the ideas are explained in a simple enough way, I think everyone gets it. And I think it's really cool to see that. And I'm glad that you've got it. And you're interested in Bitcoin, and you're talking to people about Bitcoin. So, so my story, I'll try and keep it brief. But I'll start, you know, pretty far back, I live in the United States, I live in Seattle, but I'm originally from Australia. And you can probably hear that in my accent. I came to the United States in 2000. So 21 years ago, to do a PhD in computer science in machine learning. But I got a job offer instead. And it didn't end up starting the PhD. And I eventually ended up at a startup called Google. And it was pretty small at the time, but it grew into a really large company. And it was, you know, it's like having a front front row seat on history seeing a company go from being a small startup to being one of the biggest companies on Earth. After Google, I left in 2007, to campaign in the presidential election. And I spent a little over a year doing that. And I campaign for Ron Paul, and raised a bunch of money and, you know, went to New Hampshire and knocked on a bunch of doors and tried to explain why the ideas of sound money and non interventionism not getting involved in foreign wars, and you know, things like that. But he was talking about why those ideas were important. And Ron didn't do quite as well as I hoped. And, you know, I was pretty disappointed in the political



process after I had taken part in it and, and sort of witnessing how grassroots activism doesn't really have a big impact. What what matters much more is these these powerful forces like the media. So for instance, Fox News in the New Hampshire, Republican candidates debate decided they weren't even going to let Ron in the debate and that basically decided his fate. This was despite him raising the most money at the time, and having a very, very loyal and passionate base of followers. So I became pretty cynical about the political process. And sort of went back to startup life and working on a startup. And then in 2011, I came across Bitcoin and it took me a while to get, you know, wrap my head around it. But it was incredibly exciting when once I sort of figured it out, because I realized that you can change the world. through technology, you don't just need to change the world through politics. And you can completely change actually the political landscape through technology. And I thought Bitcoin was a technology which had the potential to change the world and make people much more free, allows people to keep their savings without fear of debasement through inflation or through confiscated You know, in countries where they have a really rotten political system, and they worry about their government literally stealing their money. So I thought that was a very, very cool and powerful thing. So yeah, I found out about Bitcoin in 2011. It was actually with a bit, I got my first Bitcoin in a bet with a friend of mine, we had a bet for a single silver coin, which at the time was worth \$50. And I won the bet. And my friend said, Hey, don't don't take the silver coin. Let me give you this other thing. It's really cool. It's this new form of money. I said, Well, I was, I have no idea what you're talking about. And he said, Well, you have to download some software. I'm like, Okay, and so I downloaded the Bitcoin Core software. And it began once I started running it it begin downloading the blockchain. And that took hours analysis, I was just thinking, what the hell is this, and my friend sent me I think it was five bitcoins it was there were about around \$10 at the time, so the equivalent to the value of the silver coin. And he showed me on a very primitive early block Explorer, look, I sent you the bitcoins, and I was like, I have no idea what you're talking about, because it was just a string of numbers and letters, like addresses. And so I, you know, I didn't know what was going on. And I was like, whatever this guy, my friend is one of the best investors I know. So he's, this is clearly something interesting. And since then, I've really, you know,



spent a lot of my time thinking about Bitcoin, and how does this thing which is created out of thin air? How does it have any value at all? I mean, it's a, it's an incredibly stunning thing, I think, as an economic question, something that was created out of thin air reached a market capitalization of a trillion dollars, that's absolutely amazing. And so, you know, I had a background in Austrian economics, and spent a lot of time studying that on my own. And I thought I had the tools to try and understand this. And so that's what I've been doing, you know, as sort of a hobby for the last almost decade. And in 2017, I started writing an article about why Bitcoin has value, to provide an economic framework with which people could understand how this thing that was created on the internet has any value. It took me about a year to write and I published in early 2018. And I didn't expect it would be written. So read as much as as it has been, I thought maybe a few friends would read it. And I'd give it to people who were a little bit confused about why bitcoins valuable, and maybe I'll get lucky, and some people on Wall Street would read it. But it's been read about a million times, and volunteers from around the world, we're so excited about it that they volunteered to translated into 20 languages. So it's been, you know, much more widely received than I expected, which is really humbling, and awesome, because I hear people like you tell me, well, I read your article. And that was one of the things that helped me understand why Bitcoin is valuable. And that really feels awesome to hear that people are understanding and interested in it. And then, to skip to today, I expanded my article into a book recently. And the reason I did that was because in 2020, governments around the world responded to the COVID pandemic, in an unprecedented way, they printed trillions and trillions of dollars, increase their balance sheets by massive amounts. And I thought it was an appropriate time to revisit the article. And to expand on it, there was another number of important topics I hadn't covered in the article. So I finished my book, and I launched it, and it's now actually available for for pre sale on Amazon, and it should launch on August the 15th. So if your listeners are listening to this, they can find it on Amazon. And if you know, after listening to this pod, they're interested they could they can get themselves a copy.

**Jake** 09:01



That's awesome. I will look forward to getting a copy myself. And it's a great story. I appreciate you sharing it from from the early days to where you are now. I liked in the beginning how you call it. You know, you're like I started working for a little startup called Google. That's a pretty funny funny, right?

**Vijay Boyapati** 09:19

Well, yeah, well, it was at the time. So yeah, it's, it's it's always interesting, in hindsight, we think seemed more obvious. But when you're in the moment when you're joining a company like Google, sorry, I'm sort of going on a tangent just for a minute here. But I didn't know wasn't obvious to me that I should have joined Google. I applied to a bunch of companies and I applied to Yahoo at the time, which was the big company in the internet space. And they gave me a much, much more lucrative offer in terms of salary Yahoo did because it's a much bigger company. And I really didn't know what to do. I almost joined Yahoo. And I spoke to a good friend of mine, who was a professor Have mathematics in Toronto. And he said, Well, the only rational point of having money is that it can help make you happy. So if you can work at a job that makes you happy, that by itself is worth a lot of money. And when he told me that it made, obviously it made sense, immediately, I want to work at Google, because the people were so smart. And it was such a cool environment. I decided to join. But you know, just looking back, it was not obvious at the time that it was the company I should have joined.

**Jake** 10:34

Yeah, that's interesting. It sounds like a great framework that you brought to the decision, unfortunately, a great decision and retrospect, appreciating the fact that it wasn't obvious at the time. So how, how early actually, was that with Google? Were you? And how long were you there? Like what I guess, part of the evolution Were you involved with?

**Vijay Boyapati** 10:57

I was at Google, early 2002. And this was pre IPO Google IPO later in 2004. And the company was, I think it was, it was a couple 100 full time employees. So it was still pretty small. Everyone fit in one building. And it was the kind of environment where you could do most



of the people at the company. So yeah, it was, it was it was pre IPO and fairly small. It wasn't like tiny, it wasn't like, you know, five or six people, but it was definitely still had that startup vibe, which is really cool. And yeah, for me, that's one of the things I love most is working at places which are in that early, early stage.

**Jake** 11:45

Yep, definitely. makes that must have been a pretty, pretty cool experience, especially like early on in your career. So you know, I want to spend the bulk of our time today talking about Bitcoin and some of these concepts from from your piece, which you've now updated into the book. It's amazing, I actually didn't know that the readership was I knew it was huge. But um, you know, you can sort of see that by looking at like, the likes, and the comments on the post, or whatever it is, but a million is just like this huge number. It's like hard to fathom, especially for you know, it's like a 40 plus minute piece, I think to read. It's not like just a tweet, which can go viral, pretty, you know, it's like a small bite sized piece of information. So that that's, that's why all that. And it's actually I feel like, it's like a nonzero percentage of all Bitcoin holders probably have have read your writing. So really amazing. And I guess, do you have any idea how, I mean, obviously, that there was something in the piece, you know, it was high quality, and people really enjoyed it. And it probably had a similar effect for 1000s, if not 10s, and hundreds of 1000s of people, as it did for me. But was there anything that you actually did to sort of spark what ended up being like a fire in terms of this post just going totally viral and spreading around the world?

**Vijay Boyapati** 13:13

Yeah, that's an interesting question. I, you know, I didn't have I wasn't thinking that it would go viral. One thing I did was that it was so long, that I was like, oh, man, no, like, this is again, in hindsight, I didn't have no idea it was gonna be read as much as like, people aren't gonna read this thing. It's like most medium posts, you know, they have this little thing at the top saying how long it'll take to read. And most of them are like, five to 10 minutes. And mine was like, 45 minutes or something like that. And like, no one's gonna read this, they're gonna look at that and say, This is not worth it.



So one of the things I did was I broke it into four separate articles. And I released it as four separate articles originally, you can actually find the four parts and then when I released each part, I think it was on a day of the week I released the first part on a Monday and second part on Tuesday and third part on a Wednesday. And that seemed to help make it go viral. I mean, I wasn't trying to you know, hack the system in any way but I just I was hoping people might read the individual articles because they would be shorter and they wouldn't intimidate anyone and then when it went viral, I was like, Okay, I'm just gonna combine this into a single article, it seems like people are interested enough in investing some time reading lists that I can combine it and yeah, and they kept getting read more and more and more and yeah, you know, apart from that, I don't think there was I think, you know, part of it that the virality has to do with Bitcoin itself Bitcoin growing and people as the price goes up and people become interested in investing in Bitcoin they start searching for explanations like, Okay, this seems interesting. I know a lot of friends who are in Investing in Bitcoin. So maybe I should put some money in, but why should I put some money in? And so they go out and they search for explanations for why it might make sense. And for whatever reason, my article has become one of those resources. So yeah, that's, that's really exciting. And I feel a lot of, it's very humbling to set up before it is definitely humbling, because it's, there's a big responsibility. This is people savings, and some people put a lot of their savings in it and trust that I've explained it well enough and to go ahead, and then after that put some money in your savings into bitcoin is, it's it seems like a big deal to me. So you know, it makes me feel like a lot of responsibility as well.

**Jake** 15:48

Yeah, I'm, I want to jump off that point. I wasn't, this might not be like the best time to go into this. I sort of had it slated for later once we covered a bit more of the specifics around Bitcoin, but you sort of raised the question, which I wanted to ask, which is, you know, it's not uncommon for people within Bitcoin to, you know, people who hold their coin, and people who believe in Bitcoin, to sort of refer to the future as inevitable. Where Bitcoin is, you know, it's basically going to be like, hyper monetization. And Bitcoin is like the global reserve currency. And the word inevitable gets tossed



around a good amount, but you took like a pretty, I think, you know, down to earth view in your piece, and I'm sure it's been updated to some extent, in your book about the few risks that do exist, many of which are sort of being, you know, cooled down, just with the sheer passing of time. You have a great point in your piece that talks about how like, the established, you know, one of the main factors of money is like, how are characteristics of good money is like, How long has it been around? Like, what's the established history, and so Gold's been around for 1000s of years, the dollar for a few 100, and Bitcoin for about, you know, 11 or 12. And, but But you made this great point that like, once it hits maybe 20 years or so, it's like an asymptotic relationship, where it's not like Bitcoin needs to be around 1000s of years to have sort of the same impression as dollars or gold, it's like, you know, a couple decades, and it starts to actually be, you know, it's not going to be the same history of gold, but it's sort of like close. And so I guess, with the passing of time, it becomes a little less risky for, for that reason, among others. The more people own it, the harder it becomes to like regulate, the more the protocol itself seems foolproof. So there's a lot of risks that are becoming less and over time. But that said, I think, you know, I at least acknowledge, I'm not sure if you acknowledge that there's still some risk on the table. How do you sort of reconcile these like narratives, I guess you could say, where people will talk about it as inevitable. And then, you know, other people will recognize that there are risks, regardless of sort of what percentage probability you might want to put, like, you know, assigned to those risks?

**Vijay Boyapati** 18:15

Well, you know, I think when you approach someone who's new to Bitcoin is curious about, you know, I just don't think they take it seriously. We say there are no risks, and it's, you know, it's inevitable. And I sort of like to look at things like this economic phenomena in a rationalistic way, rather than sort of as a hype person. I definitely didn't want to write an article, which was a hype article, because I think, you know, it would appeal to people who already Bitcoin is, but I don't, I don't think it would appeal to the general public. And I really wanted to provide a compelling explanation. And I I certainly don't think Bitcoin is inevitable, are, you know, I think there might be a point at which gets to critical mass and some people, you know,





to be fair, some people really do believe we've already reached critical mass, and perhaps they're correct. I don't think so myself, I think there are stores, you know, significant risks, and certainly are in 2017. And when I started thinking about these issues, there are a lot of risks. In the early days, days, there were massive risks to be claiming the biggest risk to Bitcoin in the early days was protocol risk. Satoshi Nakamoto, invented this new protocol on the internet for value transfer across the internet. And, you know, it wasn't clear that this protocol was even well built or well designed. And when, interestingly enough, it you know, to get into the history, Satoshi published this design to a cryptography mailing list. And it didn't get that much interest, despite the fact that there are a lot of people on the list who had thought about trying to invent digital money and there have been various attempts which didn't succeed Ah, but you know, of the people who did pay attention in who did respond to Satoshi back in 2008, there was General skepticism. This I mean, it was like, This isn't gonna work, this can't work. We've tried this before. And that's not your design isn't going to work. So, you know, that was a huge risk. And but over the years, you know, that risk has definitely diminished. Because people have recognized a lot of very, very intelligent people, cryptographers, computer scientists, economists, and so on have have paid very close attention to Bitcoin and to try and find, you know, a crack or a weakness in the design. And it's generally believed now, it's an incredibly well designed system, very simple, very elegant, but very well designed, and that there's almost certainly not a problem with the protocol. So, but over the years, the risks have sort of changed. I think, I still believe the biggest and most important risk to Bitcoin is a nation state attack or multiple nation states that come to the conclusion that Bitcoin is bad, and shouldn't should be banned. And we'll use the weight of their influence and, and their their power in the global economic system to try and stamp out Bitcoin. And I think whether or not that happens, really depends on whether Bitcoin gets enough political capture, which means that enough people own Bitcoin, that it becomes politically infeasible to attack Bitcoin and the example I always give this as the ride sharing company, Uber, which might seem like a strange example, because Bitcoin is dealing with money. And it was like a completely different space. But Uber was a company that went into cities and launched their product without any





permission without speaking to any regulators. And they would be really popular because it's way better than the taxi service, and the drivers would love it, they get more business, and the users would love it, because it was just better. You know, you wouldn't get really terrible taxi drivers, because you could sort of give them a low rating, and they get kicked off the system. But eventually, the taxi lobbies in the cities would, you know, lobby the city governments to say this is unfair competition, like, No one likes competition when it takes their business. And they would lobby the city governments to regulate or shut down Uber. And by the time the local city governments got around to doing this, Uber was so entrenched, had so much political capture, both through the users who were really passionate about using it and the drivers who were making money, then it became politically infeasible to shut Uber down and now Ubers. You know, it's across the entire world, and there's very few cities where it's banned. So I think the same is true with Bitcoin, that the number of people who own Bitcoin is still small, but it's growing very rapidly, and will eventually see people in Congress reflect the fact that their constituency owns Bitcoin, and would be very unhappy if Bitcoin were regulated or shut down. And I think it will get to the point where shutting trying to shut down Bitcoin will be equivalent trying to shut down the 401 k pro program in the US, which is that retirement savings program, if you did that, you know, you'd be wiping away the savings of millions of Americans. It's just politically impossible to do that. I didn't think bitcoins day yet, but I feel pretty optimistic that it's going to get there in the next five years.

**Jake** 23:42

Right. So you feel pretty comfortable with, with the protocol risks at this point, after you know, a decade Plus, the nation state risks seems to be the biggest thing on your mind, which you think might be resolved in, you know, five years give or take. And I'm just trying to sort of summarize here and get an understanding. And then Are there any other I guess, risks that you flag as being real concerns, or it's mainly the nation state piece, which sort of, you know, keeps you up at this point?

**Vijay Boyapati** 24:12



Yeah, you know, talk about a number of these in my book. Another one I talked about is minus centralization, which is, you know, miners are computers on the Bitcoin network that validate transactions, they have this very important function. And the idea that the concern here is that they become so concentrated in one jurisdiction, that that jurisdiction has a lot of sway over Bitcoin mining and could potentially influence mining and censor transactions, that would be really boring. And that was actually quite a high concentration of mining power in China in the last few years, and that's really a function of China's massively subsidizing electricity production in their country, to the point where they'd have the gigantic hydroelectric dams which produce so much power that the local population couldn't use the power and electricity isn't fungible, you can't take that excess electricity and sort of ship it in a container to Texas and use it for something else. If it's not used, it just gets wasted, as the electricity price of electricity very, very cheap in certain provinces in China, and that attracted a lot of miners there because they're their dominant cost is the the electricity they use to run the the mining hardware. But really interesting, in really interestingly, recently, China completely banned mining in their country, they shut it down completely. And this has caused a massive exodus of miners outside of China. And ironically, you know, as a one time event, this is kind of a little bit scary, it seems bad for Bitcoin that all these miners have left. And suddenly, the total mining capacity for the Bitcoin network has dropped pretty precipitously, it's dropped in half, which means the security of the net Bitcoin network has kind of dropped in half the number of hashes per second is a measure of security, that's dropped in half. But in the long term, I think this is incredibly beneficial, because it really decentralizes the mining capacity of the Bitcoin network. Now, it's not all concentrated in China is just literally being spread out across the entire world, some of these miners going to do us, some are going to South America, some are going to, you know, the Central Asia, some of them are going to places like Kazakhstan. So mining has now been distributed across the world, which makes it much more resilient to attack because it won't matter if one country attacks mining, it'll just find a new home somewhere else. It's just that it happened in this kind of big step function with China saying no more mining in, in our country.



**Jake** 27:08

Right, so, so taking the really interesting point on the, you know, how the near term of the mining exodus from China could be, you know, it's widely perceived as, like a negative thing, but in the long term, it could actually be positive, I hadn't thought of it that way. So that's really interesting, but taking these sort of risks and any others into account and sort of putting them in a total, you know, risk bucket that Bitcoin does not sort of become what people think it's, its destiny sort of is, which is, like I said, you know, sort of like this global reserve currency where people can, you know, save and, you know, be free, and since it's a censorship resistant thing, and, and everything that people talk about, but you take these risks, and you sort of, like, sum them together. And I don't know, if it's, you know, 50% chance that the destiny doesn't occur, or 1% chance that the destiny doesn't occur, or point 1% for that matter, like, you know, who knows, and I'm not going to try to like, put a percentage on it. But but one sort of view that I'm more you know, it's more reasonable sounding to me than like Bitcoin is inevitable, is when people say, like, Bitcoin may or may not be inevitable, you know, it's sort of to your point on like, the critical mass, like, are we past the point of no return yet? I think asking that question is enough of an answer to say like, No, you know, that there's some percent chance that we sort of haven't passed that point yet. It seems like you're sort of on that side of things viewing maybe like the nation state attack being five years away from being more or less dismissed. But one one point that I'm more sympathetic to is like the idea that the concept like the idea itself of Bitcoin, and what its destiny is there can be is inevitable. And that, you know, even if a nation state attack occurs and compromise the whole system, like the world is not going to run on Fiat and gold forever. What do you think about sort of that view, where, you know, this concept is just too big and too widespread and too known by too many people now to just disappear even with some massive risk sort of coming to fruition?

**Vijay Boyapati** 29:23

Well, yeah, you know, Bitcoin is very resilient system because of its decentralization. So it has been attacked numerous times by various nation states and various nation states have tried to regulate it, but



because of its decentralization, it can kind of just move to where it's welcome. And that's that's happened a number of times. But there's another way of thinking about this, which I think is valuable, which is valuation frameworks for Bitcoin. So you know, the one we've been talking about a little bit is that Bitcoin is inevitable and by inevitable, we're talking about it becomes like the global reserve currency, and it's Global money. But I think there are other valuation frameworks as well. And I, I've written a little bit about this on Twitter. And I'll just briefly explain what these four frameworks are. The first framework is that this is the one that most people have when they first come across Bitcoin, it's the skeptics framework, it's that there is no value to Bitcoin, there's no comparative advantage to any other monetary system, or monetary good. And it's just a big bubble. Or it's a big Ponzi scheme. And if you believe that valuation framework, you would assign a long term price target to Bitcoin of zero, it's eventually going to get to zero when people figure this out. I think most people have kind of dismissed apart from some, you know, hardcore skeptics or hardcore bears, most people have dismissed that and recognize there is something here. The second valuation framework is that, okay, this is this is a new technology, and it's doing something clearly that hasn't been done before. But it's only have limited appeal to people who are either, you know, very technologically savvy, or they're ideologically motivated, so people who are libertarians, and so, you know, it is valuable for those people, but really not for the general population. And so you think, you know, Silicon Valley types and returns and that, that kind of demographic, and if you believe that valuation framework, you would probably assign a price target of Bitcoin, from somewhere between 10,000 to 100,000, kind of kind of where we are now. And it can be that large, because there are, you know, a lot of wealthy people in Silicon Valley and a lot of wealthy libertarians that could support that price level. So only those people would be interested in it. The third valuation framework is that Bitcoin is closest to gold in what it's, you know, as a monetary good and the attributes that it provides, that made gold very attractive as a form of money for 1000s of years. And if you believe that Bitcoin has better attributes to gold as a new monetary good, and I very strongly believe that, then you would believe that eventually Bitcoin is going to attain or even surpass Gold's market capitalization and Gold's market capitalization.



If you if Bitcoin was equivalent, that the price of per Bitcoin would be about \$500,000, per Bitcoin. And I, I sort of think the market is moving towards that this view that Bitcoin is actually a good store of value, and that it's worth holding some Bitcoin as savings is a growing point of view. So I think we're transitioning between the second and third valuation framework. And the fourth valuation framework is the one we've kind of been discussing, which is that eventually Bitcoin will become the global reserve currency, the monetary base of the entire world. And, you know, when you go to the grocery store, things will be priced in terms of Bitcoin. So right now we're moving between the second and third valuation framework, it's an open question it whether we, you know, get to number, the third framework, I think, if we do then the fourth framework becomes more plausible to a lot of investors. But I think it's still an open question whether we get all the way.

**Jake** 33:24

Yeah, and that makes a lot of sense. I've actually thought about it in similar terms myself, when just trying to estimate like, how do you try to, you know, put a valuation on this totally new thing, and basically, not the exact buckets that you gave, but sort of took a similar approach to like, okay, there's like the gold scenario, there's the, you know, global reserve currency scenario, those are like the two upside ones. And then there's like, sort of where we are now, or close to where we are now. And then there's the fail case, and just like, assigning different probabilities to those. And the thing is, like, if you do that, you know, so long as you assign, even just like a one or 2% chance, or, you know, even a 10 or 20% chance or whatever, to the, you know, the most bullish case, your probability rate of valuation is just going to be huge. And it makes a lot of sense to put, you know, it starts to make a lot of sense, I think, to to put at least a small percentage of your, you know, of your savings into bitcoin. Alright, so, that was that was really interesting sort of segue that I didn't anticipate getting full banthus. But it was really interesting to discuss, I want to sort of rewind a little bit now, because I think you're a great mind for sort of the fundamentals, not just of Bitcoin, but you know of money at large. Like you mentioned, you've been studying Austrian economics for a long time. So I'd like to sort of ask you a few just like very fundamental answers,



fundamental questions, rather, and sort of hear how you think about these concepts. So the first is just on money in general. I'd love to hear sort of how you think about, you know, answering the question, what is money. And maybe as a part of that, you could talk about the evolution of money, which is something that I found fascinating learning from from your, your original piece.

**Vijay Boyapati** 35:16

Yeah, so but money is, you know, we have in any developed economy, we have a lot of economic goods, we have technology, and we have medical services, and we have food, and we have factories, these all economic goods, money is the most important economic good in any developed economy, because money acts as the foundation for all trade and savings. If you don't have money, then you don't have the ability to easily trade with people. And so you don't have the division of labor, and the division of labor is incredibly important to the development of civilization, you have without without money, you essentially have a barter society, which is going to be very, very limited in scope. You know, there's still perhaps a few remaining barter societies on Earth, but they're very, very poor. So So money is incredibly important for our way of life. And, you know, money, money serves different functions. And, and people usually think of the medium of exchange function of money. That is, we use it in exchange to buy goods and services. But actually, money has other other functions as well. So for instance, the store value function, which is that people want to keep some of their savings in money, because they recognize that money is something that keeps its purchasing power over time. And it might be better than something else, which fluctuates a lot in purchasing power or goes down in purchasing power. So for instance, it wouldn't be very smart to keep your savings in iPhones because the VAT, their purchasing power drops very quickly over time, and you would lose your savings. And there's one other function of money, which is the unit of account, which is people price things in terms of money. So you go to a grocery store, and you don't see, you know, the cost of a loaf of bread, in terms of postage stamps, or in terms of shoes, or in terms of baseball bats, you see it in terms of money. And when gold was money, you'd see things priced in terms of ounces of gold. So the end, the unit account function is actually very important because it allows businesses to calculate profits and losses, which is



a very important part of the capitalist system is that businesses can calculate whether they're operating correctly or not. And if they are operating poorly and running at a loss, then they can change their strategy. So in summary, if you know, it serves all of these functions, most people only think of the medium of exchange function. Now the interesting thing is that something doesn't go from being not money to being money, and serving all these functions instantly. And some economists unfortunately seem to think that that's what happens. And they criticize Bitcoin because they say, well, it doesn't look like money. It's not acting like money. But there was an economist in the 19th century, a famous economist, William Stanley Jevons, who's the father of marginalist. Economics, which is much closer to economics with a big breakthrough in economics, a way of thinking about price formation. And Jevons talked about how money evolves, it doesn't start out having you know, all of these functions, it actually starts out as a collectible. And gold is a good example, to think about this. If you go all the way back in history to primitive man, the first you know, people who picked up a gold rock, or piece of gold from the ground, it wasn't a medium of exchange, it was just something shiny that they saw on the ground and thought was, like, interesting or cool, and they picked it up, and they kept it. And so money always begins as a collectible. And eventually, when enough people value it as a collectible, or think it's something that's worth holding, it slowly transitions to becoming a store of value, because you recognize that other people value this thing, and they want to hold it. And so it maintains some purchasing power over time. And when something becomes deeply established as a store of value, eventually people realize that they can use it in exchange because, hey, you know, it's easier for me to trade with this other person using gold a gold coin than it is to use sheep because gold is widely valued. Now. It's become a store of value. And the person I'm trading with, probably, or may not want sheep, they may want something else that's valuable, they may prefer something else. And so it slowly becomes a medium of exchange and it starts taking on that function that we're Utilize today and people start trading in that form of money. And eventually, when it's widely used in exchange, and people are trading using this new form of money, then people start thinking in terms of pricing it, they start saying, Well, okay, how many sheep do I want want to give away for this gold? How much gold do I want for it, I want a few





ounces of gold. So I'm going to price my sheep as being three ounces of gold to anyone who comes to me, and price formation starts happening. And then people start attaching prices to goods in the economy and eventually gets to the last stage, a fully fledged money, which is becomes a unit of account, and you'll start seeing prices in terms of it ever gold, that process took a long, long time. I mean, it happened over millennia. And gold eventually became the global reserve currency of the world. And everything was priced in terms of gold by the end of the 19th century. But that process, I think, is is much more compressed in accelerated with Bitcoin, we were witnessing something become a new form of money in real time. And we've never seen that before, which is incredibly exciting, we get to sort of study this phenomena that took a long, long time ago that we did have all of the history, it's sort of hidden in in primitive history that there was never recorded, but we can get to see it with Bitcoin. And Bitcoin, I think is sort of transitioning from that collectible stage, which was only interesting is like a new kind of cool thing to a very small group of people to becoming a store of value where it's widely valued. And people say it's actually worth keeping some of my savings in Bitcoin. Once Bitcoin becomes widely valued enough, I think people start using it in exchange more, and you'll start seeing merchants say, yeah, we'll accept Bitcoin in payment, because it seems to be widely valued in a lot of our customers have their savings in Bitcoin, so it's worth it for us to accept it in payment. And I think eventually, it's going to become a unit of account as well.

**Jake** 42:02

I love that, you know, that concept of the evolution of money, and I was introduced to it in your piece, and the voiceover you just gave is actually very helpful, sort of as a complimentary, you know, description of how that all works. And I, you know, I don't know, I'm no, like, economic expert, but it just makes a lot of sense to me. People ask, you know, like, people who are newcomers, especially, I'll say, hey, maybe maybe worth putting a couple percentage points of your money into bitcoin, just, you know, why not? High upside. Worst case, it goes to zero, you lose 1% of your money, or whatever it is. And they ask, one of the most common questions is, like, you mentioned, people are like, well, it's not really working as like a medium of exchange right now, like, people aren't really paying for too many



things in Bitcoin. And, of course, people are doing it, but it's much more commonly used as this, like digital gold use case as a store of value. And the idea that it just needs to sort of max out on that stage of the evolution before it can, you know, and hit a point where it's not going up, you know, doubling and tripling within months and then crashing 50% in a month and or in a week, or whatever it is, it needs to sort of hit that max threshold, not Max, that it'll never go higher. But a point at which the store of value case is really, like fulfilled, and it can sort of transition into being this effective medium of exchange, what do you have any sort of ideas as to when that would occur in terms of either like bitcoins price, or, you know, the number of people who would own it around the world, or even just sort of the, you know, like the volatility, like, it's not a certain percentage points within which it's like not moving so much every day, or every month or whatever.

**Vijay Boyapati** 43:56

Yeah, so you actually brought up a really important point, which is, why don't people use it in exchange that much now. And it's really because there's so much upside, because there's so much more adoption that can happen that could drive the price much, much higher than it is today. And so if you use your Bitcoin in exchange, you relinquish it and you give it to someone else, there's an opportunity cost when you do that, and people in the Bitcoin space have kind of, you know, understood that over the years because there's this famous story of someone who bought two pizzas with 10,000 Bitcoin, and there's 10,000 Bitcoin worth about \$350 million today. So a lot of people have figured this out and recognize, hey, this isn't this is not a good idea to spend this right now, because if this could 10x are, you have people who have stories where they're like, well, I spent some Bitcoin. A few years ago, I wish I hadn't spent it. So that's really the driving force for people not using it in exchange right now. I think for the volatility to come down on them, or when I'm talking about volatility, I'm from the upside volatility as well. But it could go up, that volatility won't come down until there's more more of the world that has a significant fraction of their savings in Bitcoin. And it's much bigger. I think that'll sort of happen gradually. And I think that when Bitcoin gets to about the same capitalizations as gold, then it will have similar volatility to gold. And, you know,



gold still has volatility, people generally think of gold as a store of value, this ancient store of value. But gold still has a little bit of volatility too. So, you know, we're talking about valuation frameworks. Once Bitcoin gets to that third framework, the volatility will come down enough that I think, actually, you know, quite a few people will use it in exchange. And then if it continues on, and it absorbs more and more of the world savings, eventually, it's going to reach this point at which everyone has some savings in Bitcoin. And that's the point at which the volatility will be much, much lower than it is today. Because the volatility is really just a function of the fact that Bitcoin still has a relatively small adoption right now, maybe a couple of percent of the world's population owns Bitcoin. So as new people come into the market, really, because Bitcoin has a strictly limited supply, that new money coming in, really forces it up, but eventually, you know, the world's population is not infinite. So once everyone has some Bitcoin, then the amount of savings that can come in and push the price up, is is going to sort of dwindle away. And Bitcoin will be much, much less volatile. And that's when I think it'll be perfect as a medium of exchange. And it'll be used much more in that. That role of money.

**Jake** 46:48

Yeah, that that all makes sense. So So one other thing I want to call out from your piece, I think it was, you know, in addition to the evolution of money, maybe even more, so it was like, the most interesting concept fleshed out that I had seen, for the first time in your paper was sort of a comparison of the different properties or the different characteristics of good money, I think there's eight of them, and comparing Bitcoin, to gold and to Fiat Fiat being like dollars and pounds and, and alike. And it was just a very clear cut comparison. So we don't, you know, we don't have time today to, to go through every element of that, but would certainly encourage people to check it out. Just an awesome resource. But I'd like to sort of close with a high level question sort of related to that, which is, you know, can't leave the can't leave the episode without, without giving a bull case on Bitcoin and an argument why people should get involved. Why do you think Bitcoin fundamentally is a better form of money than than gold? And then Fiat? And why should people be interested in it today?



**Vijay Boyapati** 47:57

Yeah, well, I'm glad you mentioned I have a table where I grade these different forms of money against each other. And, you know, there are attributes that make an economic Good, good as money are suitable as money. And these have been known for a very long time, they've been known since the time of Aristotle. And I'll just very briefly talk about them and maybe give an example of why, you know, Bitcoin is better on one of the attributes. So one of the attributes that's, you know, sought after for something as money is portability, you want to be able to carry it around easily, you want to be able to exchange it, and you want to be able to have your savings in a way that can be moved if you need to move. So for instance, gold is better than cows, cows were money in some places on a long, long time ago, but eventually gold out competed, because gold is more portable. Another one is fungibility, which is, every unit of of the money should be equivalent to every other unit. So gold is actually better than diamonds as money. Because gold is fungible, every unit of gold when you melt it down is equivalent to any other unit. Whereas diamonds are irregular in shape and quality. So they're not quite as good in trade. Because if you're trading them, someone has to get out there, there, you know, microscope and look very carefully at each diamond see whether it's good or not. Probably the most important characteristic that's demanded for something that's money is scarcity. You don't want to keep your savings in something that is super abundant. So for instance, gold is better than sand, you wouldn't want to keep your savings in sand because then someone else could just go down to the beach and collect a bunch of sand and they'd be rich. You want to keep your savings in something that's very difficult to produce. And so just as a quick example, along two of these attributes Bitcoin is far far superior to gold. So portability, it's actually very costly and risky to send gold across the world. If I had In golden, I wanted to pay someone in gold on the other side of the world, I would have to ship them the gold and it could be lost or stolen along the way. Whereas Bitcoin can be transmitted almost instantly to anyone around the world as easily you can send an email. So it has this massive comparative advantage to gold. And not scarcity. bitcoins actually superior to gold to the supply of gold. While it's, you know, some it seems somewhat limited, it's always seemed like, you know, hard money



that's limited and can't be printed. It's actually mined every year, and the supply of gold grows by about 2% every year. So there's no limit on the supply of gold, whereas there is a strict limit on the supply of Bitcoin of 21 million Bitcoin, which means that if you get some Bitcoin, you will own a certain percentage of the total no matter how high the price goes. So Bitcoin can't be debased. And that's completely unique in the world. And we've never had a form of money that was had ultimate scarcity. So if you go to my article, or you look at my book, I talk about all of these attributes and Bitcoin is actually superior to these other monetary goods like the dollar into gold along almost all of them, that the one advantage gold has over Bitcoin is established history. And I talk about a little bit in the book why I think that's going to be not so big an advantage for gold in the coming decade. I think over over time, people will start to recognize Bitcoin as a permanent institution of the world in the same way that they recognize that the internet is a permanent institution. And I think that process usually takes two to three decades. So I think established history is the one weakness of Bitcoin it's going to be less of a weakness over the coming years.

**Jake** 51:50

Yep, totally agree. Well, vj it's been a real pleasure having you on the show today and talking with you I really enjoy your perspective first reading it and now going back and forth forth of you so I really appreciate you taking the time where can people go to follow you and you know, get the book and keep up as as Bitcoin hopefully continues to achieve you know, what we hope is its future.

**Vijay Boyapati** 52:16

Well, thanks for having me. Jake was really awesome talking to you. Our I tweet a lot about Bitcoin on Twitter. So you can find me at Twitter, real underscore VJRAL underscore v i j, a y at twitter. My book is now available for pre order on Amazon. So you can you can put in an order and it should, should be available in about a month from the time of recording. Or you can find my original article on medium. If you just search for the bullish case for Bitcoin. it'll it'll show up there. So those are the main ways to find me online.

**Jake** 52:54

POD OF JAKE  
#70 - VIJAY BOYAPATI  
AI-GENERATED TRANSCRIPT



Awesome. Thank you very much.

**Vijay Boyapati** 52:56

Thanks, Jake.