

Mike: 00:01:00 Well, Happy Friday everybody.

Richard: 00:01:02 Happy Friday.

Mike: 00:01:04 How's everyone's weekend?

Richard: 00:01:04 Welcome guys.

Greg: 00:01:06 Hi, guys.

Magdalena: 00:01:08 Hi, everyone.

Mike: 00:01:10 So, it is ReSolve's Riffs Friday happy hour, where we have very wide ranging discussions on all kinds of topics and none of this is financial advice. If you would like financial advice don't get it from these four scallywags drinking drinks on a Friday afternoon. Cheers all. Thank you Mags, thank you Greg and thank you Richard for joining me today.

Greg: 00:01:32 Thank you Mike.

Magdalena: 00:01:33 Oh yeah. Well, there we go.

Mike: 00:01:36 Cheers on the thing.

Magdalena: 00:01:38 You guys had it all coordinated.

Mike: 00:01:41 Oh, in the middle. I didn't even see that. Look at that.

Greg: 00:01:45 Oh, yeah. Okay. I got you now.

Mike: 00:01:47 There we go. Now we got it. I'm over it. Oh, my goodness. You've totally blown my train of thought now. Why don't we do this? Why don't we have Greg, Mags you guys introduce yourselves. Give us your background so that people have a great idea of the expertise that we've got on the call today, and then we'll dive in. Go start with you Greg.

Backgrounder One

Greg: 00:02:12 Sure. Well, first of all thanks for having me. Mike and I first met each other probably close to 10 years ago. Actually, during the financial crisis in 2008-2009 when I was working at a hedge fund in Toronto with Griffiths McBurney Partners and Jason Marks and Mike Weckerle. And Mike and I were introduced from our chief risk officer Jason Marks and his partner Adam and we were discussing all sorts of credit implications of the financial crisis. I was impressed with the

models you guys were building at the time. I know you've developed a really cool business out of your expertise which I view as being quite smart and very proprietary obviously. But my history is this. I've traded credit for 30 years. I started in 1988, so I guess more than that. 1988 I graduated from school in the US and I came back to work in Canada and I worked for Canada's largest financial institution, the Royal Bank. And I won't make a big story about this, you can ask me questions, but in 1988, the Royal Bank was insolvent. Full stop.

Canada's largest financial institution had too many loans to lesser developed countries, chiefly Latin America and Treasury Secretary Nicholas Brady needed to solve this, because it wasn't just Royal Bank of Canada and all the banks in Canada with one exception, it was all the money center banks in New York as well as European banks because Petro dollars were flowing throughout the world, they needed to find a source of demand and it turned out that they started lending to countries on a five year basis. Lo and behold, they were not able to meet their obligations because they were US dollar denominated obligations, and they defaulted. And those bonds they traded down, excuse me that were issued, those loans that were issued at \$1 on the dollar were trading at 25 cents on the dollar. And Treasury Secretary Nicholas Brady came up with a very ingenious plan to solve that problem, basically switching a five year term into a 30 year term backed by zero coupon US Treasury securities, and therefore did not have to mark down to market, the loans. Very simply though, if they were a trading book which I live and die by marking my book to market every night, the book value of equity of the Royal Bank of Canada would have been exhausted. But so would a Citi Group's and ... and all the other banks in the US.

So, we had a big problem and started me thinking, well, how is this possible? How do the banks maintain a high degree of confidence from their depositors and essentially everyone knows it's because they're too big to fail, the banks will be bailed out by governments. So fast forward to 2008-2009 that's exactly what happened. The banks were insolvent again, full stop. Their financial system almost came crashing down. Mike, you were involved in some huge trades or I think you guys were if I remember correctly on asset backed commercial paper which was the precursor? Best trade of my life. And it's funny that it was well actually, that's true at the time, but again I said this is crazy. This system is so, it's built it's...the pillars are built into sand, the sand is confidence in the system. When confidence in in the system evaporates everything comes crashing down really quickly. So 2008-2009 worked at GMP Investment Management, that's after some experience on the sell side with Royal Bank, with TD Securities, came over and worked with one hedge fund, Marret Asset Management, high yield credit shop, quite successful and then went to GMP.

So I loved working with Mike Weckerle, who I view as being probably the best equity trader in Canada. And Mike looked at me and he goes, 'Fosser, equities

are bust. You cannot trade equities in a market when credit is melting.' It's all about credit, take my whole risk and Weck, through his risk, and rightly so with the credit guys, meaning just go short equity, go short equity because until the credit markets fix themselves, equities are worth zero. I need everyone to understand that okay. In a priority of claims process, unless the bonds of a company are worth 100 cents on the dollar, the equity is worth zero. I need people to understand that again. Now, while the Government of Canada and the US don't have equity per se, all other rates in the world are set off of the US Treasury Curve. So when the US Treasury Curve changes, it changes the discount rate of every other financial asset in the world. Do not try and trade equities when it's getting flung around by the credit default swap players who are rushing to the equity markets for protection. You can hedge your credit by shorting equities and when equities are getting destroyed, where do you think everybody turns to hedge? The equity markets.

So credit is the dog that wags the tail of equities, all these monkeys in the equity market. So with this value what's crazy is, fuck boys, excuse my language. If you don't understand the priority of claims process, you should not be in the financial markets. And most financial procrastinators or if that's the word, procrastinators are procrastinators, whatever the word is, they don't get it. You listen to these Bloomberg fools. Oh, go out and buy some Hertz equity. It looks like Hertz may recover. Buddy, bonds are at 40 cents on the dollar. Do not be giving that type of financial advice to your listeners. 2020 here we are. No, 2016. I'd retired from the hedge fund business, it was quite a great trade with the asset backed commercial paper, we bought paper at 20 cents on the dollar and eventually went back to par. It was somewhat lucky, somewhat good in risk management, and Mike Weckerle was a stud. He took all his risk and all his money, which is a lot and said Fossier, go and trade credit.

So 2016 I run into a guy by the name of Fred Pye, who's a Montrealer, just like myself, and he says, have you ever heard of Bitcoin? And I'm yeah, I've heard of it. But, I don't really know too much about it. Well here, take a look at this one thing. And I said, what's that? He goes to tradebloc.com. Okay, what is that? This is the blockchain in action. This is Bitcoin trading around the world on a decentralized platform with no intermediary. What? This actually exists. 2016.

Mike: 00:09:14 Like 24/7 trading on the block.

Bitcoin in 2016

Greg: 00:09:16 24/7, disintermediation, trust-less, which does not mean you don't trust it. It means you don't have to trust anybody else. It is what it is. I was an engineer at McGill and I said, Oh my God, this thing is real. 2016 he says, I have an idea. I want to bring a fund to Canada, Bitcoin. I'm like, buddy, I want to be part of that

because everybody in the world needs exposure to Bitcoin. So, Mags knows this. Mags was a partner at 3iQ, but I funded Fred and his vision. And after four long years and one really smart guy by the name of Shaun Cumby, we won a battle against the OSC to be able to launch a Bitcoin fund. It's QBTC. it trades on the Toronto Stock Exchange. It is absolutely a great instrument, and what has it done? Well, by my estimation it's helped Canadians make about \$500 million in gains on Bitcoin. That's a real number because we've probably raised or they've probably raised 500 million bucks and it's now worth a billion. OSC be damned. They did the right thing. I know it was tough. Regulators are regulators, they try and do everything to protect but at the end of the day, it wasn't the OSC's job to protect investors against taking risks. It was to allow investors to actually hedge risks. And that's what Bitcoin is.

So Canadians were first out of the block with a registered exchange listed QBTC, it's fantastic. Mags was a huge supporter and key component of that. But again, it was Shaun Cumby, it was all Shaun Cumby because he went to the OSC and he basically fought them with 5000 pages of disposition. And you know Shaun very well. This man is a stud. And he did this for Canada. So what does Canada have now? Canada now actually has an exchange traded fund that just surpassed a billion dollars after one month.

Mike: 00:11:25 Yeah, we got like four now, don't we?

Greg: 00:11:27 Well, okay. His purpose is good. Here's the thing, and my time is up I know that, they're going to yank me off and that's it. Thank you. Thank you, Montreal. But here you go. I know one thing, this is the best asymmetric trade I have ever seen in my life. And I've seen some pretty good ones. And I'll tell you a story about one when I was explaining a trade to Jason Marks. And as you remember, Jason, he's the, he's the theorist. He's a Harvard MBA and I showed him this trade, he goes, it's impossible. You can't be doing this trade. I go like, Jason, when markets dislocate you can do some crazy stuff, and I want to talk about that trade. And he goes, you're doing it, oh my God, and he sees my Bloomberg screen, you're doing it, you're doing and I go, yes, I am doing it. How much can I do? And he goes, infinity. Because you do find these trades that exist in dislocated markets and we'll talk about that trade. And Jason, God love him, he's a Harvard MBA, these things can't possibly exist. Well they do. And you need to have exposure to Bitcoin because Bitcoin is default protection on a basket of sovereign credits, full stop. Doesn't mean those credits have to default. It just means they're going to get more risky as our debt balances explode. It's only math. That's my pitch.

Mike: 00:12:45 I love it. I love the introduction. And I think we'll turn it over to you Mags. Let's hear your story.

- Magdalena:** 00:12:53 Sure, I'll try to be briefer.
- Mike:** 00:12:56 You don't have to be. If it's that spellbinding and interesting. Go for it.
- Richard:** 00:12:59 That's a pretty low bar Mags, don't worry.

Backgrounder Two

- Magdalena:** 00:13:02 Greg Foss is like drinking from a hose. And I have experience, because I am a volunteer firefighter. So I've seen how much water comes out of that hose. So for myself, I have a decade of experience in highly regulated markets, electricity and carbon markets, prior to myself joining the Bitcoin and digital asset space in 2017, which is now a very highly regulated financial market. I spent, a large focus of that was working with multinational companies and really trying to figure out how to attract them to make investments in Canada as well as create jobs as typical, as is typical when you're in government. But I think I kind of bring a unique perspective now where I can apply some of that electricity and carbon knowledge especially, to some of the criticisms that we've been seeing when it comes to Bitcoin recently, especially when, for example, Elon Musk joined in the party, even though he's late, and bought Bitcoin. And so more recently though, I've been involved in...Well, I helped launch the 3iQ's fund. I was part of the initial public offering. That was an awesome experience just to see that connection between legacy financial markets and Bitcoin.

But I've also seen the negatives. I represent all effective users of Quadriga. I've been appointed by the Supreme Court of Nova Scotia to represent all users and also oversee the bankruptcy. Or sorry, EY manages the bankruptcy but I help inform EY in terms of their decisions as a Bankruptcy Inspector, and so seeing products like an ETF, like some of the closed end funds trading in Canada, I think they're great news stories in terms of protecting consumers because we've had, and especially it makes Canada...it kind of brings us up to the limelight in a good way, especially after seeing over \$200 million at that time that was lost, but it's approaching \$2 billion worth, how much got lost in Quadriga. So I think more options are great and we're seeing fees fall. So when it comes to seized financial products, I think it's overall a good thing. I'm also involved in some non-profit work which actually ties into NFT's because I know that's a hot thing. But that, we're actually been working to, for the last three years before NFT's were cool to put global carbon accounts and the Paris Climate Change Agreement on the blockchain. And we've received some government funding, banking from legacy financial institutions and this is totally non-profit through a charity-based platform. So those are some of the things that I've been dabbling in. And also Bitcoin mining obviously, because it is a natural intersection.

Mike: 00:16:15

Especially with your experience in electricity markets and carbon markets, it seems that you've got almost the perfect background to enlighten individuals on what the energy consumption really means for Bitcoin, for the mining. And I know, Greg, you've got some relationships there obviously with Validus Power about how you're turning carbon products into what is actually powerful transportable methods of accounting, and that's a very valuable output that we're getting from these electrons that we're finding and using. And I think it's a bit of a red herring to say we're using all the same electricity as Argentina or something like that? So can we start there? Can we start there Mag's. Can you just walk us down, here's what we're hearing and here's why it's right, wrong and different.

Right, Wrong and Different

Magdalena: 00:17:19

A lot of things. One of them is, Bitcoin is boiling the ocean, it's going to use all the world's energy as more and more miners join up. Huge carbon impacts. Those are the types of stories that people are grabbing on to. And I do think it's a bit disingenuous because if you actually look at what Bitcoin is disrupting, it's the legacy financial system. For countries like the US, part of what gives the US dollar its strength is the military system around it. There's different layers of Bitcoin that are used for different things, like store of value which is typically the main Bitcoin blockchain. But then if you look at second layer scaling solutions, like the Lightning Network which are becoming used for remittances and instantaneous peer to peer settlement. Low costs, less than one Satoshi per transaction, that's like 0.0001 cents, it's very cheap. And so we're disrupting intermediaries, we're disrupting sectors like the gold mining and moving gold around. We're disrupting Fedwire, payments like Visa and MasterCard. So you can't just say, well, Bitcoin consumed as much as Argentina or whichever country we are at the moment. It's what it is disrupting and that's maybe partly of the military base, partly the banking system, partly remittances. There's so many different pieces that Bitcoin does, and in a trust-less decentralized un-seizeable way.

Mike: 00:19:01

Spectacular, and then what I'm hearing is there's opportunities to capture what are waste carbons whether that be, I know Greg your business is heavily involved in that. And then we're also seeing sort of these inverse relationships where the mining of Bitcoin is actually setting up power supplies for communities that were underserved previously. Maybe you can talk about some of those items as well, either one of you.

Peak Power and Energy Waste

Greg: 00:19:28

I'll grab that, but before I do, excellent discussion Mags. One thing, think about how much power the US Navy spends defending the reserve currency of the world. Let's just talk about tit for tat, I'm not saying either one is wrong. I'll just

say the entire global banking system. Do you think that perhaps uses some power as well? So, there's a couple of neat stats. I like to say that Bitcoin does not waste energy. Bitcoin consumes energy waste. People who don't understand the power grid and the various levels of stability that are required in the power grid, really don't appreciate what Bitcoin can add. First of all, our grid is built for what's called peak demand and in that peak demand, you are typically way over powered, or there's too much energy in the system for 90X percent of the time. It's just when there's a storm like there was in Texas, a crazy storm, or there's mid summer air conditioning demand and all that you get peak power, and the grid is set up to function at that peak demand. But most times, and you can see this on your power bill, most times in off peak hours, energy is actually in surplus.

Now, if you go to the concept that Bitcoin consumes energy waste, let's just think about the energy that's being produced 90% of the time on the grid, that isn't being used. Generators are being fired, waterfalls and generators in hydro dams are turning, but that energy isn't being consumed. It's there to be used, but there just isn't the demand. So if we're running a...

Magdalena: 00:21:25

And the sun is shining every day, and we do not use the whole...

Greg: 00:21:28

Let's not even go there. I don't want to get to renewables yet because renewables in themselves could be looked at in a different engineering concept. But first of all, think about Bitcoin and Bitcoin miners, most miners are actually set up so that they have power contracts that can be interrupted at any time. Meaning, if there is peak demand from the local grid, the operators that aren't Bitcoin miners, they just turn the switch off to the Bitcoin miners and they use the power elsewhere. So you mentioned Validus Power. I'm a proud shareholder of this company that I think is going to revolutionize the power market in Canada. Not just for Bitcoin, but for perhaps indigenous communities, perhaps even Bitcoin mining being done at gold miners. Think about that for a second, gold miners actually have surplus power most of the time, because they're set up to heat their mines in the winter or they have surplus power for other reasons. Hey, think of taking that generator and actually running Bitcoin mining. Not only do you hedge your own business, which by the way may be going down the tube because you're holding a 5000 year old or you're mining for a 5000 year old commodity that's being replaced or displaced by Bitcoin. But how about an indigenous community where you're using diesel fuels and you're not properly using the exhaust of those diesel fuels to perhaps heat a greenhouse for example.

So, Validus Power. We are purposely involved in using flare gas to mine Bitcoin. And what is flare gas? Flare gas is a by-product of oil drilling primarily in the fracking regions of the Balkan and the Permian Basin. And what can happen then

is you can wheel in, and it's a beautiful engineering feat. We've tested it for four years in the field, you wheel in a 35 megawatt. Now these are big power numbers, 35 megawatt jet engine essentially on the back of a trailer, 18 wheel trailer, you wheel it in, you hook it up to a natural gas flare that's otherwise just being burnt into the atmosphere. Now what is a flare? Well, flare is methane, methane is cow farts. So you have cow farts that otherwise can be burning the ozone if you don't burn it. They burn it and when they burn it though, they create heat and they create carbon dioxide and carbon dioxide turns into, sometimes acid rain. It certainly destroys the environment.

So what if you take that energy source that's being wasted? Let's agree that that's being wasted. They're flaring it into the atmosphere, and all of a sudden you're mining Bitcoin. That's pretty exciting. And then you say, how about if it's also connected to the grid? So if in Texas you get this unbelievable storm that knocks out 90% of the power in Texas, but you can connect back to the grid and provide peaking power to the grid, you don't mine, you just flip the switch and you send it to a substation, and it goes back onto the grid. Bitcoin mining can actually help stabilize the grid. It's a thing of beauty. Now, I wanted to say one thing more about this renewable energy thing. I love windmills, windmills don't work. It takes 260 tons of steel to build a windmill. If you put that windmill in the most ideal wind location in the world, it will take three years for you to produce the amount of power back that it took to produce the steel and the energy to produce the steel using fossil fuels to pay back that windmill. That's in the ideal location where the wind has to blow say 12 knots consistently.

Guess what? There's not that many ideal locations for windmills in the world. This could be the biggest red herring out there. I'm not saying I don't want them to work. I'm just saying call it like it is ladies and gentlemen. Do you think solar panels are built without fossil fuels? This stuff is just so ESG. Like I went to school and I studied ESG and therefore, we're going to do it this way. Guys, do some engineering before you do ESG. I'm not knocking it. I want this to succeed. Yes, cleaning the environment's a priority, but don't invoke silly regulations based on nothing but subjective feel. Do some engineering, understand the components that go into this.

So full circle, I don't want to start talking and diss anything on the green energy projects. But you got to remember, everything starts with energy that comes from the ground most likely, or comes from the sky. If it comes from the sun, you got to make something that works. And right now, solar energy does not compete with fossil fuels. You know that at every solar energy farm there's a generator in the background that stabilizes the sun coming down? Because they can have loads going like this from the sun. Oh, my God, the clouds, the cloud just came over. So that's running in the background.

Mike: 00:27:05

It's an 'always on' phenomenon. Same with nuclear.

Greg: 00:27:07

Well, hey, look, it could be. So that's all I'm saying, guys. This is about engineering. It all starts with engineering and the first law of thermodynamics as Michael Saylor pointed out. There's so much value in actually going into the numbers and understanding how things are created. I will say this. Human productivity is always related to using energy the most efficient ways possible. And that's a fact, think of it from day one when man discovered fire. It starts from there and then internal combustion engine and et cetera. All right, this is good, it's about engineering, don't believe the journalists that go out and say that Bitcoin's boiling the oceans. That could not be farther from the truth.

Magdalena: 00:28:00

Well, actually, it is boiling the ocean. But...

Mike: 00:28:05

Yeah, to make salt.

Magdalena: 00:28:05

Hold on. One of my favorite projects in Canada is one by MintGreen, it's on the west coast, they've partnered with an artisanal sea salt company. So they're currently building it out, they're going to be taking the heat from the miners, recycling that heat and boiling the ocean to make sea salt. They've also partnered with a distillery, a whiskey distillery and same type of situation, where they're going to be recycling the heat and heating the whiskey mash. So, it goes back to exactly what Greg says. So, mining is a cutthroat business, especially during bear markets and carbon is a cost. If you're using coal or methane and natural gas directly, then you might have to face a carbon tax at some point. If you're doing things like flaring where you're actually helping the industry offset, you're taking methane which is a more potent greenhouse gas, converting it to CO2 and you're actually potentially helping and definitely what we've seen is this trend towards both decentralized grids, but also grids that are more modern and cleaner. And part of that is adding this renewable infrastructure, but it isn't necessary. It's a very big shift, just like the legacy system is being disintermediated, we're used to building our grids to have, for example, a giant coal plant or a nuclear plant and now it's shifting.

So I think we have to start thinking about what types of energy loads or what types of generators are being added and how that ecosystem works out. I love to hear the stories where the miners are actually helping with demand response, and there's a limit up to which that can happen because typically jurisdictions, for example in Texas, there's a cap on how much of that is available to take advantage of. But, seeing kind of that integration or seeing situations like heat recovery that is being used to provide district heating, or there's, pilots being done. In Europe for example, Genesis is setting up next to a greenhouse and cold climates, it makes sense to do that. And coming from a public policy background too, one thing that governments really look for is, there's different issues at play.

So for example as Greg mentioned, if we think about our First Nations communities a lot of times maybe they're up north, they're using diesel, maybe they're not transmission connected, diesel is environmentally not very friendly. And a lot of times, these kind of communities might be in a food scarce area where you don't have access to fresh fruits and veggies. So there's definitely some kind of industrial synergies that we could see happening, and it all comes down to cost, and in cases where the government is providing massive subsidies to use diesel up north and actually contributing to sending diesel because it's still cheaper than building out transmission distribution lines out there.

There might be better ways to kind of generate that kind of societal benefit. And I know it sounds at a high level very beneficial. But we are starting to see some of these projects and pilots take place, to see if there's an economic incentive. And as the mining industry does get more cutthroat down the road because every four years, Bitcoin supply cuts in half, you might have to start to look at some of these creative ways to offset your energy costs like MintGreen, which is actually selling the heat. So, it's offtake agreements, or you're trying to figure out better ways to kind of reuse that energy or to use different types of ways. So whether that's tires that can not burn the old fashioned dirty way, but better ways where you're creating synthetic gas and you're actually getting paid to accept the waste, or you're taking waste paper biomass that has been contaminated, that you're burning to generate heat. There's all sorts of cool things happening, farms. As we start to get carbon policies in place, offset policies come about, or farming for example, you can't just release manure into the air. You have to add on an anaerobic digester, well, that's generating methane gas that could then be reused to burn at certain sites.

So I think, any industry, because I used to work with heavy industrials, whether it's cement plants, or steel plants, and these are when it comes to a single industry that has the largest carbon impact, it is steel, and next is cement as a single industry. Because you're using coal and coke and so they are looking at alternatives themselves because they see long term where things are headed, whether it's policy wise or from a cost perspective and if they can use waste to subsidize that process or to reduce their carbon impact. They are looking at it because they're thinking longer term down the line. A miner that just comes in right now, because it's very profitable, because prices have come so out of whack compared to what the cost of production is. Unless they're thinking about it strategically and long term, they're not going to stay in business very long. So you have to have that long term take too.

Mike:

00:33:56

Yeah, you've got to be ready for the bear market in order to maintain production. It is uncanny how similar the Bitcoin mining industry is to any other mining industry. Its mining. It is crazy how that is.

Bitcoin Mining is Mining

Self-generation and Mining

Greg: 00:34:15

Mags, this is interesting. Mike, sorry to jump on top of you, but listen, everyone says how cheap it is to mine. So your number one cost obviously is your electricity, your input cost in mining. Do you not think that in Texas, for example, there's going to be some immediate taxation on Bitcoin miners right now, because of what happened? Do you not think that Quebec, Hydro Quebec is contemplating a tax on Bitcoin mining because Bitcoin, when they signed these deals was trading at, I don't know 10,000 bucks US a coin. This is coming. You need to be self generation, in mining. You should not be on the grid, you should be able to provide peaking power to the grid in jurisdictions that will allow that or, and you brought up these indigenous communities Mags. You know how much it costs to wire in a transmission line 100 miles? Easily \$250 million for 100 miles of transmission line through some very environmentally sensitive places. Trucking diesel fuel on frozen tundra roads when it's frozen sounds sort of non environmentally friendly either. But think about this, these communities, a lot of these indigenous communities, the number of people are measured by the 10s. 182. These are 18,000, excuse me, communities, these are 182 to 300 in this, and their costs of electricity per kilowatt hour where it's 19 to 22 cents in Ontario, it's about \$1.20 or higher in these indigenous communities all in costs, you will be able to...sorry, go ahead.

Magdalena: 00:35:59

No, and the issue is, when you're building out infrastructure it's expensive, and it gets allocated across the entire rate base, whether that's residential or industrial. So as a business, one of the biggest concerns I heard about companies that are there and want to continue operating in Canada, or moving or wanting to move to Canada is the electricity cost and, if the more infrastructure upgrades that happen, the industry will feel it in their electricity bill. I'm not sure about targeting specifically with a tax in terms of miners, because I think it all comes down to political, whether the public thinks it's a bigger negative than not, because I have heard that it was actually helping the grid in some cases, and whether that story makes it to the politicians is one thing, but what I do expect to see is they will need to make massive upgrades to both their natural gas and electricity infrastructure and that will be spread across the rate base. So their long term, as these get built out, just like what happened in Ontario, our electricity prices have gone up and part of that was because of long overdue upgrades plus some renewables. But the bulk actually came from making sure that we have reliable power and a modern grid. So I'm sure that'll happen longer term there too.

- Mike:** 00:37:25 There is the taxation on the profitability. If you're profitable, you are getting taxed and though that income will be taxed. So the government's going to take their share. Last thoughts on this Richard? Because we got so much more exciting fun stuff to talk about too.
- Richard:** 00:37:37 I was just going to ask them. It sounds like you guys are making a solid case for an energy revolution that is being sparked or that the Bitcoin space is serving as a catalyst to promote better usage, optimization of existing energy sources and perhaps even new research into new sources of energy. But I wonder if you guys have...
- Magdalena:** 00:38:00 I have heard about folks looking into fission and fusion, and I mean longer term. I think miners are going to become banks in their own right, and if they're holding on to Bitcoin, like they will be serious players. Some of these industries, for example, steel, they band together for longer term research, they pool resources together because they see, how can we do this more cheaply? And that's something that perhaps miners would be willing to collaborate on but maybe not because it's a competitive effort.
- Richard:** 00:38:37 Just to close the loop on the question, I was just going to get, try to ask, does it make sense as the technology evolves and people are now talking about proof of stake as opposed to proof of work? Is that something that might impact Bitcoin as the technology evolves? Perhaps not in this first moment but as things evolve, would this be something that could affect the way these new blocks are hashed? And how might that impact this whole energy conversation?

Proof of Work and Proof of Stake

- Magdalena:** 00:39:13 I think it comes down... I'll start, I'm sure Greg has tons to throw in. Proof of work, which is what Bitcoin does. Part of the reason that people feel it's a store of value fundamentally, is there is a tremendous amount of energy currently being expended to secure the network. And you would have to have significant amounts of money to be able to put an attack onto Bitcoin, but also buy the chips, secure power. It's just it's an undertaking that is highly unlikely and that is why companies are putting Bitcoin in their treasuries. Why billionaires are looking towards this as an asset class. Why insurance companies like Mass Mutual which are some of the most conservative industries, are looking to put Bitcoin into their portfolio because of the security that it provides. There are other, certainly in blockchains, like Ethereum that we know, the most popular one, which some people think of it's more like a VC play, and it's an application layer. First of all, it does use some energy there still even once it moves from Proof of Work to Proof of Stake. There still will be data centers that are making sure that that system works, and people will be plugged in. So it's not like it's a zero energy type of situation, it's a different type of system that's in place, but I

don't think many of these stakeholders, I would call them now, the Elon Musk's, the MicroStrategy. I don't think it provides the same kind of security layer that they think.

What Money Is

Digital Energy

Greg: 00:41:08

That's a great explanation and I'm not even going to add on that. I'll fully endorse that. Richard, a great question. Let's start with what money is. And money has always been a technology for transferring your work or time or energy expended today, for consumption in the future. Think of yourself as a young college kid and you're up on a hot summer roof pounding in asphalt tiles and you made \$20 that day. Lower a couple of years ago, 20 bucks, and I want to use that 20 bucks in the future. I haven't needed to use it now. But let's say when I'm 70, I need to use that 20 bucks. We all know that the fiat system debases money and that \$20 is certainly worth far less than 20 bucks. But if you go by the principles of conservation of energy, that money is a technology, then it makes sense that money is stored as energy. And Bitcoin is exactly that. In 1921 in fact, Henry Ford of the Ford family said 'the world needs an energy currency to stop global wars'. If you look it up it was printed in the New York Tribune in 1921.

So the man foresaw that the first principle of thermodynamics applies. An energy currency. Again, to transfer the value of your work, time or energy expended today for use in the future. I believe everything that Mags said, in proof of work. It is nothing more than engineering and the first law of thermodynamics, Bitcoin being digital energy. And essentially we'll talk about this. I think that all energy will eventually be priced in Bitcoin, not in US dollars. Actually energy priced in Bitcoin and when that happens, it will be the de facto 'reserve asset of the world'. But let's not go there right now. I'll just say, look at the grid in Ontario, for example. So Hydro One is absolutely at capacity. You cannot in Lamington Ontario, where we have massive greenhouses growing cucumbers for all of Walmart in southern Ontario, they have massive greenhouses that cannot get power from Hydro One grid because it's at capacity.

Magdalena: 00:43:33

Did you know historically the greenhouses were using coal as their primary fuel and natural gas?

Greg: 00:43:43

So this is where Validus comes in with the natural gas turbines, etc. You can heat the greenhouses in the winter and then flip the switch and mine Bitcoin in the summer or use the exhaust from the Bitcoin miner to heat the greenhouse, so many cool applications. But the reality is our grid is at capacity. So you can talk about inviting companies to come to Ontario because of the power. Hey, guys, we're done. We're at max. Yes, we'll get you the power says Hydro One. Just

have to wait five years. So there's applications that will allow, imagine a tomato guy or cucumber guy in Lamington that says, I'm also a Bitcoin miner. I don't know that's sort of a cool hedge. This doesn't address your proof of stake versus proof of work which I think Mags answered 100%. I'm not going to go any more there. I'll just say, remember what work is, its energy. And what is Bitcoin? It's digital energy. One for the other. You take valuable energy out of the ground, you create digital energy, and Mags talked about this, and then you build a banking system on top of it. Because miners will become the banks of the future.

Mike: 00:44:57

Money should be somewhat hard to come by. And that helps preserve the purchasing power over time. If you can just pull it out of the air as we have been doing over the last year and saying, 'well, here's some for you and here's some for you and there's some, here you go'. Well, that has all kinds of implications for other asset prices, for the price of money itself, and the lack of inflation I don't think is a clear representation of the debasement that's going on. Probably what's a more relative example of the debasement is the bubble in asset prices that keeps moving around, hard assets like real estate through the roof, et cetera. Oh, there's no inflation. Well, there's asset price inflation going on in a number of areas. Anyway, that's just a continuation of that point. But Richard, did we cover that? You've got a follow up or you want to...

Richard: 00:45:48

Yeah, I think that makes sense. The whole conversation about fiat debasement and why Bitcoin and other crypto assets and hard assets and anything that scarce, has got such a huge bid on. I think we're, all four of us on this call are in violent agreement. So I don't think that that's something that we'll dig too deeply on. But I did want to pull on a thread that Greg raised there just quickly. If Ontario is at capacity when it comes to energy generation, wouldn't that put the province at a disadvantage when it comes to mining because if we have a trade off between food security and Bitcoin mining, unless we're going to get some kind of ...

Greg: 00:46:25

Enter Validus. Come on, certainly but we're not going to be focused that much on... So Bitcoin mining using wasted energy, that's flare gas. But imagine we have these turbines that you can hook into the Trans Canada Mainline. You can get your natural gas from the Trans Canada Mainline and then you can power these generators on a mobile basis. And you can, you can heat or you can provide the power to the end of the growth to the infrastructure in Lamington Ontario. Interesting side note, I don't know if you guys know this, but you know that Lamington Ontario and Point Pelee where Lamington is, that's further south than the northern California border. I mean, this is just really cool stuff that a lot of people don't understand that Canada has a really, you can do Bitcoin mining in northern Alberta where the temperatures are actually perfect. It's not West Texas. It's beautiful, the efficiencies of the turbines in northern Alberta, it's a thing of beauty. Otherwise, this gas would not be being used. You can create

economic growth with this. So your point is, Bitcoin mining will go where energy is cheapest and where wasted energy is abundant. So you're not likely to do it in southern Ontario, unless you're Leamington that purchases a Bitcoin, excuse me, a turbine engine. But in the summer, you don't need the turbine engine to heat your greenhouse. So you say, guess what? I'm going to create a revenue stream with Bitcoin mining and secure the world's most powerful computer network at the same time.

Mike: 00:48:06

The miners are locating in low cost power areas that have fundamental tilts to cool areas. You've got Quebec, you've got Alberta and you do have this big rush in Texas which is I think it's a bit strange with the liquid cooled guys, but whatever. Iceland and Sweden have lots too.

The Economics of Mining Bitcoin

Magdalena: 00:48:29

To close off on that kind of capacity issue. It's not necessarily too that there's no capacity available. Sometimes it's a factor of, do you have the lines like the transmission lines to take that capacity. So I can have maybe a giant load here and I don't have enough energy in another area, I have massive amounts of wind turbines, but I can't get that connection to the place that needs it. So sometimes it's moving the miners where energy is cheap, where energy is plentiful and being unused or where energy is being wasted. And, it all comes down to economics.

Greg: 00:49:07

You know you can't transmit energy over transmission lines much farther than 500 miles, right?

Richard: 00:49:12

The loss is too great.

Greg: 00:49:14

Yeah, exactly.

Mike: 00:49:14

Wasn't it Poland that located a bunch of miners around the nuclear plant, so they had a nuclear power generation plant and located a bunch of miners because it was just running at very low portions of the capacity, where they were unable to use the electrons and well voila, now you can turn them into something...

Greg: 00:49:35

I know the name Foss isn't Polish, but I'm going to...

Magdalena: 00:49:37

I think it was Ukraine but...

Mike: 00:49:40

Ukraine.

Magdalena: 00:49:42

Ukraine. I'm actually Polish so...

- Richard:** 00:49:46 I think you can harness this there Mike.
- Mike:** 00:49:47 Yeah, I'm sorry.
- Richard:** 00:49:48 So, I guess just to put a bow on this, the thesis is, idle energy supply and then the geographical arbitrage that is available for the use cases, when you have all this energy is just sitting idly there, that can be used in a more efficient way. So we're optimizing for this this energy use. Make sense.
- Mike:** 00:50:13 Let's talk about some more fun stuff. You hit it. You got some topics there you wanted to talk about some, I know you want to get into global macro which Greg will jump all over in that sort of thing. So what do you want to do?
- Magdalena:** 00:50:25 You can't separate macro from Bitcoin these days?
- Mike:** 00:50:28 Yeah, you can't.

NFTs

- Richard:** 00:50:31 I'll leave the global macro stuff for the end because I do have a couple of questions that Greg and Mags might qualify as fun, but there are kind of some concerns that I have as I'm jumping into the space. But I wonder if you guys might talk a little bit about NFTs and obviously that's become sort of this buzzword right now. But I was listening to a couple of podcasts on the theme and it seemed like a really interesting use case for disintermediation when it comes to access for royalties and when it comes to fractional ownership and things like that, so I just thought that was an interesting topic to touch upon if you guys are keen on.

Non-fungible Tokens

- Magdalena:** 00:51:10 Do you want me to start off Greg, is that okay? So NFTs are non-fungible tokens and at a high level it's a different way of providing data transfer. So just like you have a gift, you have a JPEG. Now, the current way is NFTs, but what makes it kind of more unique is that they're being put on the blockchain and sometimes everyone's like, everything's on the blockchain, and we're really early stages. So people are playing around on different types of blockchains and I do think, to Greg's point, eventually, you want to be on the most secure powerful blockchain there is. But that said, I'm seeing some really cool things happen in terms of for example, you can start to code in certain information. Maybe down the road, we're seeing music artists, for example issue NFTs of their songs, but down the road perhaps there are pieces, royalties that are being added in. We've been working for the last three years on NFTs and carbon. So you can code in very specific data on to a specific NFT. For example, where is this project based?

What is the type of offset it offers, geographic information to that specific site. So it's really interesting how you can code this in.

The world has moved from analog to digital and this is kind of the next iteration. I think the ones that have made the most mainstream media impact is digital art and collection. And that's, to your point about asset prices increasing, collectibles in period, whether that's regular art, baseball cards, cars, rare wine, everything is going up. So digital collectibles is kind of that next iteration where you're joining different types of assets in the digital world and non-digital world, and I'm seeing experimentation that's really cool. We're down, DeFi or decentralized finance has been alongside Bitcoin, what's happened in Bitcoin, which is hard enough to kind of keep track whether it's Bitcoin main chain, whether it's institutional involvement, or the Lightning Network, but there's so much happening on decentralized finance and some of it will be shifting towards Bitcoin, whether it's loans, collateralized loans, lending, borrowing, that's happening too. But I think it's interesting because some folks are going to start to play around with collateralizing digital art.

So, I think when it comes to NFTs, we're just starting to see that potential and people are starting to play around with what are the options, and it doesn't just have to be collectibles, it can be music, it can be something as simple as buying a ticket to a game or a parking ticket. But definitely we can start to get into a more fulsome conversation of pros and cons and, what happens if I put a house title on and somebody steals it? There's definitely challenges, it's so early stage. But I'm loving how people are finally realizing maybe more so that we live in the digital world, and just like COVID accelerated where money is, and central banks are starting to issue central bank digital currencies and playing around with pirates and our money, and our money has shifted to digital and people are starting to recognize more so, like what is money? It's just numbers in a bank account. And why can't I settle within seconds with you Greg? And maybe you're in China at the moment? I think everything is changing.

Richard: 00:55:02

It sounds like these NFT's are imbued with smart contract characteristics.

Magdalena: 00:55:09

Yeah, so one of the big reasons why so far they've been issued on platforms like Ethereum is that people want to code instructions in or certain information where it's a lot harder, or the infrastructure has been built on a lot longer on the Ethereum blockchain. So when it comes to collectibles and art for example, and who owns something. So one of the key pieces I should have mentioned is provenance. So if I am the artist, you know that it was issued by me, it came from my wallet. And yes, people laugh about, 'I have a screenshot of this, haha'. But I mean, if you look at the Mona Lisa, there's only one and it's in a specific location. So even though I have a copy and I took a picture of it, I can't pretend I'm the owner.

So part of that is actually just, I want to show the clout that I have this specific asset, or I have the digital rights to the song and perhaps you want to take my art or my song and you pay me royalties to use it. So, it does really open up that ownership and provenance piece because you're not actually... the NFT is more so the provenance and who owns it rather than the actual art collectible. So for many people it's like, well, yeah, I bought that Beeple, the \$69 million Christie's auction, I am the owner, and you can see that it's in my wallet and there is a certain clout that comes along with it, and perhaps maybe a mania. But I think just like Bitcoin, 10, 12 years ago was pretty new, even within the last year, we're kind of in this next phase of evolution of where Bitcoin is. I think NFTs are just starting to scratch the surface and what they're built on and the type of interoperability between the different blockchains whether that's Ethereum and Bitcoin because right now there is some interoperability, people are wrapping Bitcoin onto the Ethereum network so they can participate in decentralized finance.

There's going to be many layers built on top that allow for digital asset trading or trade or marketplaces or ecosystems that operate between each other and I think we're in this magical stage where we recognize it's happening and participating, and see and just trying to figure out where is it going to go next.

Central Bank Digital Currencies

Greg:

00:57:47

So is there any question why Mags is such a valuable asset to Canada? And no, honest to God, and like why 3iQ is so lucky to have her for the short period of time that they had her. But yeah, I can't say anything after that. You nailed every single point. Just to add on though, let's talk very quickly central bank digital currencies, so it's going to be a reality. What is it? It's digital fiat. Yep. Mike they're printing it out of thin air you said it, and they'll be able to track you. Okay, full stop. Do you want that? Yeah, you may, you may not, but don't forget what central bank digital currencies are, is fiat currencies with tracking. Were you at that protest rally? I see you spent some coin in the restaurant that's on the parade route. So this can be taken in two ways .

So first, that's enough on CBDs, Central Bank digital currencies. And then I like what you're saying. I'm mostly a Bitcoin maxi. I do have money with a firm in LA called ARCA. Some of the smartest guys in the room. No question. ARCA is a digital assets management company, a guy that I used to trade high yield bonds with by the name of Jeff Dorman. They believe in DeFi. They believe in all these other applications. I'm not telling you that you shouldn't, I'm just telling you I focus on Bitcoin and I do believe that Bitcoin is the best blockchain in the world, and I do also believe that layer two and layer three solutions of Bitcoin will allow for NFTs to be issued on the Bitcoin blockchain. It's the most decentralized,

whether there's centralized characteristics of other blockchains, let's not go there. Smart contracts, yes, 100%. It's technology.

I did want to mention one thing that I think NFTs will help. I was involved in a company that went bankrupt, unfortunately, but it was called DigitalTown. And it was based on the west coast based out of Seattle, run by a guy, a former Cornell MBA who for some reason that attracted me, just because I went there myself. That's not a great way of making an investment ladies and gentlemen, but I did it and I lost all my money, which is okay, I took the risk. But the idea was that DigitalTown would create their own tokens for each town and imagine how that would work. I drew the parallel to, I'm a bar owner in Montreal, I happen to own eight Irish pubs which also is not a great business in the COVID times but doesn't matter. Imagine if Montreal had a digital currency or a token that they could airdrop to all their citizens in the Montreal area, and then it was up to each business to decide what those tokens could be worth. And as a bar owner, I'm like, hey, wouldn't it be cool, let's say every citizen got dropped 100 tokens, just for a number, and all these citizens have 100 tokens and I say, hey, come to Old Orchard Pubs and your 100 tokens is worth one beer. And all of a sudden, we got all these people coming to Old Orchard Pubs and the pub down the street's like what the what the F is Foss doing? Oh, it's 100 tokens for one beer, screw him. I'm giving 50 tokens, or you get two beers for 100 tokens. So where do you think all the people are going to go then right?

And all of a sudden, you get this economy that's developing on top of a purely open, no one said it had this value until the shop owner or the small business owner in the city says, I'm going to apply this amount of value to it to try and attract new clients. So yeah, I lost all my money. It was a good idea. I told my wife about it. She's like jeez now I actually understand what you were trying to invest in, but you're still a moron. You lost all your money. So it's okay, you take these risks but the idea was that it had some promise and honest to God, guess what happened after COVID? Well, you start seeing towns in Australia, I think it's a Newcastle that's doing exactly that. And it's a beautiful thing, it facilitates, call it barter. I'm going to tell you one story. Did you ever hear about the guy that was trying to sell a cow for \$600,000? Did you hear that story? So there's a guy walking in the village and he's trying to sell a cow for 600,000 bucks. He's got a for sale sign 600,000 bucks. And he's walking in town and the town people are laughing. They're laughing their head off at the guy. And two days later, he's walking through town with three chickens. And one of the town's folks yells out, hey buddy, I told you, you'd never sell that cow for 600,000 bucks. And he goes, darn right I did, I just got three of these \$200,000 chickens.

So it's all question of what people place on that unit of account. **And that should be a free economy.** It shouldn't be pulled out of the air. Mike, you said, just they've started to print fiat, no fiat has been debasing for the last 100 years, your

house has not gone up in value you guys. It's that the unit of account has gone down in value. And it's mathematically a certainty that it will continue to debase, it's only math. Yeah, a \$600,000 cow may not be so crazy in the future. And a \$200,000 chicken may in fact be what the future is bringing us.

Mike: 01:03:20 I think we're there in Zimbabwe.

Greg: 01:03:22 I hate to say it, but they're all fiat based, and fiat is based on trust that the central bankers will not debase your currency. But guess what? That's all they do. Anyway.

Mike: 01:03:38 We'll do it slowly. Except in the last year or so.

Greg: 01:03:45 Canada has broken records for not being slow. But don't worry, DBRS just affirmed Canada's rating at triple A, was stable.

Mike: 01:03:53 We're going to get there, we're going to get back.

NFTs and Security

Magdalena: 01:03:57 To circle back on NFTs though, I do think I agree with Greg that we will see a shift where you want to be on the network that is the most secure. I think we will start to see more of that and to connect the debasing. There's some really cool companies out there that are offering for example, Bitcoin back rewards. So instead of spending and getting 2% back cash, maybe you're getting back Bitcoin but for those folks that were doing that last year, some of the goods they bought, the reward has become like half of what they actually bought, or even exceeded because they had some like bonus multiplier. So that's the type of things that we're starting to see become more mainstream and even things like BSports, Bitcoin eSports. And they're starting to integrate into triple A games where you're winning Satoshis and you're playing for Satoshis.

So I think this whole ecosystem around, yes, there is this institutional story and store of wealth but we're also starting to see this story where it's being integrated into payments and gaming and potentially down the road NFTs. I think as Greg says, we're very great maximalists, were focused on Bitcoin and there's just so much innovation just right there on Bitcoin itself. Never mind DeFi adding in, and NFT's, it's just hard to keep track of it all. You try, but you can't be an expert.

Mike: 01:05:34 How do NFTs...You mentioned something earlier about the NFTs related to certain tracking of commodities. Are you familiar with Abax Technologies and the work they're trying to do there with futures contracts and actually tracking where the various copper et cetera comes from to ensure that you're getting the

greenest copper, and they plan to do that through the crypto tech space. It's one of the old big promoters...

- Magdalena:** 01:06:00 I'm familiar with companies that are doing provenance and the rationale behind it, **making sure it's not fake**. For example, you buy this diamond, or you buy this Rolex, and companies are starting to do that. And then a lot of times it's one of those stories like, do I need a blockchain? Maybe you do, maybe you want that transparent record, but is it something that's like public or is it private? And if it's a private solution, it's much less exciting than something that is built on Bitcoin, just personally to me. I understand why some people want to go that route and I understand why NFTs, part of the value of who owns it, you can see that, it's transparent. For example, if you're on the Ethereum network. It's like, yes, I own this claim and there's a bit of clout maybe associated with that. I mean, if I buy an art piece that's 200 million, part of it might be just because I want to be **known as the guy that bought the art piece**.
- Mike:** 01:07:02 I saw the Mona Lisa hanging at the Louvre. I don't own it. Everyone takes pictures of it. There's copies of it everywhere. Does that by default make the Louvre's copy of the original of the Mona Lisa worthless, I'm not sure.
- Magdalena:** 01:07:19 No, it's the proof. It's the proof's in the pudding. But you want to make sure though that that proof is robust and sticks around for 5, 10, 15 more years. You don't want to launch it on some private blockchain. This company goes bankrupt and oh my god, I lost my NBA top shot which was worth \$100,000 for example. But right now, they're valuable, but you want to make sure that they're around especially if you made a significant investment and you think it's a collectible.
- Mike:** 01:07:50 Do you know who bought the game winning shot from the Raptors/Sixers game back in the day? Someone must have bought that in Toronto.
- Magdalena:** 01:07:58 Maybe, I could be a speculator. There's all these speculators.
- Greg:** 01:08:12 The fun there. The Raptors' best fan. He's got the car dealerships. Again, Mags, we got to work together in the future.
- Magdalena:** 01:08:22 I'm fired...

Network Assurances

- Greg:** 01:08:23 No, you got it. And here's the thing, it's about open economies, that capital, we're borrowing on Salazar's line, **'capital always flows to where it's treated best'**. That typically is in open markets in my opinion. Who's to say that...we know that the Mona Lisa is, I don't even know what it's worth, but just because you can take a digital copy of it, the original is the original. Let's not split the

atom on that one. But what do smart contracts allow? And then what does the Bitcoin network assure? If you issue a smart contract on a network that's suspect, it's essentially the same thing as taking counterparty risk when you don't realize it? Like everyone says, I bought fire insurance. Yeah. Okay, good you bought fire insurance. Yeah, but I bought it from Foss and Company. Sucker, come on, you don't buy fire insurance from me, you buy fire insurance from someone that actually has a high credit rating or low counterparty risk and that's exactly what Mags was saying about these NFTs that should trade on a, in my opinion the world's most secure and powerful computer network.

Richard: 01:09:46

So what you're saying is that the Bitcoin ledger, that blockchain, that most robust according to what a lot of the enthusiasts would argue is the most robust ledger, that has the strongest balance sheet within the crypto space.

Greg: 01:10:02

If you look at it, it's a trillion dollars. It's more valuable right now, here's a stat for you guys. It's twice as valuable as the entire Canadian banking system by market cap, and it's almost as valuable as the whole United States banking system by market cap. I don't know if that's sort of cool. That's Bitcoin after 10 years.

Mike: 01:10:22

This is actually a pretty good jumping off point Greg for you to go into your discussion on Bitcoin as a hedge vis a vis all those 200 fiat currencies that exist in the world, and maybe just touch on some of what you've written on about how you backed out the value the future value of Bitcoin via CDS spreads. I think that's a great question to jump off and jump in about.

Hedging Fiat with Bitcoin

Fiat Insurance

Greg: 01:10:50

Okay, so two things. And you mentioned this before, Mike, you talked about inflation risk. I'm actually convinced that the world is mis-focused here. It shouldn't be about inflation risk, which I believe there are real inflation in the world. It's measured by CPI. But who knows if that's a little manipulated or not. But what's real inflation? Well, if you take Michael Saylor's definition of real inflation, it's the growth of the money supply, which is about 15% a year. But let's not talk about that. Let's talk about true counterparty risks, true credit risk in the system. So you mentioned, I did do a paper, and my history is on valuations of enterprise, value using or incorporating credit, because credit again as a priority of claim over equity. Countries don't have any equity, but again, those countries set the base level of borrowing pretty well in their jurisdictions. So yes, there are 188 fiats, I think is the exact answer, or 164. Who cares? All we ever care about is the G- 20 it seems. But countries default on a regular basis. So countries like Venezuela, and Lebanon and Turkey, which is suffering 18%

inflation, not 18% inflation, 18% bank overnight rates. There's problems in these countries.

So if you live in any country that issues fiat, you should buy insurance on the fiat itself in my opinion. It doesn't mean the fiat is going to immediately default. But like anything, insurance premiums change as the risk profile changes, and there's also huge contagion. So let's talk about the G-20. There will be a G-20 default within my lifetime, I'm convinced of it, and how about this, there will be a G-20 default within my lifetime and there will be a G7 default within my kids' lifetime. And that's pretty scary to me. And you need to protect against that. And in my opinion, the best protection is Bitcoin. And using that thesis, I calculated the value of Bitcoin and you said future value? No, it's the value today, because CDS rates are traded today. I took the CDS or the credit default swap rates, which is basically insurance against default on a sovereign nation. And I took the default insurance premiums today, against the total outstanding unfunded and funded obligations of those countries. And I just summed it up and I came up with a price for Bitcoin today, of between 110,000 US and 160,000 US today.

And as CDS spreads widen, which I think is almost a certainty, much like in 2006, you could buy default protection on Lehman Brothers for nine basis points. In 2009, what does nine basis points mean? It means it costs \$9,000 a year to insure \$10 million of Lehman Brothers debt. Pretty good deal it seemed, certainly since in 2009 that \$9,000 was worth 6 million. And that's what happens really quickly in credit markets, they're asymmetric. Credit markets only, you know that there's an expression, 'equity guys are optimists and credit guys are pessimists'. And why are credit guys pessimists? Because if a company or a country is doing really well, they don't increase the interest coupon they pay to you, that accrues to the equity guy, or the tax base. Why is Norway so lucky, the citizens of Norway? Well, because they have the world's biggest sovereign wealth fund per capita because of their oil wealth. That's like equity. So take the CDS rates, multiply it by the unfunded and funded obligations, unfunded obligations, Medicare, Medicaid in the US is \$160 billion dollars. We were worried about \$30 billion government debt, and there's 160 billion or excuse, 160 trillion in Medicare and Medicaid, and we're about 30 trillion in government? Guys, the math is just mind boggling. Take that, take us a five year CDS rate, calculate what that's worth, divided by the number of Bitcoin that will never change, which is 21 million and you come up with a number, it's pretty simple, you can run that spreadsheet.

And then people look at me and they'll say Foss, we've always hated you. Now we hate you more. Because, this is a simple thing that you're saying that Bitcoin is better than fiat. And I am saying that it's better. It doesn't mean I want fiats to fail. I'm just telling you you're supposed to own fire insurance on your house and you're supposed to own insurance on your absolute certainty that your currency

debases. So let's hit this number that we talked about. DBRS affirmed Canada at triple A today, thank God, DBRS I was really worried, they're clowns. They're clowns because the CDS market is telling you that Canada is actually trading as a single A credit right now. That's what I'm worried about.

Richard: 01:16:28

Greg, just for a second, the CDS market is traded. So I wanted to get at a point, because I've read this on your on your Twitter feed, and I thought the thesis, I think it's very interesting. But the same way volatility can get mis-priced and we see it because for the longest of times, you don't have one of these huge cataclysmic events, and so people become more comfortable in selling volatility. So volatility gets mis-priced. Isn't the CDS market also because it's traded, doesn't that also mean that the signalling mechanism within the CDS market can be somewhat manipulated because...

Greg: 01:17:09

Manipulated, no. It's not like there's a central bank that sells CDS on itself. I mean, it's an open market.

Richard: 01:17:17

Would you put it past?...So the Fed is now buying TIPS. One of the reasons why the inflation break evens in the market has been a little bit wonky is because the Fed has now become the largest buyer in TIPS and so they're now playing in an arena that they weren't even playing before and that has skewed the market's preferred inflation metric. What I'm saying is, I don't think you can put it past any central banks to change the rules of the game to keep the legacy financial system going.

Greg: 01:17:49

No, they will have to. Here's a question for you, do you buy fire insurance from a pyromaniac? No you don't. So you don't have default insurance from a fiat printer. That's counterparty risk, guys. Yes, they'll pay you back Richard, I think this is where you're going, you'll get your money back. You'll get it in fiat that you send to the curb, like in Venezuela, because it's worth nothing.

Richard: 01:18:15

That's what I'm trying to get at. It's not going to be a default because at the end of the day the default breaks the system.

The Debt Spiral

Greg: 01:18:22

And I don't want the system to break. Please don't send me hate mail guys, I want this work for my kids. I don't want this eventuality, but the math is leading us to there. Fiat is broken because global debt to GDP is four times. Total global debt to total global GDP, is four times. So let's do some quick math. If the average coupon on that debt is 3%, I'm just pulling that number out. I think that's actually low, but 3% on total global debt. And why do you take total global debt, because interest expense is tax deductible, so it doesn't impact your tax base. You need total global debt divided by total global GDP. That's your metric

for your tax base versus your, the growth in your debt balances. This is even before we're printing all this absurd amount of money. Four times three is 12. Unless your total global GDP is growing at 12% per year, it's a mathematical certainty that your debt balance is going to grow faster than your GDP. That's called a 'debt spiral'. And if you have a debt spiral, the error term is the fiat currency, they have to print more of it. It's what closes the equation, you mathematically inclined people out there, know what an error term is. And to make life simple, fiat is an error term. Very simple. You need to hedge the error term. Again, mathematical...

Richard: 01:19:55 So let's fast forward this problem, because I think again, another point that we're all in violent agreement, there's too much debt in the system, the debt overhang is going to drive lower and lower growth, especially because none of this debt is being used for any productive gains. It's all being used for expenditure especially with the cash outlays that we've seen. So we're all in agreement there. The default on this debt is way too painful. What they're trying to do, what they're trying to do they're desperately trying to do is to create inflation, to have this soft default which is basically to inflate away the nominal value of this debt which is why the allure of hard assets and crypto assets has just grown in the past decade.

Greg: 01:20:40 Keep that thought. You can't inflate it away. What happens to the coupon in the numerator? That coupon adjusts to the inflation rate? Again, it's a debt spiral, you can have all this beautiful stuff. Well, we're going to monitor...

Richard: 01:20:56 Just for the TIPS portion of the of the market, for the regular treasuries, the TIPS is a small portion of that market. For the regular, for the vast majority of the treasury securities out there. It's all in nominal dollars. What I'm trying to get at is, this is I think one of the major risks for crypto, and I do have a follow up question after the one I'm going to pose you right now.

Greg: 01:21:22 So finish this question because I think you're overlooking something. So go ahead.

Code is Speech

Richard: 01:21:27 Do you think sovereign governments, once they perceive their ability for seigniorage, for printing away their debt to be in jeopardy, don't you think that there's a chance no matter how many institutions and no matter how much bona fides the crypto space has attained, that at one point there is going to be an attempt at banning it, which is going to scare at least the institutional players away? I'm not saying it's going to break it, but it's going to scare some of the institutional players.

Greg: 01:21:59

There's so many counter arguments to that, I'll just go out with the freedom of speech code. Bitcoin is math and code. Code is speech. Freedom of speech is the first Amendment. Is it the first one? I think it is the first one in the US. And there's an argument, that you ban Bitcoin. It's also not done at the federal level. Each state would have to endorse this. And I think there would be states that...So is it a risk Richard? Yes. The world is always you play probabilities. Can I say with 100% certainty that wouldn't happen? I cannot. But let's say it does happen, what is likely to happen? Yes, an immediate huge drop in price. But then people get it and they say, geez, I shouldn't be selling this thing, I should actually be buying it. It just shows even more value than its value.

Richard: 01:22:48

The reason they want to ban it is allure for everyone who'll want to buy it again.

Greg: 01:22:52

Thank you. Let me get back to this one thing. You talked about TIPS as being, hey, debt is always repricing. When you're in a debt spiral, you need to roll your debt. Okay? Because debt doesn't mature. Debt never matures, it just gets rolled. And what happens when it rolls? Well, they take an old coupon and they replace it with the market price of a new coupon. And when the inflation is involved, that new coupon gets a higher price. Hence, again, your numerator is going to be continually repriced, it's not just the TIPS. So the floating rate portion of this whole thing, it's always floating. Because billions of dollars of debt that has to roll each auction, is just the repricing mechanism. And what happens when it doesn't roll? What happens when a big player much like what happened in the asset backed commercial paper market when the Caisse de Depot et Placements du Quebec decided not to roll their asset backed commercial paper? It stopped overnight. I've lived these calamities, don't tell me that everything's fine. You're sitting there managing risk and you're like, hey, I don't want to be the last one out of this room. I'm going to stop rolling my debt. But if you're a big guy like CalPERS or the Caisse, and you stop rolling your debt, these numbers start adding up.

Have you noticed, by the way that foreign purchases of US treasuries have been declining steadily? I don't know. That could be something that I'd be concerned about. I'll also say that when Bitcoin is the de facto reserve asset of the world, because energy is priced in Bitcoin, there'll be a parallel universe called the 'fiat currency universe'. But the Bitcoin universe is going to be the one where people store their value. The other one is going to be where people transact. And yes you can do these modern monetary theory experiments to keep the world alive which, look, if you don't have a choice you got to do it. It's only math, but don't forget where you want to store your value versus what you want to transact in. I think you're a really smart guy. I can tell already. Your questions, but it's a probability Richard, you can never be 100% certain, don't be Peter Schiff. Don't miss the trade of your lifetime because you're stupid. You've got 97% of...

- Mike:** 01:25:17 Yeah. Don't be stupid Richard.
- Greg:** 01:25:21 Don't overthink this, this trade right now...
- Richard:** 01:25:24 I got a comfortable position in Bitcoin. I'm not going to fight you on that. I'm actually playing devil's advocate here.
- Greg:** 01:25:31 I hear you, man. And so am I, continuously.
- Mike:** 01:25:36 It's good, Greg. It's awesome and we love that, we love it. Richard can take it.
- Greg:** 01:25:41 Okay, so I'm going to play a game of probabilities with you. I think and I'm not joking, if Bitcoin does become the world's reserve asset, there's \$900 trillion worth of assets in the world right now. If Bitcoin becomes the reserve asset of the world, if you think it's possible that Bitcoin gets 10% of that market, meaning Bitcoin's worth \$90 trillion someday.
- Richard:** 01:26:07 Well, if you take your prior assumption, more than that for sure, but 10% is a very pessimistic base here for sure.
- Greg:** 01:26:15 Pessimistic, okay.
- Richard:** 01:26:19 It's probably more than if it's the reserve currency. It's a big assumption but, sure.
- Greg:** 01:26:25 How about then I'll say, 90 trillion bucks divided by 21 million is what it's about four and a half million dollars per coin. Don't leave me at four and a half million bucks a coin. What you're therefore saying is, with 99% probability it could never happen. But what if it's the 1% probability it happens? 99% times zero is zero. 1% of four and a half million bucks is 45,000 bucks. Hey, isn't it interesting? You're giving me 99 to 1 odds and I'm going to take that and I'm going to wave it in and I'm going to say, dude, I think it's way higher than 1%. So what am I supposed to do? I'm buying it with both hands and you guys can go...
- Richard:** 01:27:19 You started looking Bookie right now, Greg but sure.
- Greg:** 01:27:19 I'm not a Bookie. I've done this for 32 years. I'm never certain, I just play probabilities. And Jason Marks who Mike knows really well, is all about probability. He'll always talk about betting. And if this is sort of a bet, my opinion it's not a bet it's a hedge, however you spell it. It is a hedge. It's not a bet. Because I don't want this to happen. I think Bitcoin goes up no matter what. But if it does go up to these astronomical levels, I want to own it. Because I'm hedging against central bank shenanigans.

Forced Forks

Richard: 01:27:56

I think that hedge argument is one of the most solid. That's how I made my peace with buying something that had such a huge information asymmetry where I know that the people in this space, so many orders of magnitude more than the rest of us, that it's just a joke. But I totally took that probability adjusted thinking to its conclusion and I was like, I got to hedge me. But I wonder if we kind of... like, I read something these days that I thought was a very interesting exposure of what sounded like a real risk to Bitcoin, not to its existence, but to a potential fork. And I found out a couple of things that I had no idea were actually true.

So it sounds like within the amber of that blockchain ledger that is Bitcoin, we have things like leaked classified documents, even child pornography, some crazy stuff has been hashed into the block chain ledger that is Bitcoin. So the thesis was, is there enough? How sensitive a piece of information would be that once it was hashed into the blockchain would force governments to want to bring it down perhaps in China, for instance, that has a significant portion of the mining and force a fork in the system? Because you have I don't know 30-40% of the miners in China and then you have another significant portion in some other countries, I don't even know where some of the other major players are. But if you did have a forced fork because the government of that country simply shut down the mining capabilities of that.

Miners and Nodes

Greg: 01:29:44

So key question, and I'm going to let Mags answer it in more detail than me. There's two things. First of all, it's not just about miners, it's about nodes, the amount of nodes protecting the system, not just the miners. And the other question is about forks, and we've had some forks and the biggest controversy was Bitcoin cash and Bitcoin Satoshi. Value versus Bitcoin. And it survived it and the network worked as intended. A 51% attack becomes increasingly unlikely as the network grows and it's worth trillions of dollars. Is it playing probabilities again? I can't say never. I just can't because I just don't know. But again, if I play these, verses where I think this thing could go I try not to overthink it. I mean, I already know that I'm giving you something like 95% odds, it's going to zero. I'm giving you that. Do I really need to get the 96% because you tell me there's pornography on it. I don't need to get there. We're splitting the atom again. So over to you, Mags.

Magdalena: 01:30:49

Yeah, it's almost funny because I'm like, what? That would not happen. But let's just kind of break that down. So first off, governments have tried to ban Bitcoin. China's banned Bitcoin how many times now in various degrees? India is currently working towards banning Bitcoin. But because this is a decentralized

system, it's censorship resistant. So part of that free speech, government can't censor it. Sure, they can write laws but I can run my own node. I can even power up my own miner and I did a few days ago, just to see what it's like. And so I can participate in that network. If the government shuts down the internet, I have Starlink right now. I'm connected through satellites. So it's not that simple. So I guess thinking that through, the scenario that you're talking about is more about, okay, so what if China grabs every single mine and that's kind of maybe the only kind of scenario where you start to approach that kind of a situation.

But let's just theoretically say there's a certain amount of hashing power that is more than 51 which...to be clear, this is the largest honeypot out there in the world. We have a trillion dollar asset class, there is highly motivated people to try to take that honeypot and nobody has, no government has. So first of all it hasn't happened yet and as the network grows in value, the more money is put towards securing it. Companies like MicroStrategy now that have put Bitcoin on their treasuries, they're donating towards security efforts for example, run by MIT to add additional security to the network. So it's not so simple. So we have as Greg said, we have had forks before, but I think part of the magic and what people think makes Bitcoin special is it can't be co-opted or taken by a government. And so if it's not the fundamental idea of what Bitcoin is and it becomes censored, that won't be Bitcoin and it won't be the chain that actually has the value, just as we saw with Bitcoin cash, which is like falling.

Greg: 01:33:15

I'm going to add to that Mag's, and you just brought up. So imagine that China controls the miners, meaning that the ASIC chips essentially, don't you think the world might have a little bit of a bigger problem? Don't you think that defense departments would start to worry about defending against chip manufacturing in centralized locations that may not be friendly jurisdictions? Don't you think Bitcoin mining might be a good thing to bring back some of the chip foundries from overseas to the rare earth opportunities that exist in the United States?

Richard: 01:33:49

That's exactly what I'm trying to get at.

Magdalena: 01:33:51

That's happening, mining manufacturing is coming home. We have mining pools that are opening up in North America. Foundries are opening up in the US, still to be built, but Chinese miners are looking to diversify geopolitically. Mongolia is, the government in China there is shutting down mining in China which from an environmental perspective it's to meet carbon targets, but it's happening. And in many cases it is actually a good thing, because both hashing power and actual mining equipment, and mining pools, so there's different components of that mining ecosystem are moving and becoming in some ways a little bit more evenly distributed.

- Richard:** 01:34:39 So I was trying to get on the geopolitical like, would the Bitcoin blockchain, could it get locked in between a geopolitical clash between the West and China, but Greg has conceded 95% probabilities of it not working. Good, that I feel like any question of the risk has become moot at this point, because he's just considered so much risk out there.
- Greg:** 01:35:04 It's correct and it's never moved. We need to hear these arguments. But then we also have to look at the positive impacts that this has. This is the freest system that's ever been developed, and what happens under that is again free, secondary and tertiary businesses that come back locally. Is it good that Mongolia is, what's happening to Mongolia. I'm going to throw this, Microsoft already knows that it'll never meet its carbon footprint by using solar energy to power their data centers, for example. So how do they offset their carbon? They plant more trees. There's wrongs in all of this stuff. Is it wrong to think that the ASIC miners should come back to North America even though there's environmental concerns? That's one of the reasons they all left is because some of the silica and byproducts of chip manufacturing are somewhat dangerous. If you control this properly, this becomes a question of national defense as much as open and free markets. I'm an engineer, if I haven't made this clear, it's about math. It's about freely functioning economies, not economies that are manipulated either through fake interest rates and fake costs of capital.
- It's about real industries following a store of value that creates wealth based on natural resource energy being converted into digital energy and then that store of value is distributed amongst the world so that I can pass something of value to my kids. And it could be real estate. But it could also be other stores of value. And that's what makes me excited. It's only math.
- Mike:** 01:36:56 I would add to your math there, the whole Metcalfe's Law and the adoption rate and the number of nodes, and so as we get talking about defending the system, so as you get Visa, Coinbase, is you get all of these public market grayscale, all of these public market on ramps to get institutional and private wealth money into this space, it becomes increasingly difficult for any government to say 'we're not going to do this anymore'. I mean, even at this point in the United States, I think it would be very difficult to say we're going to outlaw Bitcoin, on a couple of scales. One is that you've got some of the wealthiest people in the United States whether it's whether it's Soros, family offices, Druckenmiller, et cetera plus MicroStrategy's, plus all of the other players.
- Greg:** 01:37:54 It will happen Mike, but you know it's not a federal decision. It's a state by state decision. I'm almost certain Wyoming would go say, well, you guys can all close down, but what would the Mayor of Miami say? Thank you New York, you're so fucking stupid. Again come to Miami.

- Magdalena:** 01:38:15 Yeah, it is an advantage economically.
- Mike:** 01:38:18 Correct. Not only economically, but from the standpoint of the technological wave that follows and builds upon all of the things that are already there. And so it's really difficult to...is it possible? Sure, it's possible. And I like the probabilistic thinking and I think that that's absolutely the case. But as we have continued to see more and more adoption and more and more adoption through traditional means I think Mag's you mentioned, Mass Mutual participating. And then all the folks that don't want to say that they're participating, and all the folks that are participating through means which are equity related, because they can't, or bond related because they bought the MicroStrategy debt issue.
- Greg:** 01:39:05 Correct. That's still small potatoes.
- Mike:** 01:39:11 It's small potatoes, but from a political influence perspective. So there's a couple of things, one is you have the wealthy on the political influence from the standpoint of the United States government. So they are going to lobby the government.
- Magdalena:** 01:39:25 And the creditors that are leading the banking community, correct.
- Mike:** 01:39:28 Correct.
- Magdalena:** 01:39:29 There you go.
- Mike:** 01:39:30 And the millennials. I think people are under estimating the fact that there is nothing that millennials can buy, they can't buy a home because they can't afford it after tax. And the baby boomers have benefited the most from this massive inflation in asset prices. If you want inflation, there has been inflation, it's asset price inflation. And just be a millennial trying to buy a house in a major city or now in any outlying city. After tax, that's very difficult.
- Greg:** 01:40:05 Well said.
- Mike:** 01:40:07 Keep going.
- Greg:** 01:40:08 No, you go ahead.
- Mike:** 01:40:11 The millennial side of it is you have both the top working, but then you have the largest population bubble is the millennials now it's not the baby boomers. And so if you say, hey, by the way, we're going to take away your only opportunity to equalize the wealth because it's a very popular investment in that domain. I would be interested to see how that government got elected in the next election.

- Richard:** 01:40:39 And you take the millennials and then you take that, so I'm now going to be in agreement. You take millennials and the following generations, Gen Z years. The generations that have been living in the technology space from birth, the gamers. Their adoption is going to be so much faster, they already deal in digital coins in their games and buying all their props and all these different simulations. So I totally understand that there's going to be a power grab at one point, the legacy system that is still being held by the boomers is going to hang on as tight as they can, but eventually time will bring this reality that you guys are describing I think.
- Greg:** 01:41:19 Mags needs to go.
- Mike:** 01:41:22 I'm seeing that as well.
- Greg:** 01:41:25 Before you go Mags, I want you to comment on this. Right now there's 100 million people using Bitcoin. When that gets to a billion, one eighth of the world's population thereabouts. Mike, I think that's what you're going to hit on your Metcalfe's Law. As Saylor says, this is the fastest growth of any system to reach a trillion dollars compared Amazon, compared to Apple. The success speaks for itself. So then you'll have the various senators on the banking system and then we talked about NYDIG. Now I can't remember if we talked about it just in the intro or if we talked...
- Mike:** 01:42:01 Intro, we talked about a pre-
- NYDIG
- Greg:** 01:42:03 So we need to talk about NYDIG. It got funded by New York Life, Mass Mutual, Morgan Stanley and George Soros. This is an unbelievable endorsement by the legacy financial system. They want to be part of this, NYDIG is Ross Stephens, Stone Ridge Capital, NYDIG New York Digital Investment Group, brilliant leader Ross Stevens. Over to you Mags, this is part of the ecosystem that's growing every single day. And as it grows, it becomes less risky, not more risky, the time to kill Bitcoin was probably in 2016. I will tell you I got involved in Bitcoin in 2016 when was 800 bucks US. And you know the price right now. And I firmly believe it's a better investment now than when I got involved in it in 2016. Everybody needs to adjust their probability distributions accordingly. So over to you Mags.

The Diversity of Participation

- Magdalena:** 01:43:07 No, just to echo those, I think those are excellent closing thoughts. I think even this last five, six months have seen such tremendous change, let alone the last year in terms of the type of participation and the diversity of participation. And we're seeing...so both on the assets management side and store of wealth side,

but I mean, we're starting to see...we haven't talked about this yet, but Jack Mallers and what he's doing with Lightning's Strike is just absolutely incredible. He is doing, whether it's peer to peer payments, or remittances, at no cost, instantaneous, you don't see that FX fee, and it's just going to completely disrupt how people move money around the world. And banking does not make it easy either to shift money. So we have from the small payments, micropayments side, all the way going down to, there goes a billion dollars that was sent, there goes multi billion dollars. We're seeing these transactions more and more. And I agree, I think it's in some ways too late. But if you do try to ban it you're hitting yourself economically, competitively, and your citizens though might realize, first of all they can't be blocked, like they will transact dark markets peer to peer, it will happen, you cannot prevent that from happening.

But more so, for those that try to play by the rules, you're doing them a tremendous disservice as a government, if you were, both from the perspective of we could be launching the next company. That's the unicorn, that's adding value globally. So you're cutting your businesses, because we've moved to the innovation based economy, we're no longer just manufacturing. So people are launching digital products, digital companies. So if you're preventing your base from earning income on a global scale, that then maybe contributes to your taxes, you're hurting yourself, you're hurting your citizens. And they cannot... if they're in a country like Argentina, they want to prevent debasing of their funds. There's some folks that get paid maybe once a month and it sucks. Every month it's 30% less, 30% less, so they opt for examples to get and I know, personally the folks that hire Argentinians, and they're paying them in USDT, like Stablecoins or Bitcoin because of the huge impact.

So I think the world has gone through tremendous change. And we've gotten to the point where we have government officials in the US. where banks can hold Bitcoin on behalf of other folks and it's really hard to keep up who's entering next and who's adding Bitcoin next to their balance sheet while Coinbase S-1 filing for their IPO shows that it's actually institutions that have been in the last quarter, adding the most Bitcoin in terms of buying they're still the retail element that you can't ignore.

Mike: 01:46:09

Mags if you have to go, we can continue...

Magdalena: 01:46:12

...

Greg: 01:46:16

Why are you not the CEO of a company? Honest to God, please get that job and so I can endorse you and just say 'this is why'.

Mike: 01:46:28

This is CEO of Mags Crypto.

- Greg:** 01:46:31 I will tell you why. You're so well spoken and it's a pleasure to be here with you. And I'm so happy that Mike, Richard and Adam had the...not the guts, but just the foresight to invite you on the show.
- Mike:** 01:46:43 Well, I'll give props to Shaun Cumby, Shaun Cumby said 'have Crypto Mags on' and I'm like Shawn says it, so that it is...
- Greg:** 01:46:51 And it is so and look, you do such a great service for Canada Mags, and you're so...Well look, I'm proud to call you a friend and I want really help you move your intelligence to the next level. Because we need people like you so badly. They don't need an old 57 year old washed up high yield trader. What they need is young sparkling people like you. So, have a great night tonight and thank you for being part of this show. I think it was great.
- Magdalena:** 01:47:24 Thanks gentlemen. This is an excellent discussion.
- Mike:** 01:47:26 Have we got a couple questions going on here too. So we're going to keep going a little bit if you've got time Greg. Richard, you got a couple more minutes?
- Richard:** 01:47:34 Sure.
- Greg:** 01:47:36 I have all the time in the world, and Mags go get them tonight.
- Mike:** 01:47:40 I don't know where you are going and what is...she's left.
- Richard:** 01:47:41 Enjoy.

Mining Profits and Energy Advancements

- Mike:** 01:47:43 She was great. So a couple of interesting questions coming up through YouTube as well. And one of them is, a couple from Jason Buck actually. And he's wondering, can mining profits lead to sort of leaps in energy advancements? I think that's kind of very particular for yourself Greg and Validus Power and what you're doing there and how you might think about where you guys are already making those leaps. So how would you add extra flesh to that? You and Jason should meet because you guys get along well.

Greener Mining

- Greg:** 01:48:21 Well, thanks for the question and thanks for listening. So all I know is this, again, on a free market basis capital always flows to places it's treated best. If you are creating a new energy system which is essentially what our partners in Texas did with this fuel skid, that goes in and clean. So flare gas can be very dirty. It's got butane and other hydrocarbons in it that don't burn cleanly. And they can

destroy a very valuable \$30 million jet turbine engine quickly, but the technology that cleans that fuel and then allows the clean fuel to be run through the turbine and then capture the carbon. I mean, this is all really exciting stuff, for otherwise energy that was being vented into the atmosphere. So yes, I think the answer is 100%. I think it's an example of, as the price of bitcoin goes up, you can afford to pay more for energy, but energy will still be the defining factor for mining profitability. And then there's the difficulty factor that takes place on the Bitcoin network, which I actually think is the most beautiful part of the Bitcoin network itself, is the difficulty adjustment.

All of this plays into Jason's question which is yes. It means, if for some day, for example, that renewable energy or solar projects actually become profitable because of Bitcoin, wouldn't that be wonderful? So I'm talking to a guy in Australia that's reaching out to me because he hears me on podcast and he says, I'm a 57 year old engineer, and I've been involved in this company that actually proves that if you shift the angle of your full photovoltaic receptor for solar energy, it's much more efficient than just having it static. Blows my mind, I'm not going to tell him he's wrong. I've never heard this before. But imagine if Bitcoin mining makes that technology and proves that technology to be the case. Because right now, it's our belief at Validus Power, that renewable energy, true renewable energy costs from solar power and wind power actually add, and Mags mentioned this, they tax the rest of the system, it's spread out over the rate base of the rest of the consumers. But what happens if you develop these technologies such as photovoltaic reflector that moves? And you've developed this technology because Bitcoin mining proves that it works.

So over time, is renewable energy going to be a factor? And will it be profitable? Yes, 100%. It's the way the world works. Technology will improve by both ends. What if the price of Bitcoin allows energy rates to be paid on these projects that otherwise consumers wouldn't be able to pay? How exciting would that be? Because you have a project that's running off of a solar energy farm that doesn't need backup generation because it's not to the grid. It's just to your Bitcoin miners. And you can pay that price, it's a captive system. Again, I'm an engineer, I get excited by these geeky things. But I think that energy, there is an argument that civilizations will move. Globally, civilizations, our biggest cities have been centered around ports of call like where the ships could come in. In the future, and I'm not going to be alive for this, I believe that civilizations will be formulated around projects where energy is abundant but it's not being used and it can't be transported more than 500 miles to make it used in a city that's 500 miles away just because it's at a port of call rather than being in the middle of someplace that has abundant energy, but we're just not using it.

Mike:

01:52:26

Greg, yeah. One of the questions I had was, so you've got these very transportable on the flare gas side, how do you make sure you can connect that?

I'm assuming in order to mine Bitcoin, you've got to be connected to the network, you've got to have infrastructure that connects, so can you talk about that? You just Starlink it up and you're done.

- Greg:** 01:52:46 You should see this. Go to our website, you can see this thing unfold over and over again. I wasn't quite sure why I did engineering, I didn't really want to do it. But I knew that I was okay at math and I could get through it. And I did it for four years at McGill having known after the first week of classes that I never wanted to be an engineer. I was at McGill for other reasons. Much later, like you Mike, I played football. I was nowhere near as good as you but at the end of the day some of my guys, there's a couple of McGill guys that play in the NFL right now. So it wasn't crazy good football, but it wasn't crazy. I was there as an engineer, but I was there as a walk on and I played four years. But that's why I was at McGill. But I looked at myself I said, why did I take turbo machinery in my fourth year in my last semester, I could have taken an elective and I decided to take turbo machinery.
- Mike:** 01:53:42 Little extra brain damage.
- Greg:** 01:53:43 Well, a little extra, but also is on Friday mornings at 8am. I have Monday, Wednesday, Friday at 8am talking about brain damage, Friday mornings at 8am. So anyway, I took it for some reason. And the reason I took it as my life is unfolding is that I wanted to understand jet engines being transported around on the back of a trailer truck and how much power that actually is. We have projects in the Permian Basin that can supply us with three gigawatts worth of flare gas. Three gigawatts is about one quarter of the amount of power that Ontario uses. Now, that's exciting stuff.
- Richard:** 01:54:19 On one time scale. What is it? Three gigawatts?
- Greg:** 01:54:23 It's mentioned in megawatt hours and gigawatt hours and all this stuff. So this is where the electricity guys get all excited. Just think of it on a on a capacity.
- Richard:** 01:54:32 On an hour basis, three gigawatts.
- Greg:** 01:54:37 Your question, so three gigawatts is a max out, it is linear, correct. So it is the equivalent of one quarter of the power, plus or minus one quarter of the power of Ontario. That's what I want to leave you with, okay?
- Mike:** 01:54:52 Can you imagine taking that and turning that into a viable resource.
- Greg:** 01:54:57 It is, we're going to turn into the digital energy that cools the environment. I'm not going to tell you we're green but we're taking a waste product and it's currently not helping the environment. And we're actually using that energy,

capturing the carbon and creating a store of value out of it. And all I know is that all these ESG guidelines that have been set up by these large pension funds, are now turning around and biting them because what's the best performing sector in the S&P this year?

Mike: 01:55:31

Energy. Of course.

Greg: 01:55:32

And who has underexposed to energy? All the ESG guys, right? So sometimes regulation is not used as intended. I'm all for cleaning up the environment. I'm all for like, I love the oceans. But at the end of the day, let's call it what it is. This is a revolution and it's also an evolution. It's evolutionary and revolutionary. So I think that's what the exciting part is.

Mike: 01:56:00

So as we move and Jason's got another question here that I think relates to what I'm going to ask you from the standpoint of so we've had some exponential returns in Bitcoin and the crypto space and so as those translate into more linear, as we get as we get more broad adoption and acceptance of Bitcoin across the globe as being a store of value and the base of everything that we're going to process, how does that shift because there's going to be an adjustment in the difficulty for miners, there's going to be an adjustment in the profitability for miners, so I guess part of the thesis for long term miners is 'I've got to secure really low cost power'.

The Bottom of the Funnel

Greg: 01:56:47

I love you man. Great question again Jason, obviously the man has done some pretty deep thinking. What I think first of all. Mining itself is a bad business. I'm going to come right out there and Jamie Leverton, CEO of Hut 8 is great friend of mine and we were talking about maybe getting her on the show, but Mags was way, just a better fit for this show. But Jamie's another example of a young lady who's just making such incredible leaps in that, so female who's managing CEO youngest CEO of a publicly traded company. So cool. But Bitcoin mining is a tough business, okay? Because you don't control your input costs. That's energy, and you don't actually control your revenue because that's set, open market. You're not setting the price of your product, the market's setting the price.

So there's other things like that, you talk gold mining, the gold mining parallel, but what is a Bitcoin miner? It really needs to be vertically integrated. You need to be able to develop a structure which, I call it the bottom of the funnel, so I'm going to go where...you have the bottom of the funnel, you have the Bitcoin miner, and you have the top of the funnel, and think of it as being an hourglass where sand is flowing upwards not down. And that sand is energy from the ground being turned into digital energy, being turned into distribution amongst the world's store of wealth.

The cool thing is, if you are vertically integrated like that, your mining business is much less susceptible to the whims of open markets. More importantly, think of the value of each of these parts. Even if Bitcoin's worth a trillion bucks at the center at the nozzle and Bitcoin miners are worth what? They can't even possibly be worth 100 billion, so the nozzle itself is worth 1.1 trillion. What's the bottom of the nozzle worth? I don't know, it's worth at least 25 trillion. That's the energy component. And what's the top of the nozzle? This is where things get really exciting and this is the NYDIG parallel. Hey, that's worth at least \$100 trillion globally. This is exciting, guys. That's your total addressable market. The mining is a key component, but if you can reduce your risk of that business by vertically integrating, that's...

Mike: 01:59:16

From the tip of the drill to the fricking art and NFT that we talked about.

The Future of Bitcoin

Greg: 01:59:20

So Jason's question was though, exponential. I honestly believe that the greatest growth of Bitcoin could still be in front of us. Could I be wrong? 100% I could be wrong, but on a risk adjusted basis, and this is key. I said this before, I think I hope I did that I think Bitcoin's actually less risky on a risk adjusted basis than it was when I got involved, a factor of 50 times lower. So I got involved around 1000 bucks, 800 bucks and now it's, what is it? 50,000, something like that. This exponential growth could actually continue because I actually think it can easily go. I do actually think it can go 50 times higher. And I'm not telling you with certainty it's going there. But we had this conversation already. You got to do your probabilities. And Michael Saylor thinks it goes to 100 trillion and he does it on a net Metcalfe's Law, network effect. Look, Jason, man, you've asked some really cool questions, I can only tell you that I've done this for 30 years and I'm not that good at it but I'm not bad at it. When the facts change, I change my strategy. Again, we talked about Peter Schiff, that poor guy should have been carted off the trading floor 150 times. But the only thing he's done is cost his clients so much money because he was 97% there, but then just said, but this thing's going to challenge my gold business.

Mike: 02:00:55

Do you think that's just a play for them on the media, like I got my son doing it. My son's long and I'll take the other side, I don't know.

Greg: 02:01:04

It's all true. That could be true. I'll tell you the people that don't understand it as theater though, that he's cost so much money for, that's the people who I feel bad for. Because people with a platform, doesn't necessarily mean that they have a brain, you got a platform and you can say anything you want, you could be spewing the worst drivel in the world. That's the problem of some social media things too. So look, I'm not telling you I have a big brain I'm just telling you I've played probabilities my whole life. Jason Marks would tell you that I've never

broken risk limits in my whole life, that he sets and the rational. I want to share this story with you. So here's the quick story about Jason Marks. And for those listening still, if there's anyone listening Jason Marks was my Chief Risk Officer at TD Securities and then hired me to work at GMP Investment Management with Weckerle and Shaun Cumby and some really smart guys. So I'm doing this trade, I own six month Nova Chemical bonds, trading at 60 cents on the dollar, and if you do the math, 60 cents on the dollar, the coupon was I think it was somewhere around a 7% coupon. You do the math on that and it's over a 100% yield to maturity because on an annualized basis, you're making 40 points on 60 points in six months, plus you get a coupon.

And we know that if the bonds don't mature in six months at 100 cents on the dollar, we know the equities were zero. That's just finance 101. So I'm able to take up over 100% yield to maturity and I'm able to go into the put options market and I'm able to buy puts at a \$2 strike price. I'm able to pay 40 cents to buy these puts. And the put market is pretty illiquid, but it still exists and that 40 cents on \$2 is 20%. That's $1/5$ equals 20%. So my cost is 20% to earn over 100%. You guys follow that math? I'm paying 20% to earn over 100%. And it's a **guaranteed trade**. And I'm doing it in small size and the funny thing is, it was a cross border trade.

So the bonds traded in the US and the equity traded mostly in Canada, but the options actually traded in the US. So I'm buying all these put options in the US market off of Bloomberg just off of, it's an algo and run by a Chicago firm. But the algo has to go out and short, delta hedge the stock. So I'm buying these put options and I hear on the boombox from the equity desk from GMP, 'what the fuck is going on in Nova Chem? Where's the selling coming from in Nova Chem?' I don't understand what's going on in Nova Chem? So I'm like, okay, I'll take my foot off the pedal a little bit, and Jason's like, Fosser, what are you doing today? And I'm showing this trade. I said, Jason, I think I've really discovered a pretty cool trait. It's risk free. He goes, it can't be, I'm a Harvard guy it can't be risk free. I show him, he's like oh my God, this is not supposed to exist. The textbooks tell you this does not exist. And I say it exists, how much can I do? **And he said, 'infinity'?** And that's the right answer.

So when markets dislocate, which they do all the time, you don't put your hedges on when they're dislocated. You put your hedges on before they dislocate. And that's what I'm preaching with Bitcoin. **I don't want the world to dislocate, but if it does, it's too late to hedge.**

Mike: **02:04:42**

I think you raise a great point, which is the best trades of your life and of my life were formed by dis- equilibrium, where there was a structural functional reason why things could not happen. So the asset backed paper market, there was forced sellers and there were sellers at any price. And in this case it's a little bit

different because being a credit guy, or global macro guy, or Jason Marks guy, you're always kind of negative. This is the one time in our career where you were kind of positive.

Greg: 02:05:28

But the thing is, I'm being positive by being negative, right? But like, I don't want this to happen.

Mike: 02:05:33

You are a curmudgeon.

Greg: 02:05:34

I thank you. I am a pessimist because I'm a credit guy and that's how I survive.

Mike: 02:05:42

At the same time, if you look at it through that lens, what you're saying is, Bitcoin is a positive asset. You're looking at it through this lens of credit. This is what I mean, from an optimistic perspective, this is an interesting thing that you can be optimistic about.

Richard: 02:05:59

I think that's a beautiful place to wrap.

Greg: 02:06:03

One last, one last story for you guys. I love this. And Mike, I don't think you've ever heard this one, this actually happened. You got to be in the pits. You got to be playing the game. In asset backed commercial paper, what they call a package came up for sale and there was a line that I didn't recognize. So you had this restructured and then you have these tracking notes. Remember Mike, the tracking those were specific things like Canadian Real Estate. You generally knew what that was. But I bought this one line, it was worth 1.6 million face dollars, 1.6 million face dollars and I didn't know what it was, but it came as part of the package. I guess on the whole package I think it was bidding around 6 million bucks at 40 cents on the dollar, and 40 cents on the dollar is probably bidding on something like 20 million face value of loans. Does that math work? At something like 20 million. I was going to pay 6 million bucks. And there was this one line I didn't know what it was. And so I said, I'm going to give you 25 bucks for that not, 25 cents on the dollar, literally 25 bucks out of my pocket. So I bought this package and it was a busy day and they put the CUSIP numbers in our system and everything, put them into our fund. And I go home that night, I said, I better look at what I bought here for 25 bucks. I know what's going to be worth zero. And then I look quickly and it's like Quebec Immigrant Loans. I'm like, what?

Well, these got to be worth more than zero. And then I read that it's guaranteed by the province of Quebec and it matures in six months. So I just bought 1.6 million bucks of Quebec risk, it matures in six months for \$25. I'm an honest guy, I didn't put it in my PA which would have been the best trade ever in the history of the Foss family trust. How about this though? I turned \$25 into \$1.6 million in less than six months. And that's what you get when you're in the markets when

markets dislocate. Who was the seller? I don't know. I actually probably do know, it was a Canadian endowment fund. Isn't that horrible? It was a university fund.

Richard: 02:08:10

No, I was listening to Mike's point.

Mike: 02:08:19

This disequilibrium creates these opportunities for significant price appreciation. And I think likely we are potentially in a point of disequilibrium from the standpoint of where crypto markets are or people should consider that given probabilistic thinking. And maybe that's a disequilibrium moment for the amount of money that needs to chase assets that are very hard. These are hard...

Greg: 02:08:48

So I'll say it again, it's time to wrap it up. You guys were always ahead of the curve. What you and Adam are doing and Richard, I'm not sure how you fit into this whole thing, but clearly you have a bigger brain than I do. But at the end of the day, these guys were always doing more work than your average retail finance. And I don't mean to disrespect your business Mike, the small institutional advisor. You guys were doing the work and that's all I ever asked people to do, is don't live by a status quo bias. Don't believe that just because some guy like @EconguyRosie says that Bitcoin is worth more than the value of a Honda Accord, it must be overpriced. Fuck @EconguyRosie. Don't you know the difference between unit value and market cap? Like that's really embarrassing. As Canada's largest, one of Canada's most influential economists you've just proven you don't know math. He also thinks, if Bitcoin is divisible into 100 million satoshis therefore its supply is not limited. Oh my lord man, you got to stop, you got to go back to math 101 because you are like Peter Schiff. You are just downright fucking stupid. You can edit this out or you can send this right to his office.

Mike: 02:10:03

It's going live bro.

Greg: 02:10:04

It's what?

Mike: 02:10:06

It's live. We're live.

Greg: 02:10:06

This is live, okay, cool. I hope it goes right to his house. I'm sorry, man, you are really doing a disservice to Canada. When you spout off about stuff you have not even peeled one layer of the onion back. So full stop, I don't want hate mail, I'm trying to help the kids of the world. I'm not trying to boil the oceans. This is a solution to the fiat Ponzi. Fiat is the Ponzi. Continuously debasing your currency to satisfy the budget deficits that are built up over our generations. That's the system.

Mike: 02:10:44

I love it and appreciate your passion and...

Richard: **02:10:48** Great stories.

Mike: **02:10:48** It's always great to get together.

Greg: **02:10:52** One day we'll get Wally Zatylny on the show and you'll really laugh.

Mike: **02:10:58** Cameras off.

Greg: **02:11:00** Okay, I love you guys.

Mike: **02:11:02** The camera when Wally's on, you have to turn the cameras off.

Greg: **02:11:04** Wally's Zatylny is a friend of mine from Montreal that played football with Mike at the Hamilton Tiger Cats, and the funniest guy I've ever met in my life. Okay, thanks guys. Thank you.

Richard: **02:11:15** Thanks for coming.

Mike: **02:11:16** Thanks Greg.

Greg: **02:11:17** Thanks for having me.

Richard: **02:11:18** Thank you guys.