Staking and Liquidity on Web3

https://mindmatters.ai/podcast/ep203/

Robert J. Marks:

Greetings. Welcome to Mind Matters News. I'm your liquidity host, Robert J. Marks.

Robert J. Marks:

Like gold, cryptocurrency like Bitcoin and Ethereum is mined, at least so far. Mining becomes harder and harder as more gold is mined, and they're trying to mine cryptocurrency just like they mine gold. The supply of gold is diminished and finding fresh gold deposits becomes more and more difficult the more gold you discover. In the same way as the supply of a cryptocurrency increases, computers have to solve harder and harder problems to be rewarded cryptocurrency. Investment banker, JP Morgan, estimates that the production cost to mine one Bitcoin today is between 13 and $24,000. At this recording, one Bitcoin goes for about $20,000. But famously, the price of cryptocurrency like Bitcoin is very volatile, you know where it is today, but you have no idea where it's going to be tomorrow. There is a new approach that replaces mining and reduce costs, especially the use of electricity. The new approach is called staking, something that I've just learned about thanks to our guests today, Adam Goad and Austin Egbert. They return to talk about this new approach and let's start with Adam. Adam, what does it mean to stake your money today?

Adam Goad:

So in terms of where you're talking about there, the blockchain, especially the, well, the one everyone is talking about in the news right now, Ethereum. Ethereum is moving from proof of work, which is the mining you mentioned, to proof of stake sometime here in the middle of September, 2022. So what that means is that instead of having all these fancy computers that are constantly trying to solve cryptographic problems, to have the right to set the next block onto the chain and get the rewards for doing so. Instead what's going to happen is, people are going to have to stake some Ethereum, I believe the going rate for becoming your own staking validator node is 32 Ethereum.

Robert J. Marks:

Okay, let's translate that into dollars, I don't think people think Ethereums yet. How much is that in US dollars, 32 Ethereum?

Adam Goad:

Well, today one Ethereum is worth about $1,500.

Robert J. Marks:

Okay. So we're talking about 40,000 or so, is that right?

Adam Goad:

Yes, it'd be around there.

Robert J. Marks:

Okay. Go ahead, please.

Adam Goad:

So yes, but if you don't have about $40,000 burning a hole in your pocket, you could get together and make a pool of people, that you all contribute a little bit to make one of these validators and you have a validator pool then. Now, instead of everyone racing to solve this problem and using GPUs and dedicated mining machines to the maximum power to do it, now the chain will select one validator for every block and this validator gets to propose the new block to be added to the chain. And then once they have proposed this block, there will be a randomly selected committee that confirms this and makes sure it's all good and everything. And then once that is done, it is added to the chain and then everyone else on the chain gets to also confirm the validation in a more passive way. And as long as most people agree, 51%, then it won't be kicked off the chain. And the person who did the validating will get a reward. And I believe also the people in that committee would get a reward as well.

Robert J. Marks:

Now let's talk about validation. You get a validator and they go to the crypto and there's kind of a committee. This committee has replaced the entire universe, which is trying to mine for something like Bitcoin. So you have a much smaller group, and then you kind of choose the person who is, well takes the place of what the old miner was, right?

Adam Goad:

Yes.

Robert J. Marks:

And they interact with a blockchain, and the blockchain comes back and, don't they give them a problem to solve?

Adam Goad:

So yes, they do have to solve the cryptography of making sure all the transactions being added are valid, and then added into the rest of the chain.

Robert J. Marks:

I see, so they do have to solve this problem. And then once the problem is solved, all of a sudden, some more crypto is created, right? Just like if you mine something, if you mine and you solve the Bitcoin problem, you get more crypto, right?

Adam Goad:

Yes.

Robert J. Marks:

So the validation gives you more crypto on the blockchain. Is that right?

Adam Goad:

Yes. So currently when you mine a new Ethereum block, you get two Ethereum plus a percentage of the transaction fees for all the transactions in that block.

Robert J. Marks:

And currently in Ethereum, I forgot, my short term memory is going. How much is Ethereum worth roughly now?

Adam Goad:

About $1,500.

Robert J. Marks:

Okay. So you make about $3,000 by doing that, but you got to put in big bucks to do that. Now the claim is that stakers are approving and verifying transactions on the blockchain, and that this process in some way replaces spending all of this time and money that Bitcoin mining requires. How does this work? Where does the money come from? That's something that I'm having a problem with. How do they make money? Why would I ever want to stake? Why would I want to take my money and stake it?

Adam Goad:

So, yes, when you stake your money and you become one of these validators, then you have that chance of being randomly selected to be the one to propose the block, or be on the committee to approve it. So if you are one of those, then you would get a portion of the newly created Ethereum that's added to the chain. There, like I said, they get about two Ethereum currently, I have not confirmed if it will be the same on the new blocks, but I imagine there will be some amount. So yes, you get that reward, that flat reward, as well as the portion of the transaction fees for the people who you're putting into that block to be added to the chain.

Robert J. Marks:

Okay. So in mining Bitcoin, the investment that you have is in electricity and computer time, that's the investment that you have?

Adam Goad:

Yes.

Robert J. Marks:

For this new idea of stakers, I guess your investment is the monetary commitment that you make. Is that right?

Adam Goad:

Exactly. So if you somehow make a mistake or you try to lie when you are the one doing this validation, then that money you put up, part of it, if not all of it, would be taken away.

Robert J. Marks:

Why would somebody ever want to lie?

Adam Goad:

Because they could say, "Oh yes, everyone sent me all of their Ethereum and now it's all mine."

Robert J. Marks:

Oh, I see. So, okay, they swipe it all. And so is there a distributed ledger against, that all of the stickers share?

Adam Goad:

Yes, exactly. So still, just like it is right now, everyone who wants to, can have a copy of the ledger. And they can also look at all of the transactions that are currently in what's known as the Mempool, the Memory Pool, which is all the... Well, it is most of the transactions that are waiting to be added to the chain. And then if these transactions that are put into this new block, if they look funny for some reason, what if... if they don't pass the cryptographic checks, if they are unable to confirm that they came from the addresses that they're claiming to come from, then everyone else can say, "Hey, no, that is not a valid block. You did not do a good job as of proposing this new block." And reject it and cost you some of your stake.

Robert J. Marks:

I see. Now, I guess for the old mining, you have to do something called proof of work. And with this new idea you have, is it proof of stake? Is that what they call it?

Adam Goad:

Yes, proof of stake is the term.

Robert J. Marks:

What's the difference between the two?

Adam Goad:

So proof of work, the proof of your work is that you were able to basically guess the random number that was needed to be the person who gets to add the next block, and it gets progressively harder and harder and harder to guess that random number. With proof of stake, the chain just has to look and say, "Okay, yes, I have record that this person staked their money, that they were willing to be a validator. And now I will let them attempt to validate."

Robert J. Marks:

Okay. Understand. One of the big claims for staking, as I read, is the reduction in the use of electricity. I read online, and it was on the web so it must be true, that Bitcoin, to spend or trade, consumes about 91 terawatt-hours of electricity every year. This is more than used by the entire country annually of Finland, which is a nation of about five and a half million people. So this is really going to save us a lot, save our electricity bill. And hopefully for those that are into this, maybe help save the planet, right?

Adam Goad:

Yes. It's estimated that with Ethereum making this transition, it will save greater than 99.9% of the energy that was being used to mine Ethereum.

Robert J. Marks:

And we could give all that to Finland and nobody would have to pay an electric bill, if we could figure out how to do that. Okay, now my understanding is that both Bitcoin and Ethereum are, as we record this, are using data mining, but Ethereum is about to make the big switcheroo. Is that right?

Adam Goad:

Yes. So Bitcoin, being the first major cryptocurrency, it was not really written to be flexible, so changes to its algorithm can't be made. But Ethereum is able to be changed as it goes. And so yes, here in the next few days, sometime between September 10th and September 20th of 2022 here, Ethereum will be switching over to what is being called Ethereum 2.0. And that is when the proof of stake will take place and mining will end.

Robert J. Marks:

Interesting, but Bitcoin, it looks like, will never make that transition. Because I think I read that it would take 51% of the Bitcoin owners to make an agreement that they could change the software. And I don't think anybody wants to do that. I don't think they'll ever get 51%. Do you agree?

Adam Goad:

So yes, that would be possible because the 51% is basically the threshold for controlling any of these cryptocurrencies, since the way they work is on a consensus. So as long as 51% of all of the nodes, all of the people with copies of the chain, agree that something is the way it is, then it is.

Robert J. Marks:

I see.

Adam Goad:

So yes, you could change Bitcoin by having 51% of the people agree to run it differently, but that would be fairly hard to convince people since it does not have quite as much of a centralized organization trying to produce software updates and such like Ethereum does. And I don't think there's much interest currently in changing it broadly.

Robert J. Marks:

So why would I want to stake my money? Clearly I'm going to get some returns. It struck me as kind of like a savings account. You put money in savings account and then there is a percent return. What percent return can I expect by staking?

Adam Goad:

So it's currently estimated that someone staking Ethereum for a proof of stake would make about 2 to maybe even up to 20% back annually.

Robert J. Marks:

Whoa. I have some money at a savings account, I think I get a half of 1% annually. It's just terrible what banking savings accounts pay, so that really sounds good. But you do have to have the big bucks in order to go into staking, right?

Adam Goad:

So yes, if you want to be an individual validator, you would need that, about $40,000 or so, we discussed, at current rates. But you could join into a pool. You can have 32 people put in one Ethereum, and all of them come together to act as a single validator.

Robert J. Marks:

I see. There's a number of stakers that go into one of these pools and then some way, a validator is chosen. What's the advantage of being a validator and how are they chosen from all of these people that have been participating in this pools of stakes? How is the validator chosen?

Austin Egbert:

Yeah. So the question of how the validators are chosen is one that I've had a bit of a struggle tracking down on the internet, and I've been looking into it recently because it's really been bugging me. Because you'll go and everyone will just say, "Oh, we pick a committee of validators at random to work on the next block in the chain." And I go, "Yeah, but who's doing the picking? The picking is happening somewhere. Somebody says okay, you get to be the one who validates this next transaction." And I've eventually tracked it down.

Austin Egbert:

And it comes back to the DAOs that Adam had been talking about in previous episodes, those decentralized, autonomous organizations. And so there's essentially a process by which several different people can contribute randomness towards a final, random answer, and then they all agree on how everyone's input and contributions will be used to create the final solution. So as one example, you could have everyone who wants to be a validator, each round submit a number and then they all agree on how they'll take everyone's numbers to pick the final batch of validators that should be chosen to work on the network

Robert J. Marks:

Now to be a validator, you have to have some computer skills, as I understand it. So not every Tom, Dick and Harry can be a validator. And so the question is, number one, why would I want to be a validator? And number two, do I have to have these technical capabilities, these coding capabilities, in order to be a validator?

Austin Egbert:

I would say you don't necessarily need to have coding capabilities, but it wouldn't hurt. Essentially, by being a validator and working on the network and putting up that stake, you're basically saying, "Hey, I am committing to be a reliable operator of the network." And so, where some of that expertise comes in is that you are expected to provide a certain amount of uptime or availability so that if you get chosen to be a validator, you're actually there to answer the call, essentially.

Austin Egbert:

It's almost, at that point, kind of like jury duty. If you don't show up for jury duty, the government's going to come and punish you in some way. In the same way, the network, if you don't show up to validate, is going to actually diminish some of that stake that you have placed. So while you get rewarded for validating successfully, if you, for some reason don't work, for as simple of a reason as, oh, maybe your Internet's out and you can't be reached, then you're actually punished for failing to perform

the duties you said you would be willing to do. So the reason why you might want to go ahead and do this is because you do get those payments when you do complete the job successfully.

Robert J. Marks:

Understood. Now there's something in staking called market maker algorithms, what is a market maker algorithm?

Adam Goad:

So market maker algorithms, they come up as we kind of get into a different topic, a different way of staking, and that is providing liquidity. So let's say that I have Ethereum, but I want to have Bitcoin, so I want to be able to trade my Ethereum into Bitcoin. In order to do that, I would need to go to someone who wants my Ethereum and can give me Bitcoin. To do that, I could go to a centralized exchange, Coinbase, Kraken, or any of the other ones that have gained popularity, or I could go to one of these decentralized exchanges known as DEXs. And what they do is they have people provide liquidity to these various pools, and then I could go to one of these pools and I could put my Ethereum into it and it would give me out some amount of Bitcoin equivalent to it, minus a fee, of course.

Adam Goad:

If you wanted to stake your money and you wanted to put it into this pool, what you could do is you could say, "Okay, here's $10,000 worth of Ethereum and $10,000 worth of Bitcoin. And I'm going to take this liquidity pair and put it into a liquidity pool so that anyone who wants to transact between those two can come to the pool and they can transact with it, and they would give me a small fee. And then for whatever portion of the entire pool that my input to it was, I would get a portion of that fee as a reward for providing this liquidity."

Adam Goad:

So this is another way that you can sort of invest with your cryptocurrency and you can get very high returns on this. Like Dr. Marks mentioned earlier, you can get somewhere around half a percent, if you're lucky, with a savings account in a bank. With these liquidity pools, if you're providing in a good one, especially one that's in high demand, you can get anywhere from four, five, to up to thousands of percents of annual return on your money. All of that's due to the volatility of the crypto market and all sorts of other factors, as well as you have to watch out for scams, of course, when doing this. But there is plenty of people out there that have millions and millions of dollars put into these pools that are making very good annual returns on them.

Adam Goad:

So you asked the question of what is a market maker, I didn't really answer that. I jumped up to what is a liquidity pool. So in a traditional exchange, like the New York stock exchange, there is a book, an order book. And this book lists all these transactions that people have said, I am willing to sell my stock in, say, Apple, and I'll sell it to you for $500. And then someone else says, put in an order to the book saying, "I'm willing to buy Apple and I'll buy it for $400." Or whatever. And then as time goes on, whenever there's a pair of these that match, a transaction occurs. So the order book is how a lot of traditional exchanges do it. And even centralized cryptocurrency exchanges, Coinbase and the like, often have order books as well.

Adam Goad:

But the way these liquidity pools work and these decentralized exchanges is they have automatic market maker algorithms. These are algorithms that control the liquidity pool. So if I come up to this liquidity pool that's going to transact my Ethereum and turn it into Bitcoin, I would just say, "I'm going to give you 10 Ethereum." And then this algorithm will say, "Okay, you have given me 10 Ethereum, I am going to give you this much Bitcoin." One of the most common ways for this algorithms to implement currently is a constant product market maker algorithm. So what that means is that the product of the amount of Bitcoin and the amount of Ethereum must be constant.

Robert J. Marks:

A constant, constant in what sense? In the count number or the value?

Adam Goad:

The product. The multiple of the two numbers must be a constant number.

Robert J. Marks:

The multiple of what two numbers? The number that you own or the dollar amount?

Adam Goad:

I believe it is the value, but different places could implement it differently.

Robert J. Marks:

Okay. Thank you.

Adam Goad:

Say I put in... Rather, when the pool was started, it had $100 worth of Ethereum and $100 worth of Bitcoin. So the product there would be 10,000. So if I come up and I want to add in some Ethereum, then now there will be more Ethereum. So to keep a constant product, there would have to be a smaller amount of Bitcoin. So then whatever the difference is between the current amount of Bitcoin and that smaller amount of Bitcoin required to have that constant product, is the amount of Bitcoin it would give to me.

Robert J. Marks:

Ah, okay. In a way it sounds like in derivative tradings, this is kind of like a swap wherein, for example, the president of Apple talks to the president of Microsoft and they say, "Today I'm going to give you a million dollars worth of my stock, you give me a million dollars worth of your stock, and then in three months we'll settle up whatever the difference is. If yours goes up more than mine, then we'll make a transition in order to make the amount the same." Is there any similarity in that?

Adam Goad:

It sounds like there might be some similarity there, but that also sounds somewhat similar to how loans and borrowing work in cryptocurrency.

Robert J. Marks:

Tell me about loans in cryptocurrency. I want to take out a loan. I want to buy a house or a car or a new flat screen television. How do I get a loan from crypto?

Adam Goad:

So loans in centralized finance, of course, you have to identify yourself and they will perform an extensive background check on you, they'll check your credit score and such. And if you fail to pay back your money, they will send debt collectors, and perhaps the court and stuff after you to try and recoup their funds. But in the world of Web 3.0, you are of course anonymous. So if someone wants to lend you money, they can't come track you down. So what you have to do for loans in cryptocurrency is, you have to over collateralize them.

Robert J. Marks:

Ah.

Adam Goad:

Let's say that you have 10 Ethereum and you believe in Ethereum and you think its value's going to go up so you want to keep it, but you want to be able to use that money. So you could come to me and you could say, "Okay, I want to get a loan from you for $10,000."

Adam Goad:

And I'll say, "Okay, as long... If you give me your 10 Ethereum, I'll give you 10,000 USD coin." The stable coin worth $1 a piece. Then you could go off and you can use that $10,000 USDC as you please. And we could have terms of our loan, of course. So you could owe me some interest or perhaps there was a limited term on our loan or something. So then if you fail to pay me back my interest, or if you reach the end of the term and you don't want to give it back or you can't, for whatever reason, then I get to keep the Ethereum you gave me.

Adam Goad:

Of course, there is some risk there on both sides. If you take this loan and you use the money from the loan and you're unable to recoup your money or you can't pay back the loan, you've lost your Ethereum. But I also take on risk because if the Ethereum you gave me goes down in value, then I gave you more money than the collateral I now hold is worth so there would be very little reason for you to come and get it back, and now I have lost some money.

Robert J. Marks:

Interesting. I don't know if I'm ready to refinance my house yet using crypto, but I'll keep my ear to the railroad track, as they say. So what advice would you give for people that want to learn more about this? That want to learn about flash loans, liquidity, crypto facts, how crypto works and how to invest in crypto and how to do staking. Where's a good place to learn about this? I would suspect that they have entire courses in this.

Adam Goad:

Oh, yes. So a common saying in the Web 3.0 community is, "Do your own research." DYOR is the abbreviation you'll often see for it. So that's the whole saying of people... Everyone knows there's all kinds of scams out there for everything. So whenever someone gives you advice on something they don't want to be seen as a scammer trying to trick you into anything or something, so they'll say DYOR, do your own research.

Adam Goad:

But yes, good question. What does that mean? So to get started with this, I think one of the best places to go to is YouTube, honestly. That's how I got started with it, I just started watching YouTube videos on it. There's lots of good educational YouTube channels out there that can teach you about any aspect of this really. And you can spend hours and hours and hours learning and getting ready for any kind of adventure into Web 3.0 you want to take. But then when you want to get down into, okay, should I invest in this particular project or not? That's where things get a bit more complicated with your research. So when you're looking at different cryptocurrencies, there's a term that's been coined, called Tokenomics.

Robert J. Marks:

Tokenomics, okay.

Adam Goad:

So that's looking at the economics of a particular cryptocurrency token. So that's, you look at things like, okay, so when a new block is added, it adds in a certain amount of currency, when transaction fees are paid, a certain amount of that fee is destroyed. Is the currency inflationary, deflationary? How is it run? Just all those different things. And it can take a while, of course, to understand what all those are and also, even more, to know what you should do based off what they say. And I suppose I am also leery of course, of providing advice here, and you should do your own research. But yes, there's plenty to look into here. And there is tons of people talking about it online, but of course you should always be wary of anyone trying to sell you something and saying, "It's a good thing to buy."

Robert J. Marks:

Got you. I know that there are people that call themselves wealth managers and finance advisors. It seems to me that there would be a market opening for crypto finance advisors. Do those exist, do you know?

Adam Goad:

They do. I know there are some more traditional organizations trying to get on this, and a lot of banks and investment companies are getting into crypto. They've been mainly sticking to the larger currencies, Bitcoin, Ethereum, as far as I know, I don't think they've ventured too far into the more lesser known parts of this. But in the space, there's what is known as an Alpha Call and an Alpha Caller.

Adam Goad:

Now, that term kind of started as someone who will tell you, "Hey, I know this information and something's about to happen and you should get in on this." And it still mostly means that, but it has kind of also become more of a broad term for someone who provides advice. Provides advice on, "Hey, I like this NFT project, they're doing good things." Or, "Hey, the tokenomics on this new coin look really good. I'm going to invest in it myself," or "Looking at the market, I think that Bitcoin is going to drop in the next week and you should sell now and buy on Thursday." Or whatever. So just anyone who wants to try to provide that kind of advice is known as an Alpha Caller.

Robert J. Marks:

I see. Okay, so those are the financial callers. And I'm sure that they set up things like portfolios of different things and distributed finance in order to spread out your risk. I think we've just touched the tip of the iceberg here, and I really want to thank Adam Goad and Austin Egbert for sharing their expertise.

Robert J. Marks:

And I suspect that distributed finance, just like maybe electric and hybrid cars, are something which everybody doesn't have today, but I think they will in the future. And I think that decentralized finance is going to be something which is just going to be dominant in the future. Fascinating stuff. So thank you for joining us for Mind Matters News. Until next time, be of good cheer.

Speaker 4:

This has been Mind Matters News with your host, Robert J. Marks. Explore more at mindmatters.ai. That's mindmatters.ai. Mind Matters News is directed and edited by Austin Egbert. The opinions expressed on this program are solely those of the speakers.