

## [Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer

Welcome to FYI, the four-year innovation podcast.

This show offers an intellectual discussion on technologically-enabled disruption, because investing in innovation starts with understanding it.

To learn more, visit [arc-invest.com](http://arc-invest.com).

Arc Invest is a registered investment advisor focused on investing in disruptive innovation. This podcast is for informational purposes only and should not be relied upon as a basis for investment decisions.

It does not constitute either explicitly or implicitly any provision of services or products by Arc.

All statements regarding companies or securities are strictly beliefs and points of view held by Arc or podcast guests, and are not endorsements or recommendations by Arc to buy, sell, or hold any security.

Clients of Arc investment management may maintain positions in the securities discussed in this podcast.

Hello, everyone.

My name is Yasin Almondra.

I lead Crypto at Arc, and I'm super excited to introduce a conversation between Arc CEO Kathy Wood, economist and longtime mentor of Kathy's Dr. Art Laffer, and CEO of 21 shares Ophelia Snyder.

In this conversation, our three guests walk us through the history of money in order to better understand the promise of Bitcoin.

Now, Bitcoin is often defined as a technological revolution, but viewing it first and foremost as a monetary revolution can help highlight its true promise.

Contrary to the current nationalized market for money and the government's monopoly on issuance, the cryptocurrency market, birthed by Bitcoin, much better resembles a competitive private market where no coercive monopolies distort price signals by preventing competitors from entering.

As you'll see from this conversation, the implications of a divergence this great could be quite profound, so we hope you enjoy.

If you like crypto conversations like these, be sure to subscribe to our YouTube channel and our FYI podcast, and with that, I'll let Kathy take it away.

Greetings, everyone.

I'm very excited to be here with Art Laffer, my mentor and dear friend of 45 years or more.

Who's counting?

Who's counting?

Who has advised more presidents in his lifetime than I think most economists have?

On both sides of the aisle, I might add.

And Ophelia, who is one of the founders of 21 shares, we are partnered, ARK is partnered very proudly with 21 shares in filing for a Bitcoin ETF.

That's public.

I can say that, but that's all I can say, according to the rules.

But we're here both to learn and have a dialogue about history, the history of money, and this was Art's idea, actually.

## [Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer

He said, you know, I think this crypto thing, and he hates the word crypto, I think we have to convert to digital assets, but it feels very much like the free markets that were in place before the Fed was created in 1913.

And I thought, wow, that's a great topic, I'd like to learn more about it.

And I know that Ophelia is a student of history.

Economic history is not taught in schools, but Ophelia has taken it upon herself to learn about the history of money and the history of economics.

And so I think we're going to have a wonderful dialogue here, and we'll all learn something, I think, from one another, and we're delighted to share it with you.

So with that, maybe Art, you can talk about that conversation we had and what was it that drew your conclusion that, wait a minute, this is back to the future.

Yeah.

Let me just say, I think it's a triologue, by the way, too, a triologue, because you're going to be involved in this as well, deeply.

Yeah, there are two parts of U.S. history.

One is post-1913, where the government controls money and controls all that stuff, and open market operations, Powell and McChesney-Martin and all that stuff, where everyone takes it for granted that the government has a natural right and a monopoly on the creation of money. Then there's the pre-1913 period, where monies were private.

The government did define what a dollar was.

It was one-twentieth of an ounce of gold, approximately one ounce of silver.

That defined it, but the government had mints as well, but so did private people.

Banks issued their own currency, which was a private banking system, and I sort of view crypto as being moving us back to a private banking system, where we have a lot of information about what happened, how well it worked.

It was the period where the U.S. became the preeminent country in the world economically.

We had stable prices for centuries, all of that stuff, all when money was private.

I'll open it to Aphelia.

Aphelia, pop in and let's us just go at it and have some fun.

Yeah.

Look, I agree.

Centralized money is actually a relatively novel concept, and not just in the context of the United States.

I mean, if you look at the money, money has historically been decentralized, so is banking.

The vast majority of the history of money and the history of bank infrastructure was both private and decentralized.

We participated in a grand experiment towards centralized monetary policy, both in the U.S. and in Europe over the last 100 years.

That's not status quo.

I think there's sometimes a lack of appreciation for how new some of the current status quo is, even in some simple things.

The level of dollar dominance that you see as a reserve currency is anomalous.

It has largely occurred since the 1950s.

**[Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer**

That's not a historically stable reality.

I think the lack of appreciation for that sometimes leads us down a path of assuming that the world we inhabit has always been this way, or that this is the only way to do it or even the best way to do it, so it happens to be how we're doing it right now.

You can look at pre-fed and post-fed, post-1913.

Do you love to think about lessons learned and perhaps think about them in the context of what is happening in the digital assets revolution?

I think that's exactly what I was going to comment on.

The failure, I think, of monetary policy to provide a stable numeraire, to provide us the world's best-class nation, the bank crises, all of those things that have happened when governments have been in control has led to a yearning, a market force trying to take us back to the days when money was private.

I think my view, the way I look at cryptocurrencies, is they are a market reaction to poor policies and trying to take us to a new currency that is not controlled by the government and solving a lot of those problems.

I mean, goodness knows, the inflations and high interest rates and all that is not a good thing for the economy.

May I ask one thing, pre-2000, I mean, 1913, the markets or the economy was subject to booms and busts, right?

It was a very, so can we take lessons learned from that time and apply that to this new world, this crypto?

Yeah.

Let me just say, if I can on that, the booms and busts were financial booms and busts.

They were not economic booms and busts.

We never got ahead of great depression ever before the 1930s.

We never had any of these types of major swings in the real sector.

We had a lot of financial ones where you get this, yes, yes, last six, eight months, ten months, ownerships are changed and we're off to a new run.

That is what was the history, very different from the history post 1913, where we got actual oppressions that lasted 15, 20 years, all of that stuff.

That was not what happened prior to it.

I think to a large extent because of the Fed and because of government coming top down on the economy.

I don't know if you feel that way at failure, but.

My question would be, that makes some sense, but the real economy in the United States and globally has changed materially in that time period.

We live in a much more information-based economy than we did previously.

There's just no way to have the types of roles and the types of sophistication in the real sector that we do today.

To some extent, some of the, let's call it overextension of subsequent attractions in the real economy, can some of that be attributed to an increase in that complexity, not purely to the monetary policy and the establishment of the Fed, but also to an actual change in the structure of the underlying economy?

## [Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer

I don't really think so.

I mean, obviously there are lots of things that changed, but as far as material things that change this type of structure about how money plays a role, I don't think does.

I mean, the U.S., I mean, from 1640 to 1870 ran trade deficits.

We were funded almost entirely by foreign capital that built the U.S. up.

We ran trade deficits each and every year, which are capital surpluses.

We built our country based on foreign capital coming in, importing net foreign capital.

Now, there were a few exceptions, 1776, let me tell you, Britain did not invest in us that year.

Also 1812, 1813 it didn't.

We then had the big canal busts in 1841, 1842, which again were there, but except for about five or six years from that 1640 until 1870, that's 230 years.

I think we ran trade deficits literally each and every year and required huge amounts of funding, required a common currency, required long-term contracts, all of the futures markets and currency developed around tobacco in Liverpool and tobacco in North Carolina, one being in dollars and one being in pounds, and that was the foreign exchange currency.

If you go to Margaret Meyer as the New York money market, it's fascinating how these currencies and these future markets developed all based on a world that was supposedly autarkic, but it wasn't autarkic.

I mean, we really lived on trade and our relationships in those periods.

I think now, obviously with a lot of technical differences, but I don't think in real terms that those differences make much of an impact on the need for a good sound currency, and that good sound currency is really the critical element when I think of crypto.

I agree, I think crypto can sometimes be a misnomer and you sort of lose the forest for the trees here, but ultimately, the intent behind digital assets holistically is to create a alternative to the centralized financial markets, and that looks like currencies like Bitcoin, there's also infrastructural components around how you're actually able to execute certain types of transactions, and that's maybe going towards some of what we're talking about around the increased sophistication in financial markets and in the broader economy as we move towards, let's say, a more digital, digitally native ecosystem.

I think ultimately, there are a lot of similarities there, I actually agree with you.

I think a big part of what crypto and Bitcoin especially is aiming to bring to the table brings us back a little bit to a version of monetary policy that is both inherently more globalized as well as less centrally controlled by governments.

Much less.

If you even look at the names of currencies, it's the word German Geld, it obviously comes from gold, the word Fee in English is obviously the word cattle in Anglo-Saxon.

If you look at salary, it comes from the salt, remember the Romans would always have the salt over the left shoulder in their little bags, and all of these things all have commodity private bases coming back from the beginning, and I look at Bitcoin and these others, and you guys are far more expert than I by miles, miles, miles, but I look at these as being a return to what really worked, and in those centuries, good money lasted, prices were stable for long periods of time, and the US became the preeminent.

## [Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer

Now, we did have financial crises, but they were over in six or eight months, they were just going to boom and gone, now we have a crisis in the last 15, 20 years, what's that? Those are terrible crises.

So Art, you're talking about a time when there was the gold standard effectively, what would a Bitcoin standard look like, or what would a crypto standard look like?

What I was going to ask you, Kathy, is what I look at it as a quantity, and when I look at gold, now obviously gold is a quantity too, it's a pound is 12 ounces and Troy ounces, and you look at that, but what really was important about gold was the exchange ratio between the pound or the dollar and gold was kept stable, and that's what really, because we transact in dollars, or we transact in Bitcoin, we transact in whatever it may be or whatever, but what you really want to do is have a numerator that stays stable in value, so we can do long-term contracts, the one with the other, and not have to worry about changing values and not having to worry about protecting ourselves in those contracts.

As Ophelia mentioned in our quick conversation yesterday, what happened in the Bank Holiday Act of 1933 and the changing of the price of gold and all that, that was enormously disruptive to the world. I mean, we were the only country that outlawed, I mean, think of it, outlawing the private holdings of gold. How crazy is that? Except for Dennis, by the way. They should establish a fixed price at which they were willing to purchase it, right?

It went to \$20.67 an ounce to \$35, and that's a 60% devaluation. We also devalued the currencies, if you know, in the Bank Holiday Act, we devalued the current, well, six months afterwards, we devalued the dollar versus foreign currencies by 60% as well. And, you know, we prohibited banks from buying or selling species. We prohibited banks from foreign exchange dealings. This is all in the Bank Holiday Act. We eliminated all gold clauses in contracts, public and private, so you had no guarantee of a value stable value, which is all the stuff we want money to do. They just violated every damn thing there was in 1933.

So, Art, this takes me back to a conversation we had when ARC was doing its first white paper on Bitcoin. At the time, it was Chris Berniske, who and Yasin El-Londra now is our lead. Chris went off to lead and found and lead a venture fund, but I remember you got through the white paper and you were editing it and you were saying, by the end, once you really had digested what it is, you said, oh my gosh, I've been looking for this ever since we went off the gold exchange standard. I said, oh, Art, then you do think this is a big idea? And he said, yes, I do. He said, now, rules-based monetary system. That's what you're talking about. Now, I don't think you have the right rule. You have a quantity rule here, and I think you need a price rule. And so, I think what I'd like to explore here is clearly Bitcoin is playing one of the three major roles of money, store of value with a quantity rule. We're in a period of great experimentation, which Hayek said we needed to find the best monetary system. And I'm wondering, and maybe, Ophelia, you can jump in. I know what art means, and I agree with this idea of a price rule and contracts based on a price rule. Do we think that maybe in this grand new experiment that there might be a fork of Bitcoin to enable a price rule? I've been toying with this idea and trying to figure out the answer. I'd love to know your thoughts, Ophelia. So I think, look, cryptocurrencies are inherently designable and composable, and there's a number of different ways in which you can do them. It's something like a stablecoin starts to look more like what you're describing, which is essentially a price fix, not quantity

fixed. I think one of the things that people discount in these conversations is it's not just about the currency itself. So much of what actually makes monetary supply work is actually around things like multipliers and banks and leverage and infrastructure and actually how M2 money supply actually ends up trickling through the system. I think that's actually where you're going to end up needing more support for crypto in order to make this work. It's the right now crypto capital markets. So the issue with currency and monetary supply, it's not just about the currency itself. It's actually about the currency and the context of economy and the context of how that monetary supply is expanded and contracted alongside the economy relative to demand for it. And even when we had private monetary supply, you still had a lot of those features, leverage being one of them, probably one of the more important ones, the concept of just one, but also in money supply. And I think when we think about crypto, and I think about the next stages, I'm actually less interested in sort of this idea of quantity rules versus price law. I'm much more interested in how do you then deal with actually routing this new asset through a complex system like that? Because you're still going to need it, right? You're still going to need, you're still fundamentally going to need leverage. The idea of only trading is when you come on hand or only expecting whether you come on hand will actually ultimately cause other issues. It's one of the issues with the gold standard, right? And this sort of coming off of the, coming off of the gold standard in the 30s, one of the issues that came up, and one of the reasons that this was done was to actually allow for more leverage essentially in monetary policy. Alright, why don't you take that? Because it's related, it's a related topic, but I have a feeling you're going to be coming back to the price rule.

I don't like the use of M2, by the way. That's 99% private and almost very little government. The real thing that the government does control is the balance sheet of the Fed. That's what they control. And open market operations, they can change that. It's called the monetary base. And from anything from the monetary base on M1, M2, or any of these other aggregates, all are very private. Even bank liabilities are very private because they can change the ratios. They have reserve requirements, but they're not really requirements. They're notional reserves that they hold behind time deposits, demand deposits, all these other liabilities of the banks. So the one thing the Fed does control is the monetary base. That, that it does, but that's the only thing they control. So anytime you go and these others are all part of the leverage of the system, and affiliate is completely correct, is that when you go pre-1913, all of these banks that did create their own currencies, Brian was showing me a little earlier, all the different bills from all the different banks. I mean, they look just like real bills. They have all the names, pictures, all the stuff. And this was from a Chicago bank, from a Detroit bank, from a Philadelphia bank. I mean, it's just way cool. They had the effect of changing. If you went into the bank and paid off, send your dollars back in to get reserves, let's say whatever it is, gold or whatever they would have as reserves, they would then reduce the volume of their liabilities in the system. So you had a quantity shrinking and expanding, keeping the value constant. That's the type of thing we need. Britain did it every week. I think it was, you went to the old lady of Threadneedle Street, the Bank of England, and all the banks would go in the morning and say what their net purchasers or sales were of gold and pounds. And then the Bank of England would adjust the liabilities of the system to respond to that, to keep it within a very narrow band on that. And that's the sort of thing I would like to see



## [Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer

coming about out of crypto. No, I don't know how that can be done. Who controls the quantity of crypto? I mean, I know there's a formula for some Japanese guys. I think it's a pseudonym, but it makes it all the more mysterious and wonderful. But is there an entity there that can change the volume of crypto to keep the value constant? I don't know if there is or not. There may be some holders that would do that, like the private banks in the U.S. The private banks in the U.S. did actually do that to keep dollars stable, I mean, in value. When there was a drop in the demand for money, I mean, the bank liabilities contracted. When there was an increase in the demand for money, the liabilities of banks expanded. So quantity adjustments were there prior to 1913, and the value of each dollar stayed very stable for a centrist. I mean, it was incredible. So maybe there's something in crypto that can do that as well.

So I'd like, actually, Ophelia, to go back to your comments on stablecoins. So let's talk about those. And Art, you probably are not that familiar with a crisis that occurred around stablecoins, specifically algorithmic stablecoins. So, Ophelia, do you want to talk about that? And what went wrong? And I'd like to then afterwards basically say that that is not what Art is talking about, and how do we get there? So maybe you can...

I think that's exactly what I was going to get at, is I think there have been some attempts to try and create what are essentially like self-referencing stable currencies, where based on an algorithm, they're able to essentially maintain a stable value.

The issue with that is that because they are self-referencing in some way in terms of the way in which collateral is actually issued against this, and you're able to maintain pegs for that pricing by using other assets within the ecosystem, the issue with that is that you can end up with a death spiral, where if you lose that peg and the underlying asset base begins to erode and value very, very quickly, those two things can actually play off of each other and result in a death spiral for the currency. And that's exactly what happened to now a very famous crypto project called Luna, or Terra, or blockchain, that essentially allowed these assets to unpack and enter that spiral. That is obviously not what you're talking about. There's a difference between having an asset that is essentially only referencing either itself or another component within its own ecosystem versus an asset that's referencing what you're describing, which is a much larger integration with the broader economy. Right, it's a price rule based on a basket of something. So I am wondering if, so in this experimental world that we're in, and I think Hayek would be thrilled to be studying this right now, I am wondering if for that in order to serve as the means of exchange, as opposed to just the store of value, how would we accomplish that? Would it be for, it's hard for me to envision this, a fork. Basically, these are software programs and if you want to go in a different direction, you can. Now, Bitcoin is Bitcoin and it's a powerful ecosystem and we don't think anything's going to derail that, but if someone wanted to develop an ecosystem related to Bitcoin with a price rule, maybe Ophelia, you can help me. Honestly, as you can tell, we didn't rehearse this at all because it is a real challenge to envision how Bitcoin, and maybe it isn't Bitcoin, but do you want to take that Ophelia and run with it a bit and then we can hand it back to Hayek? So I think ultimately Bitcoin and part of the draw of Bitcoin is that a lot of these elements that you're talking about modifying in order to get off of a quantity based system are very much codified in an unchangeable way. If you start making changes to that, it's not Bitcoin anymore, it's something else. And yes, theoretically built crypto assets that have any number of features.

## [Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer

The first real feature enhancement in terms of blockchain was the move from Bitcoin to Ethereum. So Bitcoin contains only address A, send to address B, quantity Z. Essentially, that's the only information that it has in it. It's quantities and locations. Ethereum expanded that to allow it to be a much more customizable database of information so that you could actually have a much wider range of types of transactions and types of interactions within that infrastructure. That was a major, right? It created a whole new asset, it created a whole new ecosystem, and you could obviously have something like that. There's no rule that says you couldn't have a blockchain that operated in that way. I think the challenging piece here is, and this is always the challenging piece with crypto, and it's what I was alluding to earlier, is that that connection to the real world economy, which is what would provide the stability, is actually very difficult. Data flows into and out of blockchains are complicated and sort of inherently introduce some point of centralization. So the question then becomes, if you're going to operate in that way and you're going to rely on some, either you have to rely on a centralized counterparty to provide those signals of whether or not to increase or decrease supply. That's one version, but you are going back to a much more centrally controlled structure. The other option would be to have that happen automatically, but then you're dealing with data quality and data richness, and how do you ensure that that's not compromised in some way? And actually, those data issues are one of the central issues in DeFi. How do you maintain decentralization and economy while being able to validate the quality of data that's historically chain-linked or having some success? Let me see if I can respond a little bit. I mean, Bitcoin has many of the characteristics of gold. We know what the cost of mining it is, and just bits in there. So gold is very hard to mine. The quantity is relatively fixed back in the 18th, 17th, 19th century. So we had a quantity fixed there, and yet we were still able to have a price rule to have price stability that whole period. So the conceptual framework here is it doesn't seem to be to be any different than the gold standard back in the olden days because Bitcoin is there. The other thing is that the fixed quantity is how did we do it back then? I mean, obviously, the Bank of England killed some sort of store of coins and then just stable of gold and stabilize the value of the pound of the dollar. We can do that back then. Some of the other stuff that you're talking about, the key here is being able to do futures contracts in a numeraire. That is the key. And how can we do that to where the borrower and the lender both understand what the value of the Bitcoin is going to be today, tomorrow, five years from now, 10 years from now, 20 years from now, 30 years from now, that we had with gold? How does that authority come into place? And it does not have to be government. It really doesn't. But how does that authority come into place so that Bitcoin can not only supplant the dollar, which I would love to see, but it has to supplant the dollar with a much more valuable numeraire. I mean, valuable, not in the sense of how much it costs, but valuable in the sense that it serves the purpose of money. Very well. Store value, medium of exchange, and stability of the numeraire. That's the key. The stability piece is interesting because it's often one of the things people raise as a criticism of why crypto will never work as money, is that the price is inherently too unstable, there's too much volatility. They're not raw. It is volatile. Now, I think that changes as you start to see broader usage, and it changes as you start to see a larger number of market participants.



## [Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer

You need to get to a place where like crypto, Twitter does not have an impact on the price of Bitcoin, right? Where the sentiment of a small group of people can't actually change the direction of that market. How many people does it take to change general sentiment on a USD? Can I push you on this idea that you're just pressing right now? We had a transition lot, lot longer ago than gold standard. I mean, from cattle and salt and other things, seashells, whatever they were, to gold. Gold was intrinsically, everyone I'm sure back then made that argument that gold is inherently unstable. It's the same exact arguments that now are going from gold to Bitcoin that were solved by the marketplace, not by governments. Now, the reason it was not unstable is because you knew what it took to raise cattle. You knew what the cost was to have a calf, to raise it up to full size, all of that stuff. There was a cost function there, that the marginal cost of a new cattle was exactly the same over long periods of time. It still takes 24 months to get a two-year-old heifer. The same thing with salt mining and the same thing with seashells. You had to go down there and collect them about it, but gold was different than that. Now, gold had a secondary market of adornment or whatever you want to say, jewelry, etc., or whatever. What we need to do is find a crypto, a Bitcoin solution to dumping it when the value is too high and storing it when the value is too low. Somehow to have a mean regressive process. That should be done by the private market, not just by large numbers of sellers or buyers. That won't do it. You can see it in the data. This is what you're getting at. The new data around long-term folding of crypto assets. We have all of that data. That's what I'm looking for, to happen to nothing, but to have the world where the quantities vary, but not the prices. So, yeah, this is really a very interesting topic. So, would you suggest then? I mean, it's the core developers who are, I mean, they will never, I mean, from what I can see, what you can see probably what we all think is that the core developers would never modify any king, in terms of the mathematical metering, to get to 21 million units. The problem with that is, what if the demand for it is much more than 21 million units as the economy evolves? There's no adjustment mechanism to meet increased demand, right? This is exactly, there are actually two, right? So, one is that when you want to actually soft up excess demand, what you're seeing is you're actually seeing private behavior accomplish that, which is you're seeing people accumulate assets into wallets, and those wallets are not moving. They're actually very, very, very stable in the lower end of the price range. There's no interest in liquidating them, and you're actually seeing that in terms of the number of wallets that are holding who haven't been used in over a year. You're actually seeing that. I'll tell you one thing here, Kathy, and Ophelia, by May. You don't need to have the bitcoins change. What you need to do is have some person there doing a forward contract in bitcoins, a private sector person. So, I can say, you know, bitcoin rises to a higher level. I'll sell bitcoins and I'll take in liabilities there, and I, as a private person, will arbitrate. That's what banks did with gold. Banks changed gold by issuing their liabilities. Here's a question on that, and that would be a wonderful solution. What we're beginning to see is as long-term holders increase, in other words, they're called oddlers, hold on for dear life, right? As those increase, another phenomenon is evolving here, where institutions are developing an interest in this new asset class. And, you know, they could, that their incremental demand as the long-term holder basis increases could, you know, to force the price up parabolically, which would destabilize the ecosystem. But this is something different. This is private people,

## [Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer

a different company coming in who knows bitcoin, who holds bitcoin, transactions bitcoin, and it's like a bank that holds gold and holds silver and does all that, but issues in bitcoin. Kind of. Maybe another example that I actually think is maybe more accessible is, actually, I don't know that that has to be a bank.

Well, I don't even need a bank, but an institution. So the quality of the phones in the market increases dramatically, but the net amount is still \$20 billion or whatever. Look, when I first got into crypto, one of the first people to talk to about crypto is my mom, and my mom came to me and she was talking about something really interesting. She's like, you know, if you look at companies like Merck, their hedge costs are very, very, very high because they're dealing with basically an inability to match their liabilities and their income in terms of currency. And it makes sense, right? They're transacting on a global basis and they're like the perfect microcosm for a globalized economy in a single company, right? And they're actually spending a ton of time and money actually adjusting those liabilities and assets to match each other. And you can have entities like that. Once you start transacting and once Bitcoin is actually used in that way for commerce as a reserve currency, as a currency for these types of transactions, you'll start to see entities actually need to provide to that type of infrastructure for themselves. And it's really interesting because it's, to me, always has seemed more accessible here to understand in the context of someone who's actually doing trade versus necessarily a bank who's doing it for as a financial transaction. But something like Merck is actually a very good example. I'm talking about something. I'm talking about substitute Bitcoins, a company that whatever the quantity of Bitcoins is, I'm a company and I will issue my own liabilities and call them Bitcoins. And I will guarantee them in terms of Bitcoins there. Anytime you want to bring these liabilities back into me, I'll give you a Bitcoin back and thereby and have a fractional reserve system and have that go now. You probably would need government inspectors like you do, would did with gold coins because, you know, they'd followed the reserves these state banks had and all that to make sure that their liabilities in dollars and gold was exactly, you know, they had enough reserves to make sure they didn't go bankrupt and do that dust spiral you talked about. But this is an infrastructure that would be set up by private companies to create private Bitcoins different from the actual Bitcoins, their Bitcoin light. That's the way the dollar system did to adjust quantities and keep values constant. How is that materially different than, you know, an M2 money supply? Today, that's run through banks

and it's far more regulated and sort of the way we interpret leverage is a little bit different. But structurally, that seems like it would be largely the same fact.

It is similar to a bank liability. Yeah, it's exactly bank liabilities. And you check the bank liabilities against their reserves. Now, what is what is the reserve today? It's nothing. It's the trust and faith of the US government. Hello, I'm not into that. That's why I like Bitcoin, because I don't trust and have any faith in them, to be honest with you. And the results of the last couple of years, a perfect example, perfect. But what you need to do is have these people run businesses as businesses, you're going to get collapses, you're going to get boom, you're going to get those financial crises of the 18th and 19th century, you will get those. But they'll be over in six weeks or eight weeks. And the bank that was issuing those liabilities will go away, but you will have the quantity modulation as opposed to the price change. And that's exactly

## [Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer

what we had stable prices there. I mean, the dollar value, the gold value of goods and services didn't change for centuries. It didn't change. Now, we know the quantity of gold was fixed or relatively quantifiable. And how did that happen? And that's because private institutions did all the modification. If you set the price high enough, you can always solve that. And we did have crises, we did have collapses. There were times when we had a war in Europe and the price of gold went way up. And that's when the Bank of England would have a judicious suspension of convertibility. They'd go, we won't buy or sell, let the price go, and then once things settled down again, then they came right back in again and stable. What we did during the Civil War, 1862 to 1878, we had the greenbacks. They went way up in inflation, halved in value relative to gold. And then we brought them back down to at the end of 1878, we reestablished it at the old convertible.

That type of system, there's no reason why banks, why other financial institutions, can't do that with Bitcoin. So do you think traditional financial institutions would play that role? Or are we talking about a completely different set of characters?

To be honest, why companies wouldn't specialize in this, they don't have to be banks. They don't have to be banks in the traditional sense of the word.

So let's think about this. So right, and the SEC with its protect the customer or the bank regulators protect the customer, how would they react to this?

What could they do, if anything? Well, what they did in 1913 and earlier

is they had bank inspectors to go to check on the reserves. And that's where they had that.

Remember, Mark Penny, these guys would go and check these banks and the banks right after they were inspected and okayed, they'd send all their reserves to the next bank where the guys would find the same penny over and over again. That's what happened. I don't trust the SEC today to do that. But I do trust the organization. That's what's so great about this ecosystem.

It's the transparency of these blockchain. Love it. Love it.

But I was going to realize the role of the SEC and quite frankly, the role of bank regulators, we're entering a phase where it's being interpreted very differently and we'll see

where that all ends up. But historically, I mean, ultimately the SEC's job, investor protection is not, these two things don't run contrary to each other. At the end of the day,

if you're going to issue something, the information about what it is you're issuing should be accurate. And if it's not accurate and you're lying and stealing someone's money, someone should finish you for that. But that's the job. What you should do is transparency and transparency alone.

So you know what that these accounts, these people are stating are true. It's like medical transparency. It's like financial transparency. We need to know that the truth is being exposed and therefore we can make good decisions based upon the authenticity of the information we receive.

And the more decentralized and transparent the ecosystem is, the better, the more secure, right?

The less you have a need for, if you can check the source information yourself,

you need less disclosures to be provided to you, right? If I don't need to tell you,

I have five things, if you can go check that I actually have them. Yes, right? And it's,

you know, for example, in gold ETFs, it's the reason why like very large investors in gold ETFs, when they started moving towards actual like bullion and gold bars would ask to see the vaults, right? It's the exact same concept. But here's the thing, you can do that with an address,

**[Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer**

you can do that in a centralized way. Anybody can look up that information, you don't need me to tell you that I have five things, you can check that I have five things. That changes the role of accuracy, transparency, and disclosure, which is actually so much of what, quite frankly, the SEC does. But now the disclosure, we're talking about leverage. The disclosure you're talking about is the disclosure of the financial intermediary, not the transactor. The transactor remains anonymous and anonymity. A dollar bill is a dollar bill. When you get it, you don't know who owned it before, who had it, where it was, what the balance sheet, a dollar bill is a dollar bill. But you need to have the financial intermediaries be transparent so that I know what their assets are and what their leverage is so that I can value their pseudo bitcoins in the marketplace, just like the pseudo dollars produced by the Illinois bank in 1893. And I think that's the interesting thing with crypto is that it's actually one of the pieces, I think people get wrong so often when they talk about this, is actually, Bitcoin is less anonymous than US dollars. And it would be one of the major issues with the setup like this, right? I do, in fact, know who owned my Bitcoin before me. Now, I know them as pseudonymia, you know, by an internet address. Yes, yes. I'm old and I don't understand what you just said. So because of the way block teams work, you can actually trace the origin of a Bitcoin from the day it was mined through every wallet that's ever owned it. Now, the thing about that is those wallets are pseudonyms, right? They're not actually linked to your identity. So there's no way for me without an enormous amount of effort and probably a government spina to go and figure out address, zero X insert a bunch of characters here belongs to this person. That link is actually difficult unless you've either a connected it to a fiat on or off ramp or some sort of regulated endpoint or connected it to your identity through some other means. And there are reasons why you might want to do that. And people do that. Some people don't. And there's a bunch of new technology to allow for a tighter link there. But what it does mean is that I can actually look and say, okay, well, where did this Bitcoin come from before? And you can actually trace its origin. And there are significant pros and cons to that. One of them being it is actually less anonymous than a dollar bill. It is about as anonymous as a bank transfer, but that is less anonymous than a dollar bill. Yeah. And it would be allow you to have the reserves of a non entity, the liability issuer in Bitcoin to be assured that they do, in fact, have those reserves of Bitcoin. And even though their liabilities are larger, they have enough reserves in bitcoins to be able to issue any reasonable withdrawals on their accounts, they would be able to match those withdrawals. That's exactly what a bank does. And that's sort of a bank regulator is that last case, right? Well, I just like the bank regulator concept of the FCC that you that just scared me when you said that that that did scare me. Anonymity is important. A hundred dollar bill is now all the people my my colleagues at Harvard and Yale and all that want to get rid of these because they believe it's a source of criminality. But it's also a source of anonymity, not criminality. And I think anonymity is very important in transactions. Would this be a show stopper for you? It's art. If you knew every one of your Bitcoin could be traced, but people don't know it's you. It's a pseudonym. Well, then they don't know it to me. But if but what I feel you said was they can ultimately get it back to you. And that that does that does reduce the value of a Bitcoin. Well, the FBI is, I mean, expert in cryptography. And we know they've been able to trace some criminal activity. So that's because criminals were sloppy. There is no way you can do private

## [Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer

cryptology today and not have a snowball's chance in hell of anyone finding out what your codes are. I mean, you can do that today. If you just know that stuff, all you need is the prime number basis there, the trillions of places, and you've got it. So there's no way of breaking those codes. So the sloppy ones who did it loosely were the ones I'm sure the FBI was able to get. I'm sure they do not get the USCIA or NSA breaks. They just don't. So I feel like we've come a long way in terms of but maybe just two more questions. One of them is I want to get back to this. Okay, we have this institutional interest brewing in Bitcoin. It's mathematically needed to go up at a measured pace until we have 2100 million units. But let's just say right now, because of the institution's expressing interest in this new asset class, the marginal demand goes up and drives the price up dramatically to a million dollars. Bitcoin's at around \$30,000 right now to a million dollars. Let's just say that happened in the world that we've been describing here. Do we need to get through that first as you say, Ophelia, and stabilize the ecosystem as more and more become long-term holders? Or can we get to the world that you're describing art with these other private actors? Yeah, let me if I can go on this. It's really interesting what you're talking about now. Both of you there. We had the same type of thing in Europe when the discoveries of the New World came in. All the ships from Spain and Portugal brought back gold from the New World there. And there was a huge flood of gold into the New World. And of course inflation occurred as whether there's a famous dissertation done at the University of Chicago. The top scholar in this was Earl Hamilton, who was a professor at the University of Chicago on this type of stuff. That sort of is the speculative price bubble in gold that occurred there. It was not moderated out. Now after that, it was moderated out. And the stability then became, gold became stable valued over long periods of time. But you're right. Maybe we do have to go through that. I mean, we clearly have gone through what was the price of Bitcoin 10 years ago? Well, we got in in 2015 at \$250. There you go. Okay. \$30,000 today. Goodbye. You know I am an investor with you, Kathy. You know I love you. But you know, we've gone through a lot of that. Now what we need to do is go through the thing where you get inventory and arbitrageers and issuers of Bitcoin and just develop a banking system around the gold stock. The gold stock is Bitcoin. Now what we need are the financial institutions around the gold stock to vary the quantity of crude crypto gold, if you will, to stabilize its value over long periods of time. And I think we're, I mean, if I've noticed, it looks like Bitcoin prices have stabilized a lot lately. Well, what happened was during the regional bank crisis, and you and I did a podcast during it, the regional bank crisis, Bitcoin, as regional banks were imploding the stocks, Bitcoin went from \$19,000 to \$30,000, and it's \$30,000 today. Now part of the reason it's gone back to \$30,000 after a little bit of a jog here is speculation about a Bitcoin ETF. And we can't say anything about that. The Bitcoin ETF is what I'm talking about in the financial intermediary. That's what a Bitcoin ETF is. You are open to intermediary. That's just where you should be. And that's why I'm a huge fan of ARC and Cathie. I mean, you know, because you will develop, you didn't you develop the first ETF that was actively managed? Well, technically there were others, but truly active, completely transparent. I think we certainly qualified as one of the first and now the largest. When you were the first Cathie, and I'm going to stick to my guns by goodness, I remember talking with you about all that and all the difficulty you had to get permission to do an ETF and all of that. I remember all of that. Now you can do ETFs on countries and stuff like



**[Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer**

that, but an ETF like yours was, was actively managed, and you did the displays of all the transactions in it. I mean, you were the path breaker there. And you're the path breaker I gather once again, but you can't say anything about it. I can't say. But I think you're going to be the path breaker there too. This is exciting. This is wonderful information. And you're making me feel a lot better about Bitcoin and about crypto. Yay, yay. And I know we're going to do another podcast so that you can learn more about the cryptography and all of the details. So we'll save that for later. I don't know the computer programs. You know, I'm a nice guy. I don't do emails. I don't have a computer, but I do understand the math of cryptology and all that. And we are at a point in time where crypto can never be broken by anyone if you don't want it to be. Now, that was not true historically. You could do all sorts of bubble sorts, all this stuff historically. But now we've gotten to the thing where the chances of doing that are infinitely small. One last question then, and it does have to do with government. So, you know, and during our morning meeting, Yasin mentioned that Hayek also said that, you know, the only way this could happen was somewhat surreptitiously so that the government, you know, if the government understood what we are talking about now about the potential for Bitcoin in 2009 or 10 or 12, they might have just tried to squash it. But it has been a little bit of a surreptitious more. It's been pounced in terms of technology as a matter of fact. And therefore, is it in the purview of any particular government agency? Do you think we are past the point where the government can come in and squash this movement? It should not be U.S.-based. It should not be multiple country-based. Yasin, it is. Yes, number one. I don't think any government should have control over crypto. I think unanimity is a very important characteristic of this, even though your little purses or wallets or whatever you call them there. I do think that people should be allowed to be able to transact without someone knowing exactly what they bought in Seoul. And even though I totally against criminal activities, I don't think that's a criminal activity. I think people want privacy, even when they don't do crimes. And so therefore, I do think that. And I think what you call it surreptitious, did you? I think it's sneaky. But the sneaky thing I think is out of the bag. I think the genie is out of the bottle. And I don't think they see how the U.S. by itself could solve this problem. They would have to try to do this. I mean, did you see the latest news on the world currency now that they're trying to do on a crypto with the bricks and then all the countries that are just signed on to that? All of them are non-Western, non-European, non-U.S. And they want to just say to hell with these paper currencies there and all that stuff. And let's get a solid currency. Now, they talk about it in terms of replacing the dollar. But that's not what they're doing. They're trying to replace the dollar because the dollar is crappy. If the dollar were stable in value and have done all the things we described that a currency should do, there'd be no attempt on part of any of these countries to do what they're trying to do. It's because the dollar has failed that these people are trying to develop a cryptocurrency. And I believe in that very much. And I'd love to see the private sector solving a problem that the government has ultimately created. Monetary policy comes in cycles, right? And if you look, we've seen cycles of the global reserve currencies being French, being English, being American, being far more diversified than they are today. I think a lot of what we're seeing is what comes next. I think this chapter of monetary



**[Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer**

policy is likely ending. We haven't seen real pushes away from the dollar in the way we've seen in the last year in quite some time, not just with the bricks, currencies, and gold reserves, but also in terms of simple things like Southeast Asian countries deciding they want to settle their trade in local currency instead of necessarily settling in dollar. And those are all harbingers of a new era in monetary policy. Now, crypto can play a role in that. Crypto is playing a role in that, both as a technology as well as Bitcoin as a currency. And I think one of the things that we've taken for granted in this conversation is how early things still are.

My company's role is to talk to sophisticated investors about crypto basically all day long, and we're still in the early innings. From both a technology perspective in terms of how this stuff actually works and our ability to use it to allow for private-based derivatives to be built, to allow for integration into the broader monetary supply, it's still early. We're still working out the Kings Island technology side. We're still getting people educated about it. We're still working on it. Well, you better be fast because it's going to come quickly. I think what you've done is you've got the right spot, Ophelia. You're right in the spot. You're going to be shocked at how quickly you're going to have to respond to this. Gold was there until 1972 on the official level. Now, then it was dollar after that, only dollar. But no one had the frank, no one had the mark, no one had the pound unless they solidified it in terms of gold before that. And today, that's not the case. So I'm going to wrap this up because I think this is ending at a very good place and we'll continue learning. The Fed, and I have in my experience, when investors focus obsessively on A number or two, and in the case it is employment and PCE deflator, lagging indicators that the Fed is using in its monetary policy, just obsessive, compulsive.

I know we're near the end of that being important and that kind of fits in with what you said, Ophelia. And then art, what I love about these conversations with you is you are steeped in economic history and you understand monetary ecosystems better than anyone I know. And so what you're saying is you discover what is happening through crypto and you're saying, that's it, that's it, that's it. It increases my confidence and my understanding of how this might evolve with the other actors. As long as you can go from a quantity rule to a price rule.

The price rule is central. Without the price rule, this system will die.

That is where we need to go on this next one. And that's where I think other companies like what Ophelia was saying, other instance like Burke and these can become financial intermediaries, issuing their own liabilities, having their own assets and being able to change the quantity to make sure that prices are stable. Once that happens, buy, buy dollar, buy, buy, buy ruble, buy, buy mark, buy, buy yen, buy, buy pound. The pound has gotten so bad ladies that they're now calling it the ounce. You have to leave. So thank you so much art and Ophelia. I think this was wonderful and I look forward to the next one because I think there's a dearth of economic history in terms of guiding us in this new world. Lessons learned in the past. What have we learned and how can we do this better in the future? So I'm excited by the next one. Yay. All right.

Thank you so much. You're on in Orlando. All right. Sounds great. Sounds great.

Thank you very much. It's a lovely, lovely session. Take care. Bye bye now. Bye.

Arc believes that the information presented is accurate and was obtained from sources that Arc believes to be reliable. However, Arc does not guarantee the accuracy or completeness of any information and such information may be subject to change without notice from Arc. Historical results are not indications of future results. Certain of the statements contained in this

**[Transcript] FYI - For Your Innovation / Bitcoin and the History of Money with Cathie Wood, Ophelia Snyder and Art Laffer**

podcast may be statements of future expectations and other forward looking statements that are based on Arc's current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements.