

SM229 | 5.3.2025

Gold for the 21st Century | Episode 6

Josh Crumb, Founder & CEO, Abaxx Technologies

We continue *Gold for the 21st Century* this week with Josh Crumb, Founder & CEO of Abaxx Technologies. SmarterMarkets™ host David Greely sits down with Josh to discuss how gold has shaped Josh's vision and mission to build smarter markets throughout his career. They also talk about how the gold market is where the many dimensions of Abaxx come together as it launches a physically deliverable kilobar gold futures contract in Singapore through Abaxx Exchange, a gold pool through Abaxx Spot, and deploys the new financial technology that will pave the way to full digital title.

Josh Crumb (00s):

Gold is not just this abstract concept of an element. It's a 100 ounce bar in New York. It's a 400 ounce bar in London. It's a kilo bar in Asia. It's a very specific type of kilo bar because some people don't trust a certain refiner, right? So the real world is messy. You can't cartoonify it all the way to a level of a token that's going to have liquidity. That's why cleared futures markets can gather liquidity in a way that a blockchain never can.

Announcer (26s):

Welcome to SmarterMarkets, a weekly podcast featuring the icons and entrepreneurs of technology, commodities, and finance ranting on the inadequacies of our systems and riffing on ideas for how to solve them. Together we examine the questions: are we facing a crisis of information or a crisis of trust, and will building smarter markets be the antidote?

This episode is brought to you in part by Abaxx Exchange, bringing better price discovery and risk management tools to navigate today's commodities markets through centrally cleared, physically deliverable futures contracts in energy, environmental, and battery metals markets. Smarter Markets are here.

David Greely (01m 15s):

Welcome back to Gold for the 21st Century on SmarterMarkets. I am Dave Greely, Chief Economist at Abaxx Technologies. Our guest today is Josh Crumb, Founder and CEO of Abaxx Technologies. We will be discussing how throughout his career, gold has shaped his vision and mission to build smarter markets and how the gold market will be where the many dimensions of Abaxx come together as it launches a physically deliverable kilo bar gold futures contract in Singapore through Abaxx Exchange, a gold pool through Abaxx Spot, and deploys the new financial technology that will pave the way to full digital title. Hello Josh. Welcome back to SmarterMarkets.

Josh Crumb (01m 57s):

Hey Dave, good to be here.

David Greely (01m 58s):

It's always good to have you here. It's a good time to have you here at Abaxx, you are preparing to launch physically deliverable kilobar gold futures in Singapore through Abaxx Exchange and separately from Abaxx Exchange. We are opening a physical gold pool in Singapore through Abaxx Spot. And gold certainly has been capturing renewed attention from investors this year. But it's safe to say that you launching gold futures in a separate gold pool has been years, or I think as I counted it, about a decade or more in the making. And I don't know how many people truly understand how important your experience in the gold market has been in shaping your thinking on the commercial need for better commodity market infrastructure and financial technology. So I would love to dive into that in our conversation today. And maybe a place to start is rewinding the clock a bit and talking about how you got interested in gold market, what was so intriguing about it to you way back when you started your company Bit Gold. So maybe you can take us back in time a little bit and tell us a little bit about Bit Gold, why did you start it and what got you so interested in the gold market?

Josh Crumb (03m 10s):

Sounds good, thanks Dave. Yeah, it's certainly a very exciting time to be launching such an innovative market infrastructure and like you said, it's, it's at least a decade and a bit on the institutional business side. It's obviously five to six years just for Abaxx. But yeah, I mean for me, I guess personally it's a journey that really goes back, definitely aging myself now, but 25 or 30 years, let's start all the way at the sort of economic and engineering foundations of when I was in, you know the Colorado School of Mines. So I think it's actually

important there. There is a bit of an irony as I got to be known in the gold market as you know, a thinker on gold or obviously building market infrastructure. But as an engineer in the late nineties at the Colorado School of Mines, I really didn't like gold at all.

Josh Crumb (03m 57s):

I was kind of brought into that worldview of put your talons into something useful like copper or aluminum or something, right and even starting my career, my first mining job was actually at a gold mine and I would say even, even some of the people on the job, maybe it's more the EPC construction side would really kind of talk about like why are we building all this just to mine gold, right? So it was quite interesting that there was this sort of societal level questioning of what's the point of gold. I always found that pretty fascinating and then when I moved into corporate development and you know, mergers and acquisitions, corporate finance, I would say the mid-aughts, there was this whole gold multiple and I am like, I work for a copper company that's trading at like six times cash flow and then you have got gold companies that never make money trading at like two times a zero discounted nav.

Josh Crumb (04m 45s):

I have always plowed it very peculiar this gold as an asset, as an idea, as something that we are always talking about and thinking about in the economy and society. So that was sort of the foundation that I had. But really when it started to come together for me when I was doing mergers and acquisitions and I would model at the development stage, say a copper mine in Zambia and a copper mine in Peru or Chile or something, right. Model a potential merger, you built your fundamental discounted cash flow analysis all the way from the ground up, right? What's the quality of the resources? What's the energy cost? Energy cost of extraction, all the commercial sides of a net smelter return and pretty much from engineering first principles from ideas of energy and information, the information and lack of information in the ore body, the energy costs.

Josh Crumb (05m 37s):

You can pretty much model the first principles of the value of an asset in really basic kind of engineering terms. Told the story before that the one part that actually made no sense to me was the currency. How in the world do we use engineering principles to manage the value of Zambian quia or some other currency. So that made me as an engineer just really have to like dive down and, and understand money. But ultimately what I did, what I solve for in those days is I was like, look, I can, I can isolate the volatility of the currency to a certain amount of labor cost or whatever. And ultimately everything else I can more or less model on BTUs of energy and so again, I had a very engineering framework of building the very first principles of energy and information. But then I, it was actually only working with you and the team at Goldman where, where it finally kind of clicked to me of why gold actually mattered.

Josh Crumb (06m 31s):

And it was going back to the work that you and Jeff Currie and probably Steve Strong and team all did around prices and volatility and understanding the volatility stack of commodities from electricity and the high volatility of electricity to natural gas, agricultural products, oil base metals, precious metals, right and the fundamental volatility had to do with things like storage, right storage and the ability to store a commodity tied fundamentally to volatility. It was through that framework I realized, okay, so, so gold is actually important because of its low volatility, right. That had me question everything that I sort of thought or didn't thought almost in religious dogma about gold. I understand that it has a commodity utility in having low volatility. Well what's the other thing in society that, you know, you try to look at as low volatility, money, currency, right. So when you are paying a wage, you want very low volatility because you've got a forward contract with that wage that you're measuring something, right?

Josh Crumb (07m 36s):

So anyways, I go all the way back to that foundation because it's very important. I feel like when we are talking at the geopolitical levels that we're talking about now and all of the layers of abstraction in our financial system and regulation and systems, you really still have to get to that first principle and gold is a commodity money in first principles. Like if you really do that work, it's not debatable, this isn't doctrine, this isn't just shared belief. There is an objective understanding of how gold functions as low volatility, money stock. Then you have to think, well if that's true, what are the practical applications of that? So anyways, I wanted to strip it all the way back down to the beginning because it's very important to understand those first principles if you are gonna try to build a system on top of it.

David Greely (08m 22s):

Oh, that's fantastic and I was thinking as you took us back to the late 1990s, that was also when gold was hitting, you know, kind of secular lows. Now we are at secular highs. In the meantime though, as you thought about the role of gold in the financial system, when you saw it as this commodity money, as you said, the low volatility asset, how did you start to think about how to get gold more into the mainstream financial system because I don't think you were alone in the late nineties. I mean, I think Greg Gordon Brown was

famous for selling off the England's Gold around that point in time. You weren't alone in thinking that why are we spending our time on this when we could spend things on quote productive assets? What got you interested in building infrastructure to get gold more into the financial mainstream?

Josh Crumb (09m 13s):

Well I think the, the seminal event and although there was obviously a run-up before it, it was the financial crisis, the great financial crisis in 07/08, right and I think that that's where gold obviously really reentered the mainstream first with the unwinding of some of the monetary policies in Japan and sort of 05 to 07 the first sort of wrinkle in the foundations of trust and that sort of the pure fiat monetary system and of course we all know what happened after, you know, oh seven and oh eight that comes down to trust, right? So I think there was a lot of trust built and goodwill from the vokal unwinding of inflation. So there was a lot of trust that these institutions could manage the money stock with low volatility. And of course 07/08 just sort of changed everything and it really, it came down to trust.

Josh Crumb (10m 04s):

And look, I am not going to take this in a highly gold bug or the way some of the crypto advocates have gone that we need to have no trustless money. Like no, you can't trust anybody. I don't think that's a healthy way to go because there is actually a lot of decentralized trust built in our current clearing and all of the settlement systems that we have built trust and where you can trust not is actually the foundation of the entire system. But I think the piece that really changed the dynamic was of course quantitative easing, right? That's what changed the concept of trust in the central bank sort of gold list construct because there really was no general theory of quantitative easing. There were basically making it up as they went along. I would argue probably still are, right? I don't know how many programs we have had since oh eight just changing regimes, changing nomenclature.

Josh Crumb (10m 54s):

This constant question is this a solvency problem or a liquidity problem? None of those issues have gone away, but when you look at gold, you know, and of course now you put the whole lens of geopolitics on top of all of those problems we have had in redefining a financial system even since then. But the thing about gold, again, it is a low volatility money stock that you can trust with or without an institutional framework and that goes back to the conversation we had on the, on the holiday. Special gold is not a good money stock just because we believe and it has tradition. It's actually not that. It's the fact that there is always another billion humans on their upward wealth journey that wants something tangible that they can own and hold in low trust economic environments. It's a piece of tangible wealth like small real estate and there's always another billion people demanding that.

Josh Crumb (11m 43s):

So I am never worried about the demand for gold because of that fundamental, you know, demographic trajectory. And then the on the marginal cost side, unless we have some revolutionary technology and energy or asteroid mining or something like that, ultimately gold is actually a very, very high energy cost. So you have got a very high energy, marginal cost, it's not free, it will never be free and you have consistent demand, right? So without trusting any central system, you know that that gold's gonna be performed well. So now we are in a system and, and this is, this always happens, right? When, when the abstractions of the financial system or global financial system become into question, gold always runs because that's a place where you don't have to rely on any of those working. And that's where obviously in an environment like that, again.

David Greely (12m 32s):

Earlier in this series when we had Sunil cash up on, I will paraphrase a bit, but he was saying something along the lines of what you are saying in that of all the currencies, every other currency is someone else's liability. Whereas gold, it's in asset that's in demand for other uses other than money. And I wanted to ask you because like coming out of the financial crisis, that was obviously a formative experience for many people in their own thinking about the basics of how the monetary financial system works. Gregor Gregersen, who we had on last week, I think also brought up these issues of the trust mechanisms in markets. One thing I wanted to get to you though, obviously coming out of that as well was a lot of interest in cryptocurrency, Blockchain, other trust mechanisms being your first company bit gold. Why did you start that? What was the problem you were trying to address with that company?

Josh Crumb (13m 22s):

And that's actually again where my next sort of journey into financial market infrastructure was around, it was exactly that, right? But if you even go back to the economic foundations from the Cipher punks and you understand that those early crypto working groups, they were heavily influenced by the economic concepts and writings from Nick Saba and Nick Saba's original paper was called Bit

Space Gold and Bit Gold was really a first implementation of these technologies that would eventually become the Satoshi White paper and Bitcoin and his, his economic writings on forgeable scarcity I think is the one. So Bitcoin was modeled to be digital gold, like from the economic foundations all the way up, the understanding of the proof of work. The proof of work was both a cryptographic proof, but it was also a mechanism to create energy cost and unforgeable scarcity similar to gold.

Josh Crumb (14m 16s):

So the first thing we have to understand about Bitcoin was it was modeled to be digital gold from day one. This wasn't an afterthought, right? That's the engineering system that that built it. I recognize that. I thought it was fundamental and transformational, but I jumped right away to the conclusion that you can never really put a world because obviously lots of people are like, oh I love cryptocurrency, let's just put gold on a Blockchain, right and this whole phenomenon of like real world assets tokenized, that's still spreading everywhere. But the work that I did sort of, you know, along with my former business partner sort of intellectually and even at the systems level back in like I think 2013 as we realized that these are both forms of commodity money, but you can't really tie them together. Wrapping Bitcoin with gold at its basic concept would never really work.

Josh Crumb (15m 03s):

The commodity itself, the trustless commodity itself in the Blockchain network only can live in the network and gold itself needs other real world trust systems. Very much like your conversation last week, all the legal systems, all of the KYC and knowing your counterparty, and I don't mean just the regulatory KYC, but you actually have to know your legal contract and counterparties are with, and then of course the trust and the insurance of the vault. So there is this whole sort of human Blockchain of building layers of trust into something like gold and to just abstract that and to try to put it on a Blockchain, I actually don't think it makes sense in that form and that's the conclusion we jumped to back in like 2013. So what we had did instead is we wrote patents and really understand how do we use the data in the distributed ledger so you know, how do you use that data that gets replicated into every block into the Blockchain?

Josh Crumb (15m 56s):

That data is what's actually valuable for a system outside of the Blockchain token world is that decentralized timestamp server or that decentralized state. So my view was you could use that decentralized state permissionless a permanent writing to a Blockchain to anchor legal agreements, to anchor settlement systems. So that's really where the first patent work that we did was how do you improve the efficiency of the gold market or any market infrastructure by using the, the real estate on that Blockchain and of course that's how Ethereum all came about through smart contracts and this concept of, you know, real estate in the account. And so yeah, so anyways, it's very important to understand those two systems. The Blockchain itself is a revolutionary form of triple basically what they call triple entry in accounting, right? It's not just two ledgers being reconciled, everybody's reconciling the two ledgers in a more decentralized way.

David Greely (16m 51s):

And I think this is a part that I would like to dive into more in that I think a lot of people go right to tokenization. I think you have always emphasized that it's really more about identity is the hard part of the problem for establishing trust. So it's not just about tokenizing it and having a trustless network, it's about identity being the key to trust. Can you walk us through your thinking on that and where it diverges from perhaps where other people are at?

Josh Crumb (17m 19s):

Yeah, for sure. So let's see if I want to strip this all the way back down to sort of a you know, sort of philosophical level as well but there is a couple other problems that I think that we have in markets. One is this idea that somehow markets are efficient, the efficient market hypothesis or that somehow there's some morality to greed is good. If we are all decentralized and competing, then the best outcome's going happen. Look, I think those are sort of naive. I think that people like Mandel Broad or Carl Popper, I believe there's other ways to understand what's actually happening in markets. I think liquidity in arbitrage basically drive markets not this concept of an efficient market. The market is a short-term voting machine and a long-term weighing machine. There are aspects of decentralization creating the right price over long term, but that voting machine can absolutely be manipulated by somebody that has more votes in the short term.

Josh Crumb (18m 16s):

And when everybody else has voted based on what yesterday's results were with a moving average or you know, some other sort of econometric bias. So in my view, we want to look at why would you want to put an asset in a very simplified form on a Blockchain if it's

going to fundamentally hurt liquidity and create problems in the system. So right now, again, I would argue that a cleared commodity model obviously that we are building, will always have more liquidity than some sort of cartoonification of finance wrapping it on a Blockchain because that wrapping it on a Blockchain means that you are really constrained to the liquidity within that system itself. Now there is all sorts of bridges you can try to do. I will bridge the gold wrapped in Salona with the gold wrapped in sort of Bitcoin anchor and Ethereum and, and we will create this completely convoluted network of bridges to try to create liquidity when ultimately the existing financial system is far more liquid because it has this thing called a futures curve where liquidity transformation can happen on a balance sheet, it can happen in the future, right?

Josh Crumb (19m 20s):

So to me it's not just that a real world asset on a Blockchain is hard to get past regulators or whatever. I think it's just a fundamentally worse way to build market structure for a real world asset because again you are cartoonifying that asset into one form as a token rather than the real complexity of the world. As we know when we are building these gold markets, gold is not just this abstract concept of an element, it's a hundred ounce bar in New York, it's a 400 ounce bar in London, the kilo bar in Asia, it's a very specific type of kilo bar because some people don't trust a certain refiner, right? So the real world is messy. You can't cartoonify it all the way to a level of a token that's gonna have liquidity. That's why cleared futures markets can gather liquidity in a way that a Blockchain never can.

Josh Crumb (20m 06s):

So that's my first sort of point I want to make about tokenizing assets versus creating a central cleared model and then the other point, you know, going back to it, so what, where does identity come in, right? So identity is super important because this is where the trust anchor comes from that. It was a great point last week when you were talking about insurance and if a bar is stolen versus a bar was lost in accounting, how does insurance come to play. All of that comes down to what I call what would be like a signature skin in the game, right? Who signed that count? Who audited that? It's all that contract law that comes down to an individual signing it and an individual has some sort of authority or responsibility, they are putting their job on the line saying that like, yes, I counted this correctly. They said yes, this forward contract, these performances, I am signing my credibility to that, right? So the foundation of trust is not just abstract concepts like regulatory and all these other institutions. It always comes down to the individual and that individual signing their identity into a contract. So in my view, digitizing that process in a more secure, trusted way than just passing things around on DocuSign became far more important to seeding trust in the financial system than trying to put something on a Blockchain.

David Greely (21m 25s):

And that took you to an interesting step, right because on the one hand people are moving, you are kind of off the cutting edge of the future of finance with Blockchain and Bitcoin and gold and then you take a turn to start Abaxx, which is kind of going back to the futures, which kind of a regulated exchange and clearinghouse. What led you to take that step to see as that being the next progression for you?

Josh Crumb (21m 51s):

You know, when we started Bit Gold, I would say that there was multiple sort of intentions there. For me it really was about the technology and building a better, better foundational level of financial infrastructure using Blockchain. Again, using the triple ledger accounting system and all of that but we really started in retail. We started with how do we use this technology to democratize access to gold? A lot of people don't know this, but I think we had the first functioning enterprise Blockchain probably five years before anyone else was still doing pilots and what was that first Blockchain? It was ultimately the way that different counterparties of a transaction signed a transaction in a central. So again, it was using their identity and their authorization to sign the transaction. So you had Brinks basically co-located a server and the way the Brinks signed that, yes, the gold, we have counted it, we have shown that it's there, we are going to ping the server and immediately update your ledger.

Josh Crumb (22m 44s):

There was, you know, one of our bullion bank dealers and when their fixed transaction came through, it would signal a ledger update. So we didn't have to reconcile ledgers. It was all a central ledger that we built. It was custom for the system. It wasn't Bitcoin, it was owned custom ledger that was pinging everything. What I quickly learned is look, by using this, by creating that centralized wholesale liquidity and trust, we could offer the cheapest gold vaulting system in the world. It was the cheapest way to buy and sell gold far cheaper than any bank, any ETF. It was an ideal system that had more trust and lower cost and it was sort of the perfect lower risk but also lower cost. So you would think that people would just rush into the door, right? But that's the problem. The real world is quite messy.

Josh Crumb (23m 31s):

And ultimately we got lost in the trying to onboard customers get lost in trying to advertise a system that's really good for the user and you get digital ads from, you know, CFD providers that are really just gambling sites and I can't ever afford to digitally online market versus somebody that's business is to steal the customer's money. My business was much lower value to the shareholders, you know, and that we were actually helping our customers. That's another whole sort of problem I have with the financial and digital space is trust is not light rising to the top. The best products are not rising to the top. In fact, in many ways the worst product is because they are taking more from the customer and therefore can afford to, to have manipulative advertising more than anybody else. We have some real problems in our digital infrastructure as well as marketing and structure.

Josh Crumb (24m 19s):

But back to how I made the leap from my view, I was very interested in the technology and how we could really get this to scale. Starting in retail we didn't think was the path we saw where Bitcoin was headed. Bitcoin was definitely dominating the conversation and my view is, look, if we are really going to change the settlement and clearing structure with technology, I have got to do it at the core of the system and as I said before, I believe a clearinghouse is a better risk management, a better market liquidity system than a Blockchain but the big problem that that clearing settlement has is that it has multiple days to settle. So for me it's how do you speed up trust but maintain the more rigorous structure of the existing clearinghouse structure and what led me to build Abaxx was taking the learnings from a much more small retail market but building the best infrastructure out there. How do we do that at a larger scale in a clearinghouse and then, you know, as you know, our view was let's not start the business competing against existing markets, but let's look where there is problems in markets that the big exchanges have not addressed and let's go after those first it was always a combination of technology going after problems that are not being addressed in the existing infrastructure.

David Greely (25m 36s):

And now as you said, you have launched Abaxx Exchange and Clearinghouse last summer, introduced nine listed futures contracts from LNG to environmental products in the carbon space to battery materials. And now you'll be listing a gold futures contract for delivery in Singapore. That will be the 10th listed futures contract at the exchange. So now you're kind of back to where it all began again and so I wanted to ask you why Gold now? Why in this way?

Josh Crumb (26m 08s):

We always had on the list or I had on the list problems, just going back the days working with you and, and Jeff Currie at Goldman. Some of the market structural problems that I saw or we saw was LNG, the nickel market, obviously the emerging markets like carbon and battery metals. What really gave me the idea that gold also had had an opportunity was what happened during COVID and the pandemic and the first time that the EFP, the difference between a hundred ounce bar in New York and a 400 ounce bar in London that blowout immediately put gold on our list, there is something else to be done there. So again, it, it always starts with a problem rather than just going in and into a market that's already being relatively well served. If I just look at the order of priority, the one thing that gold, we weren't able to launch gold right at day one, even though it's on our list for a long time, was the spot market aspect was unlike our other futures markets because we're also launching a central limit order book on spot gold in a warehouse or in a vault.

Josh Crumb (27m 10s):

So that actually had more infrastructure to build than just the futures. Otherwise we probably would've listed the gold future before. But ultimately it's also, and I know you talked already a lot in the previous episodes about this, but it's really the gold is the first market that can really bring all of that together, right? Like a new spot market in vault, you know, very much like we built at BitGold you know, many years ago tied to a futures market that's a regulated clearing house and then the third piece, you know as you know is we also want to use gold from that spot market or in that vault as collateral in the Clearinghouse but collapse the settlement time and the clearing time much faster by using this digital signature technology. So the gold market, again, it's always been on the list, it's always been core to the vision and now it kind of jumps from being our, our fourth market to our first fully integrated market of the future with spot real-time digital collateral as futures all in the same place. So yeah, I mean it's quite exciting that this will be the first sort of full stack innovation from the ground up from technology to the way that the market functions.

David Greely (28m 18s):

We all know that right now gold is having a moment, it's capturing a lot of attention and you are introducing this first full stack application into the market right now. How are you thinking about the current macro environment for gold?

Josh Crumb (28m 34s):

I have done a lot of writing about this over the years and conversations and podcasts. I think there is a lot of timestamps that my view was pretty much very, very predictable. So I think that we have got an urgency to get our system to be kind of at the table of conversations to solve some of the, some of the issues out there because I always kind of saw this happening and I even go back to some of the conversations you know, around, you know, Zoltan Pozsar's paper around Bretton Woods III and all of that. Like that to me was the inevitable path we were on really since 2008. Like I said, there is no general theory of unwinding, quantitative easing. I thought you ultimately what would always have to get to this point where we have to re-anchor some trust in the global system through gold. Now I don't think it's only gold.

Josh Crumb (29m 20s):

I think that's the other piece of it that that's actually very important to understand. The reason why gold works as a measurement tool, as a representation of money is because it's so highly correlated with energy. At the end of the day it's energy that's really the lifeblood of the economy, well energy and information but energy itself is the much larger money stock but you know, as we discussed at the beginning, energy can't be stored the same way going all the way back to Kane's and the Bancorp and everything else, right oh, if we could just take all commodities and make that money and not just gold, that would be a better system. Well ultimately by using gold as a substitute for all commodities because they all have the same energy basis, that's sort of what currency is. Currency really is just a representation of energy, energy and economy across borders.

Josh Crumb (30m 07s):

So I always thought that gold was gonna be a piece of the re-anchoring of these monetary systems post quantitative easing. But I actually don't think gold is the most important piece of that re-anchoring. I actually think it's all commodities and particularly energy and you know, and that was another reason why we have liquefied natural gas at the core of the exchange, not just gold. I actually think LNG I actually think it's already there. I think LNG is the global commodity of energy balancing around the world very much like oil was for many decades. I think LNG is becoming the energy basis of the global economy and the main reason is because oil is becoming a byproduct to the gas market in the US. Once oil becomes a byproduct, you don't have the same level of control as you had with OPEC and all of the other geopolitical events before. We had Jeff Currie on late last year and Jeff was already saying that like the trading of gas markets, you know, particularly in Europe is already becoming more important in the trading of oil in many ways. I do think that energy is the more important re-anchoring of the monetary system than gold. But gold will play a role and energy will be a key part of it as well.

David Greely (31m 17s):

It's important for people like you keep mentioning that there is energy and there is information and I know a lot of people when you talk with them about Abaxx, they often think about the market infrastructure piece and the financial technology piece as separate pieces. I know in your thinking it's kind of all one thing, it all kind of comes together. So I want to go back to that financial technology piece and ask you like how does that fit into the picture? So if we have gold kind of capturing that energy piece, that energy value, how does the financial technology come in to bring that information component and how do you bring them together?

Josh Crumb (31m 54s):

Yeah, so the information component really ties back down to that trust component, right? So going all the way back, you can sort of break money technology into two things, right? There is the actual technology of what's the unit, what's the measurement, what are you actually holding in your bank account at the core of bank capital, that's a monetary technology. Separate from that you have the communication technology and the communication technology from the telegraph to the paper check to the ATM machine to PayPal. These are communication and messaging technologies that sit on top of a fundamental trust and infrastructure technology. I think it's important to separate the two and like I said, a clearinghouse and the way clearinghouse functions to spread and manage risk in the market is the fundamental technology and then the information side is how fast can you clear and settle the information technology layers onto the fundamental aspect of the clearinghouse.

Josh Crumb (32m 50s):

And so to build a system that's better in my view than wrapping everything into a token, the better thing to do is just speed up the settlement of a core clearinghouse and that's all the post-trade stuff. So when I am talking about the trust side, again that's all of the, the ledger reconciliations, that's the payment instructions, contract has been finalized, insurance has been signed, all of those is the sort of the post-trade trust infrastructure. That's one side of the ledger but the other side of the technology ledger and the information ledger of course is the pre-trade. That's the messaging cues, that's the high frequency trading and look, we put billions of dollars into

that technology. The front end of the market is hyper. You can't even envision how fast front end of the market is but they're still taking all those front end messages and then ordering them and queuing them to an actual post-trade where the real hard piece of the trust comes in.

Josh Crumb (33m 42s):

That's the next wave of technology that needs to improve the market and so yeah, again it's an information problem, but this one, the information is much more complex, right? The information of the price, the order, sure there is some complexity and logic to what type of order I am putting into the queue. There is some complexity there, but it's nothing like the complexity of the post-trade and all of the different legal signatures and the long form contracts. There's so much more complexity in the post-trade information than there is in the pre-trade. But that's ultimately where things like multi ledger reconciliation, identity skin in the game and that sort of fundamental principle. But then also things like large language models and artificial intelligence will also be able to do a lot of the heavy lifting, much faster of reconciliation processes. Whether it's knowing your counterparty and onboarding or checking documents or checking legal documents. All of the things that we're basically doing by hand in spreadsheets and emails will end up being in multi-agent frameworks where all that stuff just sort of rips through a network and gets automated almost as fast as those order queues on the pre-trade. So all of that technology is coming and it's coming to the market in ways that I think will have pretty profound impact on getting a true price at the core of the market.

David Greely (35m 00s):

And I hesitate to use the phrase end game because I know you are always thinking about three or four more things, but listening to you, I have often heard you talk about the near term end game in terms of what you call full digital title. So I was hoping you might be able to talk us a little bit through what exactly do you mean by full digital title and you know, how would that make say the gold market better?

Josh Crumb (35m 22s):

It's a being able to speed up that trust to be able to move that gold title with very robust legal and counterparty knowledge to move from t plus two days in settlement. If I am sending you this warehouse receipt, this vault certificate or warrant, you know, depending on your terminology, instead of having that couple days to make sure both systems can all reconcile, how do you basically do that in real time or near real time in like 10 minutes of each person's group of agents ripping through and verifying everything, right? Like the way a back office would? Now what that means is that that title can move through a counterparty network without a central authority. It's not just, you know, relying on Abaxx or DocuSign or ice trade docs or any other sort of centralized system to verify that trust. But the full digital title aspect allows that title to move between a counterparty network.

Josh Crumb (36m 18s):

It doesn't just rely on one centralized Blockchain or one centralized cloud. That's the idea and then once we can move commodities that quickly, the title and ownership of a bill of lading or warehouse receipt to be able to move that through a counterparty network, basically perfect speed. Now you would get away with a lot of the infrastructure that we needed in cross currency settlement. I used the example of if I can take an LNG cargo and take my bill of lading and use a full digital title as collateral in the clearing house, I can then sell that forward and in finance and hedge that cargo using the futures exchange in the clearinghouse and the buyer can post their margin in gold title and then once they get to the settlement, anyone can settle in any currency they want. So we have done away with the currency in the middle of the system.

Josh Crumb (37m 07s):

You may not need gold for anything but to post margin in real time and then you don't need currency in the system until the final settlement. So I think that's where the international commodity market will go. There's this whole race to figure out if we can have trade finance and other currencies is was the Euro system going to be the collateral or the Renminbi or you know, any other system an SDR maybe from a World Bank like no, I actually don't think you need that. I think you'll actually use commodity commodities at the core of the system for that margin and that collateral until you get to settlement in whatever currency you want. I think that's what the opportunity for full digital title does. But then the other piece of it, so that's just the existing market and what it's doing today, which I think can be done much more efficiently with a commodity title than having to first do a repo for some treasuries to post to the clearing house, or maybe not even treasuries, you know, posted for cash in a repo to cash into the clearinghouse.

Josh Crumb (38m 01s):

So there is all these steps to get your trust of that future transaction to sort of come together. So I think that digital title will be able to streamline all of that. But the next step from there actually is again what we have talked about is smart commodities, having that digital title, there is things that we can do to be able to have more data than just the pure grade and location. You can have all sorts of other environmental impact or other data in that commodity and again, that will all happen with a digital title, has much more metadata, much more persistence of data all the way through the supply chain embedded into the digital title. So again, there's multiple layers of getting this technology right, getting our messenger out to market, getting our signing tool out to market, and ultimately our identity and digital title as that pulls it all together.

David Greely (38m 53s):

Well Josh, thanks for taking the time to walk us through your own experience in the gold market, what you are building and why and before I let you go, I wanted to ask you, given how central the gold market has been to shaping your thinking on the role of market infrastructure and technology and making markets better, making them smarter, how are you thinking about the role of gold in our financial system in the future?

Josh Crumb (39m 19s):

If you can get the collateral side right, if it can be hedged and moved as fast as you can move treasuries today, it will, in my view, it becomes a higher, better quality, high quality liquid asset as collateral. I think your first episode talked a lot about that. There's two aspects of being good collateral. You know, one is the actual fundamental soundness of the asset, but the second is just the speed at which the speed and liquidity of which you can utilize it. How fast can you trade it? How easily can you hedge it, hedge against other currencies? I think the fundamentals for gold versus sovereign bonds kind of speak for itself all throughout history. There is not a single sovereign bond over any real period of time that's outperformed gold as an asset. I think the quality of the asset has never been in question, but it's the liquidity and the ability to move it around the financial system that's been the problem. So if we solve those two issues of liquidity and portability and fungibility, I think gold just becomes a superior asset, particularly in global trade. So look, I think it's already happening now at the kind of central like abstract to the central bank layer. Obviously there is already been central banks rotating out of multi currencies, US dollars and into gold as just a central bank sort of core collateral. But I think even at the trade level, that will start happening sooner rather than later as well.

David Greely (40m 41s):

Thanks again to Josh Crumb, Founder and CEO of Abaxx Technologies. We hope you enjoyed the episode. We will be back next week with another episode of Gold for the 21st Century. We hope you will join us.

Announcer (40m 55s):

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