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## Days of Futures Past | Episode 10

Josh Crumb, Founder &amp; CEO, Abaxx Technologies

**On the final installment of our *Days of Futures Past* series, we welcome Josh Crumb, Founder & CEO of Abaxx Technologies, into the SmarterMarkets™ studio. Host David Greely sits down with Josh to discuss his vision for building smarter markets and why the future of smarter markets begins with launching a futures exchange and clearinghouse in Singapore.**

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**Josh Crumb** (00s):

I see some of the calls for more, call it bureaucratic or government-level intervention into markets. Putting the thumb on prices. We have just gone through 10 years of what I would say is a financial put, you know, fed financial put on markets, and it looks like more and more people are calling for a fiscal put at this point where, okay, the energy transition looks really hard, so let's just have governments do it, right. And I just don't see a time in history when that worked. I think we need to fight for markets, and I think we need to have better markets to actually solve these challenges. So I think there's a bit of an ideological bent to what we're doing, but I think that's why it's so important. I just don't think we're in a period of history where we can outsource the hard work of markets to probably interests that don't want to see that transparency.

**Announcer** (45s):

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 you better benchmarks, better technology and better tools for risk management.

**David Greely** (01m 26s):

Welcome back to our final episode of Days of Futures Past on SmarterMarkets. I'm Dave Greely, Chief Economist at Abaxx Technologies. Our guest today is Josh Crumb, Founder and CEO of Abaxx Technologies. We'll be discussing his vision for building smarter markets and why the future of smarter markets begins with launching a futures exchange and clearinghouse in Singapore. Hello, Josh. Welcome back to SmarterMarkets.

**Josh Crumb** (01m 52s):

Hey Dave.

**David Greely** (01m 53s):

It's great to have you here with us. Thanks for joining us. I really do appreciate you taking time away from building the SmarterMarket's vision to come here and talk with us about it. I should let any of our investors who are listening know that of course, this isn't the place for updates on the progress of Abaxx Exchanging Clearinghouse, which is nearing launch in Singapore, but those will be provided through other more appropriate channels, but with the launch of the exchange and clearinghouse nearing, I do think it's a great time to talk with you about the important lessons that you've taken from market history, how those lessons have shaped and influenced you and your work in building market infrastructure like you're doing within Abaxx and I'd like to begin with asking you a question that I've kind of wondered myself for quite a while, and that's about when you became interested in building market infrastructure. You're a mining engineer by training and you began your career in the mining industry. So what in that experience, first led you to develop such an interest in commodities, futures, markets, and their infrastructure?

**Josh Crumb** (02m 55s):

Thanks, Dave. Yeah, well, I guess I, I probably don't have the academic background as, as someone of like yourself from the Chicago school and in, in economics, but I did take a mineral economics master's at the Colorado School of Mines as well. So I'd say I had a decent theoretical underpinning but I would actually say that the place that it really started to click for me is, you know, it's always those real world experiences and understanding how, how these things really work. Not in the supply demand charts, but what's actually happening when physical liquidity from a, from a mining company say, hedging on in the futures curve, how, how we utilize

these markets. So for me, I, I really got to know that piece of it. Back in 2007, working for a mining company in, in 2008, going into the financial crisis, we actually had to restructure some debt based on some of the liquidity provisions of rapidly changing commodity prices.

**Josh Crumb** (03m 47s):

And as part of the syndicate of lenders for lenders, basically were given hedging programs that we had to, we had to execute and in many ways it was almost a sort of a captive transaction and I do remember working with one particular European bank and they were quoting us prices, you know, 10, 15% off the market, and there really wasn't anything to do with it and I just remember just thinking how inefficient the whole structure must be and, and why we were in that situation and just thinking how hard the, at the time, operating a mine in Portugal and how hard it actually is to get that metal out of the ground and the risks and so to me, like everything, I just had to understand the system and, and understand a way to way to do it better.

**Josh Crumb** (04m 30s):

Why can't there be more liquidity, more direct access, why were we in that situation? So I would say that was the first sort of visceral understanding of how, how these markets actually work and why. But I think a lot has changed, of course since then, both in the industry regulatory, the knowledge of commodity hedging, you know, more broadly. So, I think a lot is advanced, but that that was definitely the time that I, I really started to think is there a way to do these markets better?

**David Greely** (05m 00s):

Yeah, I would imagine a 10 to 15% inefficiency is something that would really get under the skin when you kind of look at the margins that are available in many projects. That's an awful big shift off the curve. I'm curious, you said that was around the 2007, 2008 time period. Was that related to some of the, the crises of that era, or was, as you delved into the, was it a more structural problem in those markets?

**Josh Crumb** (05m 24s):

I mean, I think it would probably was more around financing cost of capital liquidity. I mean, I remember, you and I both worked for Goldman. I remember having an interesting meeting, and it wasn't, again, I don't want to name names. This wasn't a Goldman hedging program or anything, but I do remember having meetings in that 2008 time period where, where even as a relatively small cap mining company, questioning the, the counterparty risk of a JR and or some of the banks at that time. So, so there was certainly a lot going on credit markets that that wasn't necessarily the inefficiencies of the market. But at the same time, again, it's about data transparency and access to markets. I mean, we see that even in the precious metals markets and some of the work that Abaxx has been doing, where if there's anything that should be well evolved and, and frictionless at this point, it's the gold market. I mean, how long have we had gold markets about the, the simplest commodity you can deal with. But at the same time, even that market, it's not everybody that can access the center of the market. There's still so many different layers of risk and counterparties, and not everybody has access to clearing physical markets, for instance. So I think that again, that the supply and demand charts and textbooks, that's not really how markets actually function when you get down to the incentives and the infrastructure of markets.

**David Greely** (06m 37s):

Yeah. And one thing you've always said that that's always stuck with me is that when you look at how markets develop, how they grow, how hopefully they become more efficient and more transparent over time, that the growth and historical development of information technology and markets has always been intertwined and interdependent in a certain way. That new information technologies enable innovation in the way we structure our markets and the commercial needs of markets push forward, the development of new technologies, and this probably goes back to the invention of the telegraph and before. So I was curious in your own view, how important has this dynamic been historically, and how important do you think it is now?

**Josh Crumb** (07m 23s):

Yeah, I mean, the information technology is everything. You know, as the price signals are really about data and messaging and how many messages can you process at one time which is, you know, ultimately gets your, both your information liquidity as well as your transaction liquidity as more information lowers, lowers marginal transaction costs. So I think you can't ever separate information technology and the innovations happening there with the innovations in in markets and so, I mean, even going back to something as simple as the spreadsheet or email, what did that do to change derivative markets and very complex calculations, you know, would we have the same markets if those were all being done by hand, so not only the connectivity to say a central limit order book,

but just the way we process information to manage risk, it's like anything, look at your car engine from 30 years ago and how simple it is compared to the complexity of a modern engine.

**Josh Crumb** (08m 22s):

I think most of our engineering systems go through that, that level of refinement and risk management is, is no different. So absolutely, I think they're always intertwined, but what I would say, what Abaxx thinks a lot about in, in that technological innovation, again, there's two pieces, you know, call it the, the front end and the central limit or order book, obviously with high frequency trading and moving away I think a lot of the former guests talked about probably one of the most memorable parts of, of many people's careers was that shift from the open outcry, floor trading and very local markets to being very international, moving at the fractions of milliseconds. So I think there's been a lot of ground covered in, in those types of, in innovations on essentially bulk messaging of data and transactions on the front end.

**Josh Crumb** (09m 09s):

But what, what I would say, particularly in the commodity market you look at is not a lot has changed in many ways on the backend, the way we actually move collateral move settlement. I think the risk analysis has, is certainly always progressing with information technology, but the actual settlement and clearing side of things and collateral side of things, I think there's still a lot of innovation to be had there and as innovation advances in, in that area. So you really do get to, you know, near real time risk management and settlement finality. I think everything can change again. So as you know, there's kind of three themes on why our team formed at Abaxx around bringing back markets to be more physical, you know, the increasing shift to Asia. And the third piece is, is the technology side, particularly on the backend in collateral and, and, and margining and risk management. I think there's a lot of innovation still to be done there.

**David Greely** (10m 03s):

Yeah. And before we dive into some of those tech technology issues, I'd love to ask, because, you're building Abaxx Exchange and Clearinghouse on a next generation technology platform. You're doing it in Asia in Singapore, but in many ways it's a traditional fully regulated commodity futures exchanging clearinghouse like people would be accustomed to seeing like a CME, like an ICE. So I was curious why is building a traditional futures exchanging clearinghouse foundational to building out the rest of your SmarterMarket's vision?

**Josh Crumb** (10m 35s):

Yeah, that's, that's a great question and again, we always have these, these two sides of kind of the tried and true tested way of building benchmarks and building particularly commodity markets and then the, the other piece is the poll of innovation, but where again, where I think this is, is leading is that in many ways I might even make a little bit of a provocative statement that some of our financialization and the growth that we've seen in the derivative industry, really over the last probably 30 years at least, and maybe some of the hypergrowth over the last 20 years, maybe leveling out a bit in the amount of, and the types of derivatives being traded as we've got more and more financialized in these markets. And what, again, what I think it's missing, the real risk management for what the real risk are today, looking at the energy transition, climate change, geopolitics, the, the realignment of, of supply chains and moving from just in time supply chains to just in case supply chains, all of that has a, has a very important risk management tool and the actual physical goods that are moving in our economy, not just the financial flows that are moving in the economy.

**Josh Crumb** (11m 39s):

And some of the previous guests were talking about some great points on how, how the market moving from the out open outcry, some of the, some of the regulatory changes that happened in the two thousands, it led to a significant internationalization of these exchanges where 30%, 40% of your volumes may be from overseas and not only just local in the pit, but not even local in, in the region or the country where these exchanges operate. So we've seen this explosion and innovation and in internationalization of liquidity, but at the end of the day, a commodity needs to be produced and needs to be stored, and it needs to be transported before it can be consumed. So you don't have that, that same level of high speed innovation of, of moving bits as moving atoms. So we think that this back to the futures approach is all about doing the things that are important in, in price discovery and liquidity of physical markets, physical supply chains, particularly as they get stressed and challenged, but then bringing the most information to market as possible to create the best markets.

**David Greely** (12m 39s):

Yeah, I find it fascinating the putting that in the context of the interdependence of the market and the technology because it feels like almost sometimes we get lost in the technology and we forget the market. I know sometimes I've heard you remark like certain markets, I won't say, which kind of become an abstraction of an abstraction, and I can hear the engineering you coming out, kind of getting back to the physical piece. So I'm curious, when you look out at today's commodity markets, what do you see as the big commercial need that's out there that you're trying to address?

**Josh Crumb** (13m 10s):

Yeah, absolutely. Well, again, I think it's fundamentally that that price discovery we've just spent the last few days at, at I think every three years, there's a global LNG conference that's held, so LNG 2023 in Vancouver, and I think three or four of the first five panels people talked about what is the price of LNG, nobody knew. How is it that such a geopolitically important, literally you know, keeping European lights on the winter last year. I mean, I think the physical supply chain industry did an amazing, amazing job of diverting those flows to Europe in a crisis last year. So as much as these, particularly, the international energy companies have been kind of made the villain in the energy transition.

**Josh Crumb** (13m 55s):

Ultimately they did an amazing job of sort of getting ahead of the crisis and, and diverting supplies. But that said, as we know kind of in the, the engine room of all, all that was happening during that time, there was some incredible risks that were happening in, in the volatility and the prices of, of the gas markets and multi-billion dollar margin calls happening, you know, shipments that didn't happen because they couldn't get insured, they couldn't hedge. So as, as much as the industry did a great job of, of averting a crisis, you could see around the edges, the financial side of that. Every physical supply chain going one, one direction is a financial supply chain going in the other direction and I would say that the physical supply chain did better than the financial supply chain in that example, which again, just proves out the model that we need to always be innovating on the financial infrastructure as well.

**David Greely** (14m 43s):

Yeah and I wanted to ask you about that, what does the commercial market, that physical market that kept things running, kept the lights on in Europe last year? What does it need from some of our technologies. Or is it not really a technological answer? Is it a tried and true traditional answer that we need benchmark commodity futures contracts or is it both?

**Josh Crumb** (15m 03s):

Well, I think it's a traditional answer, but it's really the market coordination issue, right. There's no one party can have a silver bullet here, you know, it's even the work that we've done around our LNG contract specs that took four years and, and hundreds of firms and many, many of their legal teams reviewing the specs, can we really have convergence. Is this the right market structure and that's just the contract and then you get into the actual infrastructure of all that needs to happen, the flow of funds, the settlement, the regulatory, again, one person can't come forward with a solution. It's a coordinated infrastructure, you can't build an interchange without actually connecting to the existing roads and so that's a big part of the job that I think sometimes gets under recognized when people are looking for quick solutions, is that the market coordination problem is probably more challenging than the surface level solution.

**David Greely** (15m 54s):

And I was curious because in the past you've built other market infrastructure companies you know, gold money is one that comes to mind and I'm curious, what did you learn in some of those earlier efforts that are reflected in what you're doing now with Abaxx and what did you have to learn the hard way along the way while building Abaxx?

**Josh Crumb** (16m 14s):

Absolutely, so I think the first thing that we recognized is we had some pretty great software very, very quickly and the amount of work we had to spend on, on legal and regulatory versus the software was just orders of magnitude, right. So again, it's more than just the software. It's how you actually operate with trust in these, in these markets and so specifically looking back at what we were trying to achieve and what the team was doing at, at, well, it was actually called Big Gold before we acquired the gold money business. Really, the piece that we were looking at is the physical settlement of, of gold and how you actually create a market around vaulted gold kind of in the backend. So although the business kind of went in a very retail oriented direction over time, we really built infrastructure that could have been scaled to me, much, much bigger institutional players, but the business chose to go down to more of a retail where the innovation in the backend allowed you to have lower pricing tighter spreads to the customers on the front end.

**Josh Crumb** (17m 18s):

But it all started with that, that infrastructure innovation and even I think we originally wrote the first patents on some of the Blockchain based settlement of, of a physical commodity back in like 2013. So I think I've just past the 10 year mark of being in that the backend, trying to look at better ways of physical settlement again, and all of the physical information, the legal, and the regulatory ways to do that.

**David Greely** (17m 44s):

And do you see some of those that, that work in the backend, that technology, do you see a strong need for that in the broader commodity futures markets?

**Josh Crumb** (17m 52s):

Yeah, absolutely, absolutely. As I mentioned before, a physical supply chain, global supply chain these days is a financial supply chain going the opposite direction and if you look at even the collateral that's being used in the clearing houses globally, you know, I think there's somewhere around a half a trillion in initial margin posted on the various global clearing houses about 40% of those assets are, are US government securities and bonds. So the market is still very much a very global but very reliant on one particular market functioning well, and that's the US treasury market, and I don't want to necessarily get down any rabbit holes here, but of course there's been a lot of talk the last few years, particularly in Asia of trying to get away from that over-reliance on, on US treasury markets as the reserve assets for global finance and commodity trade in particular.

**Josh Crumb** (18m 47s):

So I do think there's a lot more innovation to be able to actually use these physical commodities and have a proper offset of your hedge. So, so if you think about it in the, in the US treasury market, your collateralized treasury is perfectly hedged with your basis hedging on your futures, where they're both essentially financial and immediately converge but in a commodity supply chain, it's very, very different, right. Take that LNG cargo, we were talking about trying to get financed into theoretically sky high gas prices in Europe, but couldn't get financing for that shipment because what is actually happening first that LNG cargo is likely gonna get repo financed and then you then you have to post again, US government securities as collateral to a hedge and you've always got a number of financial players sitting between the physical long and the financial short and we think that there, that there needs to be better ways and, and more efficient ways to do that, particularly in Asia when you're increasingly trading Asian-based commodities on the supply side for the demand side and yet you've got this somewhat messy global financial system sitting in between to make that happen. So again, I think there's a lot of innovation that can happen there around, being able to properly pledge a bill of lading or use your actual underlying physical cargo as collateral in these trades.

**David Greely** (20m 06s):

And going from one potentially messy system like collateral to another potentially messy system is, of course, we've talked on this podcast a lot about the energy transition and trying to get investment into greener ways of producing the copper, the nickel, the battery metals that will need to affect that energy transition. Do you see that creating a pressing need for technology as well that need to be able to distinguish commodities. It's almost like a de-commoditization of commodities that those that are produced in a more environmentally responsible way can be priced differently from those that aren't?

**Josh Crumb** (20m 44s):

Absolutely I mean, I think that's a challenge that certainly needs to be overcome. As I have said probably in some other, other venues, this next commodity investment cycle, we need to avoid the race to the bottom. Naturally, the way that a buyer and seller of last resort, you know, the type of benchmarks that we create works is the cheapest to deliver mechanism and a lot of your more premium products, whether it's location or grade, are always generally separated out by, by some sort of basis in the physical, physical market. So I'm not saying that we need to totally throw out the cheapest deliver benchmark, you know, type market. I think that's still very important. But what we do need to do to allow that, that basis to widen on better, cleaner projects is certainly we just need more data. We need more information.

**Josh Crumb** (21m 29s):

We need more information at the point of say in the exchange for physical process in a commodity futures exchange where you actually close out your futures position rather than going into the delivery window and you exchange your position for a bilateral physical trade, we believe that a lot more data should happen in that transaction so that the supply chain can constantly discover, what are

those differentials? What does a cleaner mine get paid a premium for you know, because right now there's so many layers to this complex global supply chain that that data gets lost very quickly and again, academically looking top down, theoretically you can, you can try to sort out some of these problems, but in the real world where you take, say a copper concentrate with many metals that are both byproduct credits and penalties that actually can't go to a smelter before being blended with another copper concentrate.

**Josh Crumb** (22m 21s):

And then once in the smelter, you don't, these aren't, you know, small batch microbrewery style brewings, this is, you've got to throw everything in there, some scrap everything that, and you'll keep these smelters full and keep them running so it's not so easy to trace the original, original place and then, then you get to the refining and the wire rod manufacturing and by the time you're in an electric vehicle or an electrical component, there is, it's, it's very hard to say batch process all the way from a mine. So there's a lot of data, there's got to be a lot of systems of, of passing that data through the supply chain and that's, again, some of the things that we're working on the longer horizon. But first it's getting the data to the market. I think some other, other solutions more people can come up with some interesting solutions for pricing this, but first you have to have the data.

**David Greely** (23m 09s):

I'm hearing something in, in some of your remarks, I want to ask you about it because you made the comment going back to bit gold that the technology was kind of the easier part. I don't want to say anything's easy, but the, the regulatory that coordination the legal, that was harder at that time and I'm kind of realizing a lot of what you're, you're doing is trying to make better coordination within markets and first that requires coordination of building a company and I'm curious, when you look at the establishing that coordination, is that often the harder part than the technology piece because I think we often focus on the technology bits and say like, oh, that's innovative, but from your experience as an entrepreneur and a company builder, where do you think the real effort goes in?

**Josh Crumb** (23m 56s):

All of the above.

**David Greely** (23m 58s):

Good answer.

**Josh Crumb** (23m 59s):

Not that it is easy Dave, but I think, again, taking that engineering-first principles approach to things, first you have to identify the problem, right. You've got to lay out everything on the table and, and understand where, where are the bottlenecks again, whether it's competitive reasons and, and commercial realities that become the, the challenge. Is there a lack of interest in coordinating. Is there a lack of interest in transparency. I'd say often times yes that becomes the bigger challenge. Again, there's a theoretical world where all of this data is open and becomes a public good. That's the, call it the positive externality of markets and, and liquidity is that open information and lowering marginal transaction costs but you know, there's, there's a lot of education that's needed.

**Josh Crumb** (24m 45s):

There's a lot of open sourcing of ideas and refining and, and trying to find problems within a community. Of course that's a big reason, as we've talked about before, it's a big reason why we do the podcast as well is to lift the hood a little bit on this complex engine and bring bring more ideas and bring more collaborators to the market. So that's been a big piece, right. There's the market coordination side on the commercial side, there's the market education side that we do with SmarterMarkets, and then there's the actual operating and development work that we do and yeah, the, the software piece, they're all, they're all complex.

**David Greely** (25m 21s):

Well, and one thing we've been trying to do in this series that thank you for coming on to, to wrap it up in our final episode, is to look back at the history of commodity futures markets and exchanges and try to see what lessons stand out. So we neither have to reinvent the wheel or repeat the mistakes of the past and it's been fascinating to me how many, how many things seem to happen over and over again and how, like nothing's really new, but it's a, when you hear from people who are in the markets like Michel Marks in the late seventies and eighties, you hear echoes of that across what we hear today and so I was curious if there were certain lessons or dynamics that happen in commodity futures markets that stood out to you and you said, Ah, that's one that I want to work on?

**Josh Crumb** (26m 14s):

Yeah, well, I, I think, I think the nickel market is, is definitely one of them. I was working with you back in Goldman in what was it 2010, kind of the last time we had a bit of a hiccup in the nickel market and I always, I identified that this is a market that needs more work, particularly as we shift, very different markets the amazing innovations that have happened in the pig iron and ferronickel space in, in stainless steel being very, very different than, than what's happening in batteries and highly refined nickel products. So in many ways, it has the same underlying element, you know, somewhere in the raw material, but these are completely different supply chains and in many ways, and we've seen, some of the trading firms and clients that we're close to saying things like the existing nickel markets are not fit for purpose.

**Josh Crumb** (27m 05s):

So the nickel one is one that's always, always drawn me in to believing that there should be other better solutions but yeah, I mean absolutely, I mean some of the stories of the, the old potato market, which you mentioned was very similar, right, you had Idaho potatoes that couldn't be delivered into a main potato contract. That sounds awfully similar to what, what just happened in the nickel market. So I think always trying to think ahead and having, again, the best information, the best people at the table that can identify those and work out those risks in the system.

**David Greely** (27m 37s):

Yeah, I thought that was a great parallel. Like, I hadn't really thought through that potato contract issue in the late seventies, but to realize when Michel started talking about it, it was like, oh my gosh, this sounds exactly like what happened with the LME and in some case, I think we often think of financial markets as being these big centers of innovation, but to a certain extent, you made me think of this when you brought up pig iron. The physical markets have actually been innovating very quickly and going from the traditional nickel market that was centered around nickel, that was primarily used for stainless steel to a nickel market that's being primary source of demand growth will be for batteries and as those innovations occur in those physical markets, our financial markets aren't always keeping up and that has real consequences and I wonder is you think that's something broader than just the nickel market or is that a dynamic that you see more broadly?

**Josh Crumb** (28m 28s):

I think it is a broad, a dynamic that we see more broadly. I, I think some of the, the rigor and, and sitting, sitting with the physical commodity traders and understanding how they, how they do business and, and what tools they need. I do feel like maybe it was just a lack of commodity cycle for the last decade where the big exchange groups probably put a little bit less, less focus on, on some of these challenges. And maybe we have a bias, given that Abaxx really is a team of commodity focused executives where we're, you know, kind of hyper-focused on, on these specific challenges but I do, I do think that there's been some, you know, that the touch with the physical market has been lost a bit in, in financial markets.

**Josh Crumb** (29m 06s):

And I think that's a broader trend that again, we hope to reverse and, again, like thinking about the period we are in, the time of our global geopolitics, I mean, we're at a very scary and dangerous time right now and the one thing that we, that we all share is the shared planet and these natural resources and so even the talk of multiple financial systems and currency zones splitting or fracturing at the end of the day, they're all still gonna need that, those underlying physical commodities and absolutely excellent conversation you had on the last episode talking about the connectivity we build between cities and between people that add a lot more dynamic complexity than, than just the nation state as a whole.

**Josh Crumb** (29m 52s):

And that, you know, we typically don't unwind these information supply chains or physical supply chains. So how do we use the market and how do we, how do we keep people coordinated and focused on the best coordination and I think the physical market is gonna be key to that. If financial markets fractured in different ways, at the end of the day, the convergence is still gonna happen in the physical markets where we supply, we share these supply chains for the foreseeable future. So again, I think that's another reason why the market right now needs to be focused on the most efficient physical supply chains. So we don't end up in war.

**David Greely** (30m 31s):

Yeah and you're, you're reminding me of know when we both worked at Goldman in the 2000s and you were doing the metals research and I was doing the energies research and of course one of the big topics which you brought up was when there was the trouble with the LME aluminum warehouses and the problems of getting delivery due to delivery into the warehouse mechanisms at the time, and

I've often heard you say that what many of these physical markets need as a, a buyer of last resort or a seller of last resort and I wonder if you could like just expand on that notion a little bit because I feel like it is a bit in your DNA of connecting the physical markets to the financial markets, which is so important as you've said.

**Josh Crumb** (31m 11s):

Yeah, look, again, it comes back to, to data and transparency. Just think about any day you have a key item that needs to be procured that's slowing up a whole project, right. Like, and many times it's not about the price, but it's about the actual availability and quantity that matters. And we saw this in the LNG market as well last year, right. So a lot of those LNG cargoes that were diverted towards Europe, it solved some of Europe's needs, but it ended up really challenging places like India and Pakistan and some of the deliveries they were expecting. So ultimately having that buyer and seller of last resort where you can go into an open transparent market and buy the price and, and the physical price will always clear and then take delivery, then you, you're able to have a transparent mechanism to secure that supply when sometimes the quantity becomes more important than the price and so that's where I think the over focus on abstraction and this zero sum betting of a futures product. Because ultimately that's what futures products are, they become zero sum at the end from a price perspective, but from a quantity perspective, we still need these transparent markets to, to make or take delivery.

**David Greely** (32m 19s):

One of the other things that came up in the series a lot, it came to mind when you brought up, you know, can't get stuck in the abstractions, is even going, going all the way back to John Lothian when he would say the markets are about people. You have to keep in mind that people that built the markets, and I think it's a great time to ask you, you know, you've been building the exchange and clearinghouse for Abaxx over the past four years, I would say and as it's getting nearing to launch, what did you learn about the people because you spent four years building a community, building an ecosystem of potential trading participants of corporations who would want to turn to an exchange to manage risk of dealing with clearing members who are essential to operating and exchange and clearing house and connecting it to just the, getting all the, the right aspects with regulators and legal and all those aspects that have to come together in an ecosystem to make this work. What have you kind of learned about the people and getting all those people together into a healthy ecosystem?

**Josh Crumb** (33m 21s):

It's a great question because that's why we do this work. I know you share that as well and one thing I would say is I think the closer you get to those complex physical challenges, the more you see a very shared vision on, you know, people want to solve these challenges. There is very much a we can solve it culture in the physical industries. Many of the big energy companies, again that get demonized are very much engineering cultures. They build and achieve miracles on a scale that we don't get to see every day and when it comes to things like the war in Ukraine and some of the geopolitics, what I've seen is the physical commodity industry really is an industry of diplomats and peacemakers that want to see things function right for all of humanity.

**Josh Crumb** (34m 08s):

So again, I think that's the other problem when sometimes you get lost and the abstraction is the people that have the information that know, you know, I lived and traveled around Russia, I spent a lot of time in far flung places and having that culture, a lot of times in the mining industry we say that if only we could have more, more geologists be the diplomats because they're really the first ones in the field making local relationships. So again, I think we are headed into a decade where we really need to listen to the people that, that are involved in these, these very complex supply chains. And believe me, none of them talked to wants to go to war. I think they want to solve these problems and again, market and bringing the best information to market is how we do that.

**David Greely** (34m 52s):

Well I feel like I should stop on that very positive vision, but I won't because one of the things I wanted to ask you about, one of the other lessons that stood out to me in, in having all these conversations in this podcast series was that most people don't care about market infrastructure until it breaks. I think Andy Home put it as nobody cares about the plumbing until it breaks and then you care a lot. Obviously you're not one of those people, you care a lot about market infrastructure before it breaks and you've often been the person warning that it's gonna break unless we do something. So I think in, in terms of your history, we've learned a little bit about why you care about it. But maybe just in your own words, why do you care so much about market infrastructure?



**Josh Crumb** (35m 35s):

Yeah, that's a big question. Yeah, again, I think it goes back to those experiences, right? Living in those communities internationally, working with those miners on, on, at the face of the mind that I thought got cheated in the, the financial abstraction part of the market and to me, I think it is it is about that global connectivity and look, we again we're moving into a period where even in the exchange landscape, we went from very, very local from, you know, literally a curb trading on a block in New York City or Amsterdam to a period of big national exchanges and very jurisdictional exchanges and now, as the Cboe folks were talking about, we're completely into a more globalized exchange.

**Josh Crumb** (36m 20s):

And so, so for me it is, it is that globalization and that global connectivity is what matters most and yeah, as I was saying in the last question, I see some of the blockages. I see some of the calls for more, call it bureaucratic or government level intervention into markets, putting the thumb on prices. We've just gone through 10 years of what I would say is a financial put know, fed financial put on markets. And it's looks like more and more people are calling for a fiscal put at this point where, okay, the energy transition looks really hard, so let's just have governments do it right. And I just don't see a time in history when that worked. I think we need to fight for markets and I think we need to have better markets to actually solve these challenges. So I think there's a bit of an ideological bent to what we're doing, but I think that's why it's so important. I just don't think we're in a period of history where we can, we can outsource the hard work of markets to probably interests that don't want to see that transparency.

**David Greely** (37m 19s):

Thanks again to Josh Crumb, Founder and CEO of Abaxx Technologies. We hope you enjoyed the episode. This concludes our series on the Days of Futures past. We'll be back next week with our 2023 Summer Playlist. We hope you'll join us.

**Announcer** (37m 34s):

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**Announcer** (38m 23s):

That concludes this week's episode of SmarterMarkets by Abaxx. For episode transcripts and additional episode information, including research, editorial, and video content, please visit [smartermarkets.media](https://smartermarkets.media). Please help more people discover the podcast by leaving a review on Apple Podcast, Spotify, YouTube, or your favorite podcast platform. SmarterMarkets is presented for informational and entertainment purposes only. The information presented on SmarterMarkets should not be construed as investment advice. Always consult a licensed investment professional before making investment decisions. The views and opinions expressed on SmarterMarkets are those of the participants and do not necessarily reflect those of the show's hosts or producer. SmarterMarkets, its hosts, guests, employees, and producer, Abaxx Technologies, shall not be held liable for losses resulting from investment decisions based on informational viewpoints presented on SmarterMarkets. Thank you for listening, and please join us again next week.