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**GARY GENSLER:** So let's turn to this world of initial coin offerings. And so we're going to chat about it today and next Tuesday. Next Tuesday, we'll come back to the regulatory side of this. And in fact, there were some new things out of the Securities and Exchange Commission even last week on initial coin offerings. But we're going to spend a little time on ICOs today. And so of course, we've talked about Bakkt already.

And we'll talk about their characteristics. What is an initial coin offering? What is this new form of crowdfunding? How to evaluate initial coin offerings-- and some of this will be familiar, because it's how to really evaluate any blockchain technology project in some regard. And then I'm going to share some statistics, and then hopefully wish you all a Happy Thanksgiving and call it a day.

So the study question was, what is this new form of crowdfunding? Does anybody want to tell me? What is an ICO in the easiest way? You're going home for Thanksgiving and somebody says, what have you been studying? And you say ICOs. What is an ICO? Yeah?

**AUDIENCE:** It's a startup that sells its own crypto token to raise money.

**GARY GENSLER:** So it's a--

**AUDIENCE:** Sells its own crypto token to raise money.

**GARY GENSLER:** So it's a way to raise money with a crypto token, pretty simple.

**AUDIENCE:** And in addition to that, it gives people an expectation that the token's value will go up in the future.

**GARY GENSLER:** Did anybody read the optional reading for today about the dude that actually came up with this idea? Do you remember his name? |

**AUDIENCE:** JR.

**GARY GENSLER:** JR, Willett, is it?

**AUDIENCE:** Yeah.

**GARY GENSLER:** Yeah. I mean, I don't know if anybody watched the video, but this individual in 2010 came up with an idea of saying Bitcoin is out there. I mean, Bitcoin was selling for like \$0.06, \$0.10 a Bitcoin or something. He said, if you could put something on top of Bitcoin-- I don't even know if you use the term smart contract. But he did say, if you could put an application on top of Bitcoin-- it was before Vitalik Buterin came along with Ethereum. He said, you could raise a lot of money. And he went to conference after conference and tried to convince people.

And there's even this one feedback where somebody said to him in an email exchange, you're probably breaking the law. This can't be legal. But he couldn't get anybody to adopt this idea. And he's not wealthy now either. He missed the whole ICO way, but he was basically the inventor of this initial coin offering, saying that the technology of Bitcoin, even the scripting language, was enough that you could maybe raise money on top of Bitcoin with an application layer. And we'll sort through.

Now, I'm going to see if I can do a little video for you. This shouldn't be too hard for me. So this is a two minute video of all the ICOs that have ever happened. And Elementus, I've shown you this picture, but you know there wasn't much. Where we are we? Are we in 2015 now? Nothing. So you see the first ICO that they mark in there is Ethereum itself raised \$18 million. I apologize. It's only going to take two minutes, but you're going to see the whole history of ICOs.

And then there's nothing. It's really-- so you can see no country, no official sector is really focused on this in 2016. But then there's going to be a big offering in the middle of 2016. Anybody know who that is? Dow. \$168 million, and it fails. It spectacularly fails. \$50 million of it is stolen and it leads to the Ethereum fork and things like that. But still not a lot, and then, by the summer of '17, Katy bar the door. Tazos and quarter billion dollars, Filecoin, a quarter billion dollars. And then oh, I pulled the one that finished in 2017. I'm sorry.

So there's the final chart that goes all the way through August. Now, some say that it's not \$28 billion. Some say it's \$23 billion, because there's no really good figures. But EOS raises \$4.2 billion and Telegram raises \$1.7 billion, huge amounts of money. And this is in a period-- almost all of this was raised and in about 12 months, from June of '17 to June of '18. Call it \$25 billion in that 12 months.

And now, it's trickling off. Now, it's less than \$0.5 billion month. But that \$25 billion in 12 months compares to venture capital-- and Simone, you might help me. But venture capital worldwide is about \$150 billion a year in a 12 month period. I think the figures range from \$125 to \$170 billion. So just to give you a sense, in this 12 month period, it's, give or take, 20% of the size of all venture funds, 20% to 30% roughly of all venture funds. And again, it's tailing off, but it's significant. If you can come up with an idea in these 12 months and raise the money, JR Willett's idea, this was the moment.

So what are initial coin offerings? What's the more detailed characteristics? Well, number one, they're proceeds that help build a network. That's what Vitalik Buterin actually did back in 2013 is when he published, in 2014 is when he went live. But he was raising \$18 million, hired a law firm, big, big law firm in-- I can't remember if it was Perkins or Skadden Arps, but a big US law firm, partnered up with a Canadian, Joe Lubin, who saw this potential in a 19 or 20-year-old kid who had great writing skills. He knew a lot about Bitcoin. He had been writing about it for a number of years, but he also had a great idea.

He moved off to Switzerland for regulatory and other reasons set up a foundation for tax and other reasons, and did it in a very professional way. But you can look at their sources and uses. You can go back to the original offering and say they were willing to say what they were going to use the \$18 million for-- law fees and counting fees and the usual things you do when you start something. So it's proceeds to help build up a network. But just like that moment, it was before the network could be used.

So that was pre-functional. We're going to show statistics later, but anybody want to take a gander in the last three months. So this isn't back 2014. I'm talking about third quarter of 2018. What percentage of token offerings were offered before the network is functional, fully functional? Alin?

**AUDIENCE:** 99%.

**GARY GENSLER:** Anybody else want to take a-- argue with Alin? Just because he is a computer scientist? Tom?

**AUDIENCE:** I was going to say 95%.

**GARY GENSLER:** All right, 95%. All right, so we've got a market. So 95%, 99%. Does anybody want to say that more than 5% were functional? No? All right, I'll give you the number later. It's in between the

two of you. It's in between the two of you. So it's raising money before something is functional. It's like raising the money for a Broadway play before you've got the actors and the script. Or it's even worse than that. You don't even have the idea. But usually, you have an idea. Usually-- what percentage of ICOs are marketed on just an idea? Anybody? I have that statistic later, too. Rahim, you have a view? What do you think?

**AUDIENCE:** I would think maybe of these with an idea, maybe 60% to 70%.

**GARY GENSLER:** 60% to 70%. Sean?

**AUDIENCE:** I would say 90%.

**GARY GENSLER:** 90%. All right, no, it's in between the two of you. Rahim is a little closer. It's about 75%, just an idea, or at least as defined by a certain tracking center. So it's usually you have an idea, you market it, you raise some money, or at least during these boom periods in the last 15 months. The development, while open source, is largely centralized.

But in fact, in the last quarter, the last three months, well over half isn't even open source technology any longer, partly because it's so based on just an idea that people aren't publishing their source code until later. They will eventually publish some source code. But at the moment of the initial coin offering, a majority don't even have open source software at that moment, even though they say later they'll publish this software. But even if it's open source, it's highly centralized. Please.

**AUDIENCE:** I don't understand how open source is related to [INAUDIBLE] if I say I'm going to sell something, these are the coins you should use to pay me back. Where is open source connected?

**GARY GENSLER:** So there's a movement in technology and software development-- certainly, it was started in the 1990s, but it may have been earlier. But now, it's very prevalent-- where you publish your software and everybody can see it. So it's transparency in software. That's called the open source movement. In the blockchain technology, when Satoshi Nakamoto first published the Bitcoin software in January of 2009, it was open source. It meant everybody could see the computer code.

And you could even-- it's actually published under an MIT license, which meant you didn't have to pay any fee to use it. Zero fee, you can copy it, you can use the Bitcoin core software. That's the definition. That's the best definition of open source, because it's with an MIT

license. But it's truly open. That's what I'm referencing here.

And the relevance is that, though there is a big open source movement in a lot of fields and in blockchain and certainly in Bitcoin and the Ethereum network is open source, many, many developments and initial coin offerings don't publish their code until months later. They raise the money, they're still developing their code. Are you with me? So Brotish?

**AUDIENCE:** So why do investors put in their money even before the code is published?

**GARY GENSLER:** So why do investors put their money in before the code is published? Why do investors put money into any investment? Sabrina?

**AUDIENCE:** FOMO.

**GARY GENSLER:** What's that?

**AUDIENCE:** FOMO.

**GARY GENSLER:** What's FOMO? Fear of missing out. All right. Oh by the way, Sabrina and Thalita, I announced that anybody that was here today got double credit for participating right before Thanksgiving. So I just want to let you know. I live by that. So fear of missing out. Why else do people invest in any investment, even if you're just investing in Apple stock?

**AUDIENCE:** To get returns.

**GARY GENSLER:** To get returns, to get a profit, to take risk and a return. Brotish?

**AUDIENCE:** I think in one of the readings they mentioned that one strategy of putting money in an ICO is going to the board and understanding. So I thought that that was a prerequisite for the investment. I also happened to attend one seminar here where there was a company called BlockTEST, which is funded by a--

**GARY GENSLER:** What's it called? Block--

**AUDIENCE:** BlockTEST. It's MIT alumni. So they evaluate these codes and run some solutions to verify whether they're doing what they're supposed to be doing. So I thought that it was a prerequisite for the investment. So that's where my question came from.

**GARY GENSLER:** So you assume that you could always read the code to make the investment. In the fall of

2017 and into the spring of 2018, I would suggest that wasn't always the case. And in fact, it usually was not the case. I think if these things are to persist, my prediction is you'll see more and more rigor in this marketplace.

Oh, I skipped promoters. The people starting it keep some of the coins for themselves. This is not that different from any venture capital round. When you're raising money and you're selling equity or selling a preferred stock in something-- you'll know this, any of your taking ventures course or if you worked in it-- you're going to keep equity for yourself as well. So this is just how much do you keep for yourself, how much do you sell to the public, but just translated to a new form of capital raising. Instead of it being applied to your equity, you're applying it to this new form of fund raising.

They're fungible and transferable, meaning you can sell them. Sometimes, you can't sell them for a number of months. Technically speaking, sometimes you can't sell him until the platform is functioning. But often, you can still sell them by private agreement, private arrangements. Ethereum-- let me just mention something about Ethereum. When Ethereum was first sold, for 12 months, the only record you had that you were purchasing Ethereum was the email return back from either Vitalik or others who said, yes, you've purchased it. It wasn't even that you had a private key for 12 months. You had an email confirmation. But you could, based on that email confirmation, sell the right to what later you would be issued, a coin. Sorry?

**AUDIENCE:** Yeah, so along those lines, I've seen a number of ICOs use SAFTs, simple agreement for future tokens. And I guess I'm wondering what the trade-offs are versus directly issuing the tokens at time of the ICO. And then more specifically, that just feels like you're not even getting the token, you're not even getting the rights to the token until the network launches. That seems like a second order, really far removal from even close to any form of a utility on a network.

**GARY GENSLER:** Is this an answer to the SAFT?

**AUDIENCE:** Yes. So isn't it because under the US-- I mean, right now, the coins aren't considered as a security. And if you are doing ICOs, then you can only sell it to accredited investors [INAUDIBLE] if you are based in the US, and you can do some things other than that outside the US. And so I think SAP is trying to see if coins can-- at some point, they can be considered as not as securities. So I think the purpose of SAP is to, I guess, expand the basically investor base so that more people can purchase.

**GARY GENSLER:** So it's Jihee right? So Jihee's answer delved into the regulatory, but I'm going to take it up a level from the regulatory. What you said was accurate, but there's a-- it's selling something for future delivery, because the token currently is not usable. Just in the last quarter, I'm talking about the last quarter of 2018, three quarters of the ICOs that were started or launched were just on an idea.

So they hadn't yet written the code. A token wouldn't even be usable. So you have some economic basis to say, I'm trying to sell you something that will be a future delivery. When Vitalik Buterin even did Ethereum, you got an email. It was not called a simple agreement for future token. Is that what SAFT is? But it was a simple email for a future token. I mean, it was, in essence, an economic arrangement where you exchanged Bitcoin for an email. And that email, some 12 months later, you would get a private key when the genesis block happened. And most of these still had to deal with that economic arrangement.

Then a law firm here in Boston took an arrangement that was handled in securities offerings and they created something, and they put out, in essence, a legal white paper, if you wish, called a Simple Agreement for Future Tokens, SAFT, to try to address, they thought-- they thought-- I think they were wrong, by the way. But they thought they were addressing a bunch of regulatory issues that somehow this SAFT, this would be maybe have to register under the securities laws in the US. But when you finally got the token, maybe later it would not have to be a registered security. And they were trying to do a two-tiered arrangement.

But even before you got to this Boston law firm that did this, you still had the economic reality that you were trying to raise money today to get a token later. And then the lawyers got involved to try to-- I would say they were trying to get between the wallpaper and the wall of regulation and say, we'll register the first thing, we'll give it a fancy name. We'll call it a SAFT. We won't register the second thing when you finally get the token 12 months later. I think they'll probably end up mistaken on that. But I think that was the background.

Let me hit a couple other points. Scarcity is usually, but not always, fostered through some monetary policy. If we go back to Nakamoto consensus and Bitcoin, what's the monetary policy there? Anybody remember that monetary? I call it monetary policy, but it's the control of the supply of the money supply. So what's the money supply algorithm in Bitcoin? Eilon?

**AUDIENCE:** [INAUDIBLE]

**GARY GENSLER:** Half? Half of what?

**AUDIENCE:** [INAUDIBLE] reward for the blocks.

**GARY GENSLER:** So there's a reward. The Bitcoin monetary policy is a reward of-- anybody remember the reward today?

**AUDIENCE:** 12.5 coins.

**GARY GENSLER:** 12 and 1/2 coins today. It started at 50 coins every how many minutes? 10 minutes on average. But every 200,000 blocks, it halves. So somewhere out in the 22nd century, it will cap at 21 million coins. But way before that, the monetary policy, it's slowing and slowing and slowing the growth rate. So embedded in the algorithm of Bitcoin is a monetary policy. Is it immutable? How many people would say that's hard coded and immutable? Not a hand. How many people would say it's actually not immutable? So what can change it? Alan, you didn't raise your hand either way.

**AUDIENCE:** It depends how you define immutable.

**GARY GENSLER:** Yes, I'm listening.

**AUDIENCE:** If you change the monetary policy, you're going to have a fork. You're going to have the old folks sticking with the old policy and the new folks sticking with the new policy. And now, what has changed? Some people argue nothing has changed, while others argue something has seen.

**GARY GENSLER:** All right. So Alin's pointing out not everybody will go along with the new monetary policy. But I would note on Ethereum, they've changed their monetary policy two or three times. And they haven't had to use a hard fork. So they've changed their block reward. And in changing a block reward, by lowering the block rewards, by consensus, they effectively are changing their monetary policy, because they're changing, in essence, their inflation rate.

But most initial coin offerings have some algorithm, some built in, what we'll call, money supply policy or monetary policy, but not all of them do. Some, if you read them closely, they can issue as much as they want whenever they want and so forth. But I would say the majority have a monetary policy.

If this space, if this world really took off a, lot of monetary policy economists would study it. But



there's not a lot of deep research yet on what works, what doesn't work. It's a playground or a sandbox if it were to ever take off as to exploring hard monetary policies. Sean?

**AUDIENCE:** So just based on those six criteria, maybe apart from the last one. It looks to me like--

**GARY GENSLER:** You want to get rid of that one?

**AUDIENCE:** Yeah. It looks to me like a Kickstarter.

**GARY GENSLER:** Like a what?

**AUDIENCE:** A Kickstarter.

**GARY GENSLER:** A Kickstarter. So this looks like Kickstarter to you? But does Kickstarter give you something else? Anything?

**AUDIENCE:** It depends on how you structure the terms. Basically, most of the items that are posted on Kickstarter, they use the funding to build their product. It's before it's actually functional. And it's also open source. It's pretty much the same.

**GARY GENSLER:** Shimon?

**AUDIENCE:** There's a very big difference, which is that Kickstarter, you fix the price and you let the market determine the quantity, right? And arguably, you fix the quantity and you let the market determine the price. That's a big difference between those two, and the fact that there's a secondary market, right?

You can also sell your items, like the super early bird items in a secondary market.

Sure, you could. And again, this is nothing-- yes, you can. I mean, I would argue that it's a lot harder, right? But it also is the case that, if I'm selling a new widget, I'm not going to sell the early birds for \$30, right? That's the price, right? And here, you're letting-- the auction is for the price not for the coin.

**GARY GENSLER:** So there are similarities to Kickstarter. There's similarities to other crowd funding mechanisms, but there's also some real distinctions in terms of-- one, of course, this is all digital assets. And Kickstarter often there is a service or a good, a physical good, or a service you're getting. But also, what Shimon does? Hugo?

**AUDIENCE:** Just to push back on that last point, often the ICOs are priced in theory. And then only on the

secondary markets do the prices change. Isn't that the case? If you want to spit in an ICO, they'll be like, oh, here's 1,000 points for 0.1 F. And that, I guess, varies based on price fluctuations in US dollars, if you're still taking US dollars. But since you're using Ether to pay for the ICO--

**GARY GENSLER:** Hugo's saying it's not really that price is variable until it gets to the secondary market. But I would contend that one big difference between most of what's done on Kickstarter, not everything but most, and here is here the investors really are looking and anticipating profits and returns. And when I think of most people that are going into Kickstarter, they're getting one product, one unit of something as a reward. And they're not looking for a significant profit or appreciation. They could-- maybe a modest, but not a--

**AUDIENCE:** The secondary market-- the super early birds in the secondary market--

**GARY GENSLER:** Super early birds, yeah. So there is monetary policy and this last point, that purchases really are anticipating profits through appreciation. So that's what I think of. Now, how to you evaluate ICOs? You're not going to be surprised by my first one. It's what we've talked a lot about in this class.

Assess the viability of the token use case. Like, does it make any sense? Does it make any sense? Do you need to use an append only log with a consensus among a bunch of parties that can write to a ledger? So append only logs and consensus, throw a bunch of cryptography in there, too. And do you need a native token? Those basic fundamental economics that we've talked about a lot this semester, hopefully, will save you off from investing in really bad ICOs.

But beyond that, which I think is over 50% of what you should do, read the white paper. I tell you, if anybody could read the Telegraph white paper that they raised \$1.7 billion and please tell me-- feel free to tell me what they are going to use that money for, because I've read it a number of times and I wouldn't invest in it, because it felt like they could raise the money and do almost anything they want with it.

I mean, they're an incredible company. They've got hundreds of millions of users. And they have incredible resources to draw upon, but I'm still not sure what they're using-- what I will ultimately be able to use the coin for, what service I can get from that, and what they're using the money for. So I would say, read the white paper. And if there's source code, which is less than half the time there's source code, have somebody you trust read the source code if you

can't read it.

Who's the team? Just like any venture capital investor, you want to know who's the team. What's their history? What's their experience and so forth? But I start with the economics and the white paper before I get to the team and the website. Is there venture capital involvement, and who and which ones?

Now, VCs often will take part of the-- at this stage will take part of the equity and also part of the coin round. So they're doing hybrid investments. It's very rare, now in November of 2018, that a venture capitalist will only take a part of the token round. In late '17, there were still some they were just getting on this parade and taking parts of the pre-- basically, the pre-round of the tokens. But now, they want part of the actual equity and tokens. Erik, were you asking?

**AUDIENCE:** No, it's just that's exactly what we got from a VC that mentioned that they go with a free ICO round of investment first as a means to assess the capability of the full body offering, and then go through the ICO again.

**GARY GENSLER:** But their first investment is either preferred or an equity-like instrument.

**AUDIENCE:** Absolutely. And I feel like it changes completely the time from the investment for a venture capitalist, which normally would for five to 10 years. And here, it's like you're going to hold for the next few months, and then just resell the coins right after. What is the time frame?

**GARY GENSLER:** So Alexis's observation is this might shorten the time frame for venture capitalists. I would say yes during this 2017-2018 period. I don't know if that will persist. But yes, I think that, for venture capitalists saying, well, I can be taken up by selling the company, I can be taken out of my investor term-- how am I going to sell my investment, my take out? I can take the company public, I can sell the company, or maybe I can ICO, and if you can do it sooner.

And what happened a lot in the fall of '17 and into '18 is many venture capitalists changed their standard contracts and their standard documentation when they were investing in start ups to say also that they could participate in the ICO round and that they could participate in the early rounds. But if you're assessing an ICO and you're thinking about investing in it, you want to know what venture capitalists are backing it.

And then a big thing that folks look at-- I put it fifth on the list, as you can see-- is what's the

community. How many Reddit posts, Medium posts? How many people are following Bitcoin talk, et cetera, et cetera, et cetera? There's eight or 10 of these talk channels. And I don't know the ratios anymore, but it used to be if you could get to like 7,000 to 10,000 folks following you on Reddit and Medium and everything, you knew you could raise a successful ICO. Like in the heyday, if you could get your numbers to a certain following, then that was enough momentum to raise your \$15 to \$30 million. I think that's probably a little less so now. Tom?

**AUDIENCE:** I mean, this is just the definition of the greater fool theory, right? If enough people believe that your token is valuable, then it's valuable. So I get that it's the fifth thing on the list for a reason.

**GARY GENSLER:** Right. But if you're a momentum investor and you're just saying-- or if it's FOMO investing as Sabrina said, to see how big the community is. And is there an interest in it? Does this have a following? I said I'm neither a maximalist nor a minimalist. I'm just not-- I'm not trying to-- but this is real economics. If you had 100,000 people following in a community, probably more likely it's a successful ICO in terms of raising money. It doesn't mean it's going to be successful as a token later on. Here?

**AUDIENCE:** You don't actually use it as a specific criterion, but you can use it maybe as a filter, the first filter. If you have that the person who's publishing the white paper has not been posted, he's never been there, then it raises a little bit of suspicion. And then you have to go on and do some more research on the paper, on the idea, on the guy, whatever.

**GARY GENSLER:** It is a way to see whether there's other people even tuning in and showing interest. And it could be the greater fool theory just because if Tim Draper, Mike Novogratz is invested, who are both very savvy investors and very successful investors, you might say, do I want to be in? Or is that my time to say it's not to be in, because they've already gotten the best of it. Either way, I mean, they're still good investors.

What's their monetary policy? Again, how's it going to affect-- can they-- is it one of the majority that has a fixed monetary policy? Or is it one of the minority that has no monetary policy at all? How did they distribute the tokens? And I mean in two ways. Basically, some will actually disclose a cap table, a capitalization table of the tokens, the same way you can think of a capitalization table of equity, but who owns the tokens pre-sale and post-sale. So that's what I mean by token distribution. Are they keeping 10% for the founder or 80% for the founder? It might change your view on all of it.

But also token distribution is how are they selling it during what's usually a 30 to 60 day period

or 15 to 60 day period. The longest that I am aware of is 350 days. EOS sold over 350 days. Every day was a form of a Dutch auction. It was a remarkable way that they sold 4.2 billion. I doubt that anybody who did EOS at the beginning thought they were going to raise over \$1 billion. In fact, maybe nobody thought they'd raise over \$100 million, because they started in the summer of '17. But they did a distribution over 350 days. Most, though, are done over 15 to 60 days or so. Please.

**AUDIENCE:** So you mentioned [INAUDIBLE] how are ICOs accounted for? Do they go as equity on their revenue? Where do they fall?

**GARY GENSLER:** So terrific question. How are ICO proceeds accounted for? Who's our accountant? Aviva?

**AUDIENCE:** No idea.

**GARY GENSLER:** All right, no idea from Aviva. I want to try to answer it, but anybody?

**AUDIENCE:** I think that's another important feature. It's the token economics, how you use potential incentive, [INAUDIBLE] and for the profit of the project, the project would repurchase their tokens in a way similar to a dividend.

**GARY GENSLER:** But how do you book it? What's the debit and what's the credit?

**AUDIENCE:** Marketable securities and cash.

**GARY GENSLER:** What's that?

**AUDIENCE:** [INAUDIBLE]

**GARY GENSLER:** I hope this works. You know of the T account, right? We've got the T account. Over here's cash, right? Because you receive cash when you sell something. What's the credit item?

**AUDIENCE:** Question mark.

**GARY GENSLER:** What's that?

**AUDIENCE:** Retained earnings.

**GARY GENSLER:** You think it's retained earnings?

**AUDIENCE:** Yes.

**GARY GENSLER:** You think it's just retained earnings?

**AUDIENCE:** They're selling nothing.

**GARY GENSLER:** All right. So the question is, is it earnings? Is it a revenue item when you sell it? Or some people book it as deferred revenue. So there's two ways you can book it. You could also book it as a liability, but it's either deferred revenue or current revenue. All right, what could motivate you to book it as a deferred revenue instead of current revenue? What's that?

**AUDIENCE:** Taxes, probably.

**GARY GENSLER:** Taxes. So some book it as deferred revenues, because they don't want to book taxes. And God knows whether that's really the right way to book it. And others book it right as a revenue item right now. But I don't know of anybody, whether they're booking it as deferred revenues or current revenues, that wants to book it to trigger that it's a security. So most law firms that I understand, they're not they're not accountants, but they don't want their clients to book it in a way that will make it look more like equity. So it's either deferred revenue or current revenue. Some, I've heard, have called it a liability, but I think that's the minority.

**AUDIENCE:** I don't know if it takes too much time to go through a use case to make these examples tangible. If I'm promising to deliver a good, then the company is getting back the tokens, right? How do you put it back out again in the market?

**GARY GENSLER:** So the question is what is the use case. So some use cases, the token is issued and it's really for the community. And some tokens come back to the company. So a file storage, Filecoin, for instance, they raised \$250-some million, the equivalent of. And in that case, I think the token would be used within the community rather than back to the company. So even like Ethereum, when you use Ethereum as a form of buying computing power, it doesn't go back to the Ethereum Foundation.

So the most dominant-- and that's why it really should be booked as current revenue, because it's not even that the software provider is providing a service later. The most dominant use case is, like in Ethereum, that you're using the Eth for other people in the network. It's a monetary unit that's not coming back. There are some where it comes back, and then it's basically returned to the corporate treasury. So it's two different models. Have I lost you or are you with me?

**AUDIENCE:** [INAUDIBLE]

**GARY GENSLER:** All right. One way is that it gets returned to the company. That's the more narrow case. Usually, it's you're selling a token that will be used. And I'll give it to Eilon, because Eilon gives me file storage. Eilon will give it to Tom, because Tom gives Eilon file storage. In Ethereum, it literally keeps going around and it doesn't get returned to-- it never gets burned and never gets extinguished and handed back to the company.

**AUDIENCE:** And the pricing strategy on that first issuance depends then on the value of, if it's storage, on the value of storing--

**GARY GENSLER:** Well, in theory-- it's theory. I think that a lot of this has been on speculation and FOMO and things like that and a bubble, a 15 month or 18 month bubble. But on theory, yes, it should be-- to be in equilibrium, it should be a discount to the future value of storage, because today you're buying a token that you might be able to use tomorrow. But because there's a probability weighting that you won't be able to use it if they don't complete the software, if they don't complete the rollout, it should sell at a-- in equilibrium, it should sell at a discount to its eventual utility value. That would be where it would be in equilibrium. Shimon?

**AUDIENCE:** So this is a question. Even in the bad use case, they're not pre-determining what one unit of coin is good for, right?

**GARY GENSLER:** Usually not. Some white papers do, but usually not.

**AUDIENCE:** Because it's not just-- if they told you, OK, one unit will buy you one terabyte of storage, now, of course, the value of a terabyte of storage would depend on the electricity, cost of electricity, and hardware, and all that stuff in the future-- I don't know-- and the supply, and blah, blah, blah. [INAUDIBLE] It's very hard to pin down the fundamental value of that coin outside of how it's going to scale and how the community will be and all that stuff, because there's no clear allocation between the coin and the service that you would get. Does that make sense?

**GARY GENSLER:** Let me see. You're asking absolutely the right question. It's one that I've been kicking around a little bit with a couple other faculty members in the finance group here, with Antoinette and Leonid who have done a lot of research in this area. And we're all like, we're not sure exactly. And these are some of the most world class talented finance faculty. Like, how do you really get to the value of a token, one, when there's so little written in these white papers about this specificity?

And I gave one reading, which was Christian's reading, and I apologize, because it has a lot of formulas and everything. But he grapples with this. Where is it in equilibrium? What's the equilibrium price? And the equilibrium price should be some discount to that future value of the service or the good. And if there is more uncertainty of what that service or good, it almost has to be a greater discount. And yet, it appears that the market has been pricing it at a way premium.

So I think, if you didn't take anything from Christian's paper, that's what I was trying to-- that the market has been at a premium, even though it probably should be discounted. And that's why issuers-- that's why entrepreneurs have tapped into it, because it's a form of cheap financing. It's been a remarkable area of cheap financing. Please.

**AUDIENCE:** So as we look forward to Filecoin [INAUDIBLE] so if we look at that and we flash forward to when it's actually functional and whatever--

**GARY GENSLER:** And it's no longer SAFT.

**AUDIENCE:** When it actually ever comes out, so is the idea that Filecoin at that point would transition to realized revenue? And then if I pay Don, three Filecoins or whatever the unit is for storage, that he books that as income and is taxed on that? Has there been any thought as to how--

**GARY GENSLER:** If Don is selling files, yes, he would have to book income, as I understand it. And you're transferring a coin, just like you're transferring a euro or a yen or a dollar. And at the time, the IRS has spoken to this five, six years ago. It's marked to market value the day that you, in essence, deliver the service and receive the coin. I mean, I'm not entirely sure what happens if you get the coin a day later, but it's basically the market value at an exchange rate that day back to Fiat, always translated back to the Fiat currency, in this case the US dollar.

**AUDIENCE:** So if you extend that example, where does Filecoin gain revenue on the transaction between Andrew and Don? Are they charging a transaction fee?

**GARY GENSLER:** I don't know. I'll try to figure that out by next Tuesday, because we get ICOs twice. I'll dig in and try to answer, and if anybody else knows. But the revenue models vary with thousands of these. Whether, in essence, Filecoin's entire revenue model was the ICO? No? The second big piece of the revenue model is retaining some ownership.

So let's look at Ripple, the company. Ripple, the company, though they did their genesis block



back in 2013, they basically distributed 20% of their tokens and kept 80%. And subsequently, they have been slowly selling and they're now down to 61%. But their revenue model on XRP is, in essence, selling the XRP. They only came up with a real use case of XRP in 2018 in a prototype called XRapid. They had XCurrent, which was a messaging system prior that didn't need to use XRP at all.

So for four years, you had no use of XRP, as I understand it zero use. Today, it's the second highest valued cryptocurrency. It's past Ethereum with the fall-off of the value of Ethereum and Bitcoin. And at \$18 billion, I couldn't tell you what it's worth. I can tell you that's what coinmarket.com or .cap says they're worth. But their revenue model is selling XRP in that case. And so many of them, their revenue models are the initial ICO, keep a bucket, whether you keep 10%, or in that case it was 80%, and then try to monetize and sell it over time.

And even in Ethereum, which was, in essence, an ICO, they kept about 9% in the Ethereum Foundation. They're down to 1% ownership in the Ethereum Foundation. So they don't receive-- and when Ethereum moves around the network, the Ethereum Foundation and Vitalik Buterin don't receive any of that. But I'd have to look at Filecoin to see whether, in essence, they burn any. In essence, does any of it go back to the issuer? I don't think so, but I'll check. Take this, and then we'll move on to a couple statistics.

**AUDIENCE:** I was wondering who is regulating the ICO.

**GARY GENSLER:** All right. So who regulates the ICOs we're going to talk a lot about on Tuesday after Thanksgiving, when we can thank and eat some turkey. So can we hold that for Tuesday? But it really depends on the jurisdiction. Here in the US, it would be the Securities and Exchange Commission, because most of these are really non-compliant securities offerings. And last Friday, the SEC put out a release. I mean, they've put out many, many releases.

But last Friday's, maybe we'll put that up. Sabrina and Thalita if you remind me, I'll shoot you a link and we'll put it into Canvas. But it's only two or three pages. But for the first time, they really talked about illegal securities offerings. So they used the word illegal. And they're starting to get to the place where they're shutting some of these down that were not necessarily scammy or fraudy, but just saying you didn't register. But generally speaking, it would be securities regulators, if it's regulated. In some jurisdictions, it's not.

So this is the most important thing. Can you assess the viability of token use case? You remember my little slides. But again, it's the strategic questions. And these are the same

questions I'm asking you to think about in your final papers. Basically, what's the value creation proposition or pain points? What are competitors doing? How are competitors facing off in this? And if you're looking at any ICO, just think about the competitive landscape. Some of them are quite populated with a lot of competition. File storage, Filecoin is not the only one, so you look at the others and see how they're addressing the same issues.

And really, why is a blockchain technology or native token even the solution? And then you get digging into it. Why do you need an append only log? What verification and networking cost are actually addressed? What transactions are actually recorded on a ledger? I mean, these are the basic building blocks that if you take anything away, hopefully it's this one page of questions to have some critical skills as you go off and somebody says, well, I've got this great blockchain idea or great token. And then not to forget all the darn challenges that we still have - scalability, performance, privacy, security, network coordination, and interoperability. I know only you say there's no challenges of interoperability.

**AUDIENCE:** No, no, no, don't put words in my mouth.

**GARY GENSLER:** So these, I'm not going to rereview, but they're going to be in Canvas if you want to grab them. I mean, this is the same conceptual framework for an ICO or even in a permissioned blockchain, which I sense a lot of you are thinking about doing. So some statistics, and then we'll close it out. And these are just fun charts that will all be in Canvas. And I just went around finding different websites.

I don't know that you can trust any of these numbers, but they're the best numbers out there. So here are some of the industries. 23% is infrastructure. That's \$5 billion of raised, but most of that, I think, is the EOS. I think that's called an infrastructure project, infrastructure because EOS is trying to compete with Ethereum. Finance communication trading and investment payments, you see some consistency, a lot of financial sector use cases. Gaming, and then you're down to 2% and 3% slices. So there's just a little sense of some of the industries. And again, this will all be on Canvas.

Here's published ICOs. We peaked at about 500 a month, 400 or 500 a month in February through April. We're down to about 200 a month now. Now, this means published. That doesn't mean they've necessarily raised. We're just under about 5,000 that have been published. Maybe 3,000 give or take have raised some money. And only about half of those actually exist today, or that you can find them somewhere and so forth.

The market-- this is the third quarter based on a website called ICO Rating. They publish a quarterly report. I'm not saying it's completely exhaustive. 1.8 billion ICOs raised down 78% from Q2, just to give you a sense of the size. But \$1 billion of blockchain VC raised in the same quarter. ICOs surpassed VC investment in blockchain in the third quarter of '17. Before that, VC raise was higher. And I think it's coming back. And it's a reasonable shot that in one or two more quarters, the VC number will be higher than the ICO number. But this is just a hunch as to where we're headed.

Some other statistics-- of the 600, this is one quarter, about 200 a month or 600 for the quarter that they tracked, 84% are on the Ethereum and platform. Almost every data source I can find ranges from 80% to 85%. So it's still highly focused on Ethereum platform. And I would say as the ICO boom comes off, it's probably also one of the reasons that Ethereum, the price and valuation of Ethereum has come off as well, just because of the relationships.

Only 4% of these 600, or 24 of them, got listed on an exchange, that they raised enough money. But look at that. 57% raised less than \$100,000 a piece. So it's highly concentrated in a small-- 67% percent of the DApp ICOs were unsuccessful, whatever their measurement of unsuccessful. They didn't raise money or they raised a little bit of money, but the website went dark. That's all within three months. And again, I can't speak to how they measure success. But 76% were just an idea. This is, again, based on ICO rating. And 1.37%-- you were at 1%? You were at 5%? But 1.7% had their code. So 3% were either fully ready or had their source code.

So you want to read the white paper if you're really curious. But 76%, you might say how can you raise money on an idea? This is really prefunding. And this is even after the bloom is off the rose. This is the third quarter 2018.

Here's the industries again for the third quarter-- exchanges and wallets, financial services, trading. So it's deeply finance, a little bit health care, and so forth. And let's see. I think I have one or two more of these. Oh, this is how they've done. This is interesting to me. This is the returns in the third quarter. Now, I know this is actually before the sell-off for the last week and a half.

The only sector that went up is-- I don't even know which ICOs these are-- the marketing and advertising. Everything else got clobbered. I've been around markets for a long time, three or four decades. When you get this type of return picture, there's going to be fewer ICOs rather

than more ICOs, because it just keeps cutting down the investor enthusiasm. I don't think it's FOMO anymore. What's the opposite of FOMO?

**AUDIENCE:** Here.

**GARY GENSLER:** What's that? So all right, so study questions for next Tuesday is just we're going to go back to ICOs, talk a little bit about the scams and frauds. We're going to talk about the Securities and Exchange Commission. We've already talked a lot about their design feature. So it's going to be like going back to some of the regulatory things. I'll try to look up on the Filecoin questions as well.

We will drop one more reading in, which is just this quick two-pager from the SEC from last Friday that may be worthwhile looking at. And this is the best thing I could do to say Happy Thanksgiving. I know it's a Bitcoin turkey, blockchain turkey, and the like. But I do think it's an interesting thing. ICOs are a new means of crowdfunding. And there's been so many different ways to raise money over centuries. This is not equity, it's not debt, it's something else. I don't know how much of it will last three and five years from now, but the idea that you could pre-fund an idea, a deferred revenue or some sort, but it's not your revenue, is an interesting evolution in the markets of finance.

But I think if you can't assess the viability of the use case and figure out what really is the benefit of the token economics-- that comes back to, is there really a benefit to having a native token on a network for a good or a service, for file storage, for ride sharing, and so forth? And then I think this will just be looked back-- decades from now, people look back and say, well, that was a small, little, odd thing that happened back there in the 2010s. But it might be. I'm not all the way to zero. I think there might be a reason why folks want to have a native currency, a native token to jumpstart a network and to motivate a network over time, whether it's like swords and skins and shields in a gaming site.

The majority of ICOs have failed already. And because they keep failing so fast-- I don't know-- by the end of this year or certainly by the middle of next year, over 90% or 95% of them will have failed, like if you take the whole total. So it's pretty clear it's going to come down. There's going to be less and less probably in this ICO thing. It doesn't mean that blockchain technology is over. It just means that this wave, I think, will diminish. So Happy Thanksgiving. Is there a question before we all go to Thanksgiving and airports and trains?

**AUDIENCE:** Just a quick question. Does any ICO take ownership of the company besides [INAUDIBLE]

**GARY GENSLER:** So we'll talk about this Tuesday. The question is, can you ever have an ownership right in a token? The answer is yes, you could structure it to have voting rights, governance rights, dividend rights. There are a handful that have done that. But after the DAO or DAO issuance, which did give some governance rights and cash flow rights, the SEC spoke to that in a paper one year ago or 15 months ago. There's very few of them. Most of them are what you would call either utility tokens or service tokens, where you have a right to get a service or a good usually from the rest of that network, rather than back. I'll check on Filecoin, but the answer is yes you can do it, but it's a rare case that does it. So thank you. Happy Thanksgiving. Thank you for all being in this class.

[APPLAUSE]