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GARY GENSLER: Welcome, hello again. Yeah, Yeah. I put my jacket back on. I figured I was doing public policy today, had to look a little official. So let's talk a little bit about public policy and some of the challenges that we're going to do. And the overview of today-- we're going to chat a little bit about the readings, of course. And then I want to set it up a bit on crypto finance, just a simple term of this \$200 or \$250 billion dollar space, because a lot of the public policy is about crypto finance, though there are some public policy about underlying blockchain technology. It's both, but most of it's about the financial markets around cryptocurrencies and crypto tokens.

Give an overall public policy framework, talk about the three guardrails, the big rails of illicit activity, financial stability, and the public. And then I'm going to share a little bit of some slides and some thoughts on public policy development. As many of you know, I've spent the last 20 years kicking around politics and public policy. And as two or three of you know, in this spring, Simon Johnson and I stood up a course called Public Policy and the Private Sector. So it's maybe my little advertisement for next spring, because we're going to stand it up again as well.

So the study questions which was basically around public policy, as you remember these questions. And I'm sorry, because Talita didn't give me my friendly list as to who hasn't spoken up yet. So that's Talita. So you're saved, you're saved, because now I can't remember anybody that's not--

AUDIENCE: I can send it to a printer.

GARY GENSLER: What's that?

AUDIENCE: I can send it to a printer.

GARY GENSLER: Yeah, you can send it to a printer. It's hard to remember with 85 registered students as to who hasn't spoken and who has spoken. But you're all going, here now, he's going to do cold calling now. But the main study questions that we're going through are basically around the

public policy framework and how it relates to blockchain technology. But Catalina, what did you take from the readings?

AUDIENCE: What I took from the readings is that for blockchain to further develop, it has to be embedded in the regulatory system and in the policy system. In that way, for example, investors will be better off. They will have protections, they will feel better because they will have some degree of certainty that someone is taking care of them.

GARY GENSLER: And so Catalina is saying she took from the readings that for further adoption, investor protection, and the confidence in the markets are important. Lauren, did I see that you're--

AUDIENCE: Sorry, yeah. So I was going to say-- I mean, one of the readings was a little bit the opposite of this. But to build on that, the mention of regulations and validating blockchain a little bit will help the players that are already in the markets explore in that space, just because they tend to be a little more risk averse. So they haven't really dabbled in startups and things that have the advantage.

GARY GENSLER: So in essence, that some people were risk averse, the incumbents are a bit risk averse. And why would incumbent, big-- oh, this is my fun list. It's not your fun list. But really, there's still 35 of you that have not even spoken up in this class. Don't be so shy. Watch this. Watch this. Ariel Brito. Not even here. Even better, even better. Talita, we have a sign up sheet, too, that's going around?

AUDIENCE: Yeah.

GARY GENSLER: All right, that's fun. Watch, I'll just say David, and then see which David speaks up. This is going to be a really interesting. So you mean there's no David Martin here. Right here. Oh.

AUDIENCE: So to your first question, this relates to the current public policy frameworks in my mind in two ways. One, this technology sits, in some ways, in gaps in the current regulatory framework. It's not clear, for example, that the CFTC-- because this could be a commodity-- has as broad regulatory authority as the SEC does, for example, with respect to the securities markets. It's in a gap.

But the second thing is, even if those gaps were closed, for certain kinds of blockchain technology, the anonymity and secrecy of it just prevents regulation almost entirely. So there's two things. There's a gap question, and then there's the impact of secrecy and whether regulation can find it.

GARY GENSLER: All right. So there's a gap because of the technology. But are there other gaps also-- and your first name is?

AUDIENCE: James.

GARY GENSLER: Jim.

AUDIENCE: James, yeah. So I think that another problem with regulating blockchain technology in general is because the lack of intermediaries. The way that traditional regulation works is that they try to have more close access to intermediaries, so that they can control the intermediaries. But now, there's no intermediary. So it's very hard for you to control.

GARY GENSLER: So what James is raising is there might be a whole change in this ecosystem, a little bit of the business model that there's fewer intermediaries. And a lot of regulation, whether that be tax, or investor protection, or even around illicit activity, centers around intermediaries. Why do you think it is that so much of the law centers around intermediaries? It wasn't specific in the readings. But just why do you think that that-- Isabella?

AUDIENCE: Well, I would assume that if intermediaries are going to be eliminated by this technology, then a lot of those players would not really want this technology to be pushed forward. So that's--

GARY GENSLER: All right, so Isabella's raising a point that maybe intermediaries would be threatened about this technology. But I'm also asking, why do you think the law historically-- Adian? Why the law has attached requirements on intermediaries.

AUDIENCE: I think it's just easier to manage a group of intermediaries that are regulated by law, so you can actually look at the transactions that happen at the intermediary level.

GARY GENSLER: So Adian's saying-- and in the red jersey in the back, I can't remember your name. Dan.

AUDIENCE: So I just think that if any of these intermediaries experience something that caused them to fail, then you're bringing down a lot more than just that institution.

GARY GENSLER: So two ideas. One is this attachment point that has some leverage to it in the system. You can exert some public policy influence. And one is that there might be a point of failure and you need to protect the system from failure. Other reasons back here?

AUDIENCE: The government just doesn't have the manpower or the resources to look at everyone. And

these intermediaries actually make money by collecting this data. And so the government can just use that.

GARY GENSLER: So Jake's raising a variation of the force multiplying. It's not only a node to apply, but they have the resources. So you're tapping into JP Morgan's back office, so to speak. And back here, I'll take. Sorry, your first name?

AUDIENCE: Adam.

GARY GENSLER: Adam.

AUDIENCE: So the intermediaries are also-- they're a mechanism for trust to allow trading between parties. So the regulation then would be placed in like a consumer protection role to ensure that those intermediaries are someone to trust.

GARY GENSLER: So it's for a collection of reasons that public policy officials around the globe often attach requirements to intermediaries, because it's a node to get it done, it's a resource, they have deep pockets sometimes. Sometimes, it's because they might fail.

And one thing that wasn't mentioned is sometimes actually institutions want to be regulated over time, because it creates barriers to entry. It's usually not in an early stage. But later on, it's actually the incumbents that often-- it creates some barriers to entry and they collect some economic rents. Hugo?

AUDIENCE: You can see that starting now with the OG's in the crypto space, like Coinbase or like the Bittrex, like the American institutions that started their exchange early on. And now, they're working with regulators to see how they can capture the market to be the easy place to go.

GARY GENSLER: So what were the letters you said? OD?

AUDIENCE: OG.

GARY GENSLER: OG.

AUDIENCE: I don't know.

GARY GENSLER: Does OG stand for something?

AUDIENCE: Original gangster.

GARY GENSLER: Original gangster. Thank you, thank you. My daughters will be glad I know this now. That's very good. So it's moving from the disruptor phase to the near-incumbent phase. And where is a firm Hugo's raised like Coinbase or others? Are they now the incumbent in this only six or 10-year-old field, in essence?

We're going to talk a lot about tax and bank secrecy and the Howey Test. And I'm going to save you from the cold calls on the Howey Test yet, but be prepared when we get to that slide. We'll talk a little bit more. And then, of course, my favorite, the Duck Test. So anybody know who the American poet--

AUDIENCE: W. Riley?

GARY GENSLER: Oh, really good. Where's he from? Didn't say? Anybody where Riley's from? No, it's not in-- I don't think it's in the-- is it in the testimony?

AUDIENCE: Indiana.

GARY GENSLER: Indiana, good. You're right. Seems like a good Midwestern saying, you know?

AUDIENCE: If it walks like a duck, talks like a duck, and quacks like a duck, it's a damn duck.

GARY GENSLER: There you go, there you go. No, no--

AUDIENCE: What if it's a robotic duck or a computer screen walking and talking like a duck?

GARY GENSLER: So Christopher's raising the question, if it's a robotic duck, a robotic duck that's walking like a duck, quacking like a duck, and waddling like a duck, is it a darn duck? For purposes of public policy, maybe it is, right? If it's a smart contract that's waddling like a duck and quacking like a duck, maybe it still has the influence over society like a duck. And this Duck Test-- I didn't originate it, Riley did 100 plus years ago. But it is something that regulators and public policy people actually talk about. It's one of those things, if you're in Washington. Well, other people might call it different things, but the Duck Test. It's use common sense, and then answer the question.

Oh my gosh, I assigned one of my own writings as a reading. So we'll skip over that. So crypto, the world of crypto finance, you've seen this slide before, but it's been quite volatile, about \$220 billion in the last few days. And a little over 50%, 54% is Bitcoin and the other big currencies right now on market value, Ethereum, Ripple, and the like.

We'll talk a lot about initial coin offerings. And are they securities or are they not? But I would note, in terms of market value, probably three quarters of this space has already been determined by the Securities and Exchange Commission not to be a security. Bitcoin's 54%, Ether's about 15 points or something like that. So you're all of a sudden up to about 70 points, and then there's a bunch of other things that add up. So about three quarters of the market value right now is what one might call a cash, or a commodity, but not a security in this world. And that's just relevant for some of the debates that go on.

We talked about this a little bit. Like the lioness the corner, incumbents are starting to eye crypto finance. So it's raising some of the challenges. Why are they interested in this? Why are incumbents interested in getting into this place? EG Wang? Oh, come on. I can't be this bad off. Am I? Really, all these people haven't even said a word, huh. Is EG here. No, so look at this. This is even easier. Now, I'll find out if somebody's signing in for other people. How about Nikita?

AUDIENCE: Yes?

GARY GENSLER: Why do you think incumbents want to get in?

AUDIENCE: It's a risky transaction. From the viewpoint [INAUDIBLE] it's difficult to do this crypto finance.

GARY GENSLER: You said it's difficult to do?

AUDIENCE: For incumbents.

GARY GENSLER: Yeah, but why did they want to get into this space? Why do they want to be in crypto finance?

AUDIENCE: Part of it is that it's highly volatile. And how do you make money largely off of volatility? And then there's also a lot of people-- I think it's what, like 20 million Coinbase accounts.

GARY GENSLER: Right, right. So when I was at Goldman Sachs for years, we used to have a saying. Volatility is our friend. It's often not the friend of many people in the markets. But if you're in the world of finance or you're in the world of inter mediating risk and holding risks-- so volatility is a form of risk. So volatility was always our friend. It was also our friend, because often if it was really volatile, sometimes some of our competitors would not manage that risk as well.

And they would lose market share, and we would gain market share. In fact, maybe they went out of business, too. But people like the volatility. Startups can beg for forgiveness afterwards.

Incumbents feel more often, not always, that they need to ask for permission. And so there's a little bit of an asymmetric reputational risk that goes on business-wise.

Now, once you're at a big incumbent, if you work for one of the big places, you'll feel that little bit more constraint, a little bit more compliance officers. You're more lawyered, you have more accountants. But you should still have the same values. I say this sincerely. Don't break the law. No, no, sincerely. But when you're at a startup, you tend-- there's always some ambiguity, and you take a little bit more reputational risk. You tend to.

So there's a bunch of incumbents that are trying to get in the Chicago Mercantile Exchange, Eurex, Intercontinental Exchange, which owns the New York Stock Exchange. We'll do a whole class on what they're doing there later in the semester. Fidelity, that's spending significant amount of money looking at it and others.

So the framework that we've talked about, about guarding against illicit activity, stability, and the investing public-- I'm going to sort through each of these, but it's tax compliance. No government wants to shrink their tax base. Now, some governments want to attract activity that shrinks the other jurisdiction's tax base, but it's not about shrinking your own tax base usually. I mean, you might by law lower taxes, but you're not really looking to-- generally, governments don't want to promote whatever the definition of illicit activity.

We don't need to define that in this class. It's a normative thing that happens culture by culture, jurisdiction by jurisdiction. But there tends to be something that's prohibited-- drug running, for instance, child trafficking. I mean, there are certain things that are broadly defined as illicit, and then there's some that changes depending upon the culture and the society and the times we're living in. Terrorism financing, clearly. And then sanctions, it's a tool of foreign policy that countries like our own, but Europe and elsewhere often use sanctions to try to-- it's centuries old. It's called blockades in an earlier century with the ships. But now, we do it more electronically and commercially.

Financial stability tends to be about the stability of the overall economy or the Fiat currency. Or I put a little second picture there, the stability of the commercial banking system. So financial stability can mean a lot of different things, but it's usually about the currency, the economy, or the central bank system and commercial bank system. But to some countries, not a majority, some countries' financial stability is about capital controls. If a country is controlling somewhere the valuation of their Fiat currency-- remember, we talked a lot about money. But

if some don't want to flood and they want to control the value of their Fiat currency, then they often have capital controls. And for those countries, this whole world of crypto finance touches on that.

And then the investing public, the consuming public, we'll talk about investor protection and consumer protection are not exactly the same. The two words market integrity means basically we promote economic activity if you can have confidence in central market structures. Whether that's the pricing of apples or the pricing of Apple stock, it's in essence that there's not fraud and manipulation in that market.

And the more transparent the prices are both before you do a transaction and after-- what's called pre-trade transparency and post-trade transparency-- the more transparent and the more you can root out manipulation and fraud, there's more integrity. Usually very simply-- and this is a lot of economic study goes into it-- you lower the risk premium in that market. In essence, you can have more confidence in that market. And secondly, you have more competition in the price discovery function. Aline?

AUDIENCE: It's really a very silly question. But you said pre-transaction transparency. So how does that relate to the United States when you go to the doctor and you have no idea how much you're going to pay? It seems like there's no pre-transaction transparency when you go to the doctor.

GARY GENSLER: I tend to agree with you that there are many markets, not just health care, but there are many markets where there's limited pre-transaction transparency. I feel there's only limited pre-transaction transparency when I take my car in to get worked on. Now, of course, then they give you some pricing and the car is already up on the platform. And they're telling you need your new brakes.

So yes, that's true. Lots of different markets operate in different ways. And health care is probably less transparent, partly because it's such a hybrid market where we have third party payment providers, insurance companies, and governments providing and paying for a lot of our health care. So economic activity has a range. In the financial markets, market integrity is boosted by a lot of pre-trade transparency. Does that help a little?

So Mark Carney-- what did you all take from Mark Carney's paper? Anybody wants to volunteer, or I can keep going down my list. Rahim? Did I get your name right? What's that? Riham.

AUDIENCE: I'm talking about the [INAUDIBLE].

GARY GENSLER: So one thing that Mark Carney said is he didn't really consider cryptocurrencies currencies, but they were an asset. What else did Mark say?

AUDIENCE: My name's Matt Doherty.

GARY GENSLER: Thalita, Matt.

AUDIENCE: One of the reasons he said it wasn't a currency was because of the extreme volatility that meant it had no intrinsic value, which I disagreed with. I didn't think that volatility should equate to a lack of intrinsic value.

GARY GENSLER: All right. So Matt's raising that Mark Carney says, well, volatility can't be a currency. I tend to agree with Matt. And if Mark were here, I'd say it to him directly.

AUDIENCE: [INAUDIBLE] stocks that are extremely volatile, but yet still haven't been devalued [INAUDIBLE].

GARY GENSLER: I would say there's even some Fiat currencies that have been pretty volatile.

AUDIENCE: So I think that it does have intrinsic value, but maybe not necessarily be a currency if it's not a dependable unit of account, if it's always fluctuating. And that was my take anyway. So I agree, but it's just a different line of reasoning why I don't think--

GARY GENSLER: So you think it's a different reason that it has intrinsic value.

AUDIENCE: Yeah, I think it has intrinsic value, I just think that it should be called a digital asset, not because it doesn't have intrinsic value, but because it's not a dependable unit of account.

GARY GENSLER: And your first name? I'm sorry.

AUDIENCE: Kyle.

GARY GENSLER: Kyle. So Kyle's saying that it's because it's not a dependable unit of account. And very few places have used it as a unit of account at this point in time. Matt-- it's good, we're going to have a debate here.

AUDIENCE: But the fact that places have used it as a unit of account should make it so that it is a currency. It has been used as a currency in the past. And whether five people use it or a million people

use it, shouldn't the fact that it can be used qualify it to be a currency, whether it's to a certain amount of people shouldn't necessarily matter.

GARY GENSLER: And so who wants to arbitrate between Matt and Kyle? Leonardo.

AUDIENCE: Yeah, I wanted to give an example of countries where there is super high inflation, where their domestic currencies lose what it's really worth. So people actually automatically start to use dollars, for example, as their reference account. So it can be functional in the sense that people can still exchange, but you can't really measure until you peg to something else. And actually, Bitcoin's pegged to the value of something else today. And that's where I think the value of accounts-- I'll be on the left side camp.

GARY GENSLER: So it depends. And if it's in a country with hyperinflation, and I don't-- I hope not-- have any of you lived in a country with hyperinflation in your lifetimes? So five or six of you have. So you know what it is like when you go into a restaurant there's one set of pricing. But if you eat for too long and linger at the table, it's different level of pricing. Literally, right?

AUDIENCE: You get your paycheck one day, then you have to spend it as fast as you can, because in a week, that's basically a fraction of what you were paid.

GARY GENSLER: But from the view from the top, what Mark-- one quote from the paper that I took was that authorities, thinking about-- this is from a public policy perspective. Authorities need to decide, are you going to isolate this world, regulate it, integrate it? Now, some countries-- I don't think anybody's fully isolated it. But some countries, in a sense, have said, let's ban a lot of this activity. And Kelly?

AUDIENCE: Can I ask to what extent are other countries looking to comments like this to decide what stance they're going to take?

GARY GENSLER: Kelly's question is, so to what extent to comments from a Mark Carney who's the governor of the Bank of England, but heads the Financial Stability Board-- how much does that influence the rest of the official sector community? And it's a great question. I think that it all goes into the mix. I think that there's probably in any public policy sphere six to a dozen countries that really take the lead, not legally. They're not taking the lead legally, they're just taking the lead because others follow that which is said in the US, the European Union, China, Japan. I mean, we know the usual and the normal countries.

But part of it is because the depth and breadth of their economies, part of it in this world the

depth and breadth of their financial markets. But it's also because often their opinion leaders and their opinions are somewhat respected. But we have 180 or 190 countries. And each one of them has a different culture, and each has a different political system, and a different history, and different economic well-being.

So I went into the international arena doing regulation thinking it would be a dystopian view that there's going to be one worldwide regime for almost any public policy issue. I mean, I don't know if it exists in almost any place. But when you get to financial services, it's pretty unlikely because of all those different cultures and histories and political systems and economies clashing up against each other. Yes?

AUDIENCE: I was just wondering if you can explain more about what you mean by China leading the effort-

GARY GENSLER: China's--

AUDIENCE: Is leading the effort in regulating the blockchain, because China has banned the exchange of Fiat money [INAUDIBLE].

GARY GENSLER: So the question is China. So how many in the room think China would be in the isolate-- dominantly in the isolate category rather than the integrate category? So a quarter or a third. It's interesting. It's really a hybrid. China came pretty strongly saying no to a lot of activity. And yet, two of the biggest mining poles for Bitcoin are in China.

Some of the crypto exchanges left China, but those miners are the biggest sellers of Bitcoin, because they're collecting the Bitcoin and need to sell them, have to find some crypto exchange somewhere that is no longer in China. I'm going to mispronounce the name of the exchange. But Huobi, H-U-O-B-I, is still very much a Chinese crypto exchange. I think it's now registered in Malta if I'm not mistaken maybe. So there's a love-hate hybrid.

The Central Bank of China has very active projects with regard to blockchain technology. And they have a whole lab and it's public. That which is public is public. That which is private probably is bigger and we just don't know about it. So there's a bit of a mixed approach even in China, if that answers your question.

So let me just go-- I've spent a lot of time in the last six months traveling around the globe and speaking at different conferences, OECD, in Japan, and here in the US. What I see-- guarding

against illicit activity, broad consensus. 180-190 countries, yeah, we've got to do it. Really choppy performance on implementation, and sometimes a little bit of a head fake from one jurisdiction to another, because some actually are fine with tax evasion as long as it's tax evasion in the other person's jurisdiction.

Usually, low population centers are more comfortable promoting being tax havens, trying to take economic activity from elsewhere. But there's general broad consensus and it's usually centered on finance ministries and central bank authorities and the equivalent of law enforcement, our Justice Department. Think of those. That's where the nexus is happening country by country.

Financial stability, general consensus to monitor-- there's not a deep worry right now, because the space is only a quarter of a trillion dollars. And the worldwide capital markets-- the worldwide debt markets are \$250 trillion, nearly 1,000 times bigger. And the worldwide equity markets are about \$90 trillion. And even the worldwide stock of gold, at \$7 trillion, is nearly 30 times as large. It just gives you a sense of the relationship right now why let's monitor, but it's probably not systemic destabilizing.

However, there's different perspectives, particularly in countries that have capital controls, because it could be destabilizing to a currency in that way. And then thirdly, the investing public-- protecting investing public, I would say the views are wide ranging. In the US and Canada, more forward leaning, more a lot of this stuff-- maybe these initial coin offerings are securities that need to be protected. And in a bunch of other countries, it's like let 1,000 flowers bloom. Let's promote innovation and so forth. And it's a pretty wide view.

My personal view is, and I've said this at some conferences, if this grew from a quarter of a to five and 10 and 20 times the size, or if the ICO marketplace, which has raised about \$20 to \$25 billion today, kept raising that but went to like \$100 billion a year raise, then a bunch of countries would probably want more investor protection. I think-- this is just my personal view-- we will never have uniform jurisdiction, uniform laws. But part of what's going on is this is so new and it's still relatively small versus the capital markets. If it grew, I think more countries would want some protection.

AUDIENCE: I have a question regarding the illicit equities and financial stability. As you traveled to other country, what metrics were they using to measure their success or monitor on those fronts?

GARY GENSLER: So the question is what are countries doing to measure for success. I'm going to use one

example, and then we'll keep going into the details. Japan had some of the earliest crypto exchanges, Mt. Gox, G-O-X. Mt. Gox was an early exchange that the promoters, the owners moved to Tokyo, even though they weren't Japanese nationals. So it was centered in Tokyo. And it went down when about half a billion dollars of value was lost. It was supposedly a hack, stolen crypto. It was an interesting case. It was actually being stolen over many months. It wasn't one specific hack.

So Japan in 2017 finally got around and changed their laws. And they put in a whole regime to regulate crypto exchanges, particularly around this customer protection custody issue and around illicit activity. And they actually have gone in and asked exchanges to register. They go in and actually do examinations. And earlier this year, of the, I think, 30 some registered exchanges, five or 10 had to cease operations.

How do they measure success or failure? Another exchange in January of this year lost another half a billion dollars to a hack. Their principal executive, their prime minister, got a question in a news conference. If you're a regulator, that's not a good thing. So sometimes, you measure success or failure as to whether your boss gets a question in a news conference about why it's not working. The Japanese have been terrific, by the way, in terms of what they're doing. But I'm just using that as an example of sometimes.

So let me just chat about a deep dive into each of these in probably five or 10 minutes each, which you could do a whole course on each of these. But let me just deep dive a little bit. Guarding against illicit activity-- so tax compliance and reporting, what do you think the first big question that the US government or any government-- this sounds US-centric. And Kelly, I thank you for your paper, because Kelly-- is it all right if I call you out-- wrote a paper for today, which I happen to read earlier today and said Gensler's work was too US-centric. I thought it was gutsy. I thought it was gutsy.

But you're right. It was US-centric. I was speaking to the US Congress. So that was this thing you learn in politics, too. You try to gauge your audience. But you were right. But what do you think the first thing whether it's the US government or any government's got to figure out in terms of this world came along in 2010, 2011, 2012-- what was that first question, which you may have teased out of the readings, but as a policy question? Anybody want to take a guess?

AUDIENCE: How do you treat it for tax purposes?

GARY GENSLER: How do you treat it for tax purposes? How do you treat Bitcoin at the time for tax purposes? And so that central question was the first thing that really came up. Is it a currency? Is it a form of property? Is it something else? What did the US government say back in, I think it was 2013? But it would it be in the testimony. What is it? Is it a currency or property?

AUDIENCE: Property.

GARY GENSLER: Property.

AUDIENCE: It makes for a pain when you're filling out your taxes and you do any sort of trading.

GARY GENSLER: That's right. So the result of that is-- you want to say it again?

AUDIENCE: You have to-- basically, every time you exchange to another currency or you spend it, you have to record the cost basis. And yeah, if you do any sort of my tax return, was 600 pages this year. it's pretty brutal. So any time it changes at all, you can't consolidate-- I think it's like with stocks you can consolidate. If it's the same security being traded over the year, you can consolidate to show your beginning and ending and just pay tax on the delta. But you have to report every single trade.

GARY GENSLER: So these types of questions were not known in 2008 when Satoshi Nakamoto wrote his paper. But 10 years later, is it currency, is it property? Some jurisdictions around the globe, very few but some, have said its currency. But almost dominantly around the globe, it's some form of property, and then within the laws triggers, like it does in the US, capital gains and so forth like that.

The next quote set of questions was, what's the tax treatment of mining, exchanges, and forks? Anybody want to tell me-- if you're mining and you receive Bitcoin or any other crypto, Ether, and so forth-- anybody want to take a guess? It's not a guess. I think it was even in the testimony I wrote. You had 600 pages.

AUDIENCE: I know with a fork anyway, you basically pay tax on the whole thing. So a Bitcoin cash fork, basically the cost basis is zero, and whatever its value at the time you sell it.

GARY GENSLER: You're saying you had to pay taxes on both sides of the fork?

AUDIENCE: Yeah.

GARY GENSLER: So that's rougher than a stock split. A stock split, you just carryover basis. How about Bitcoin mining? Anybody? Zan, you want to take it?

AUDIENCE: I actually don't know this one, but I would assume they treat it like income.

GARY GENSLER: Income. Zan's right. It's income. You mine, you get income. So each of these had to be addressed in the tax law. The next thing is something called the Bank Secrecy Act. Anybody want to tell me what the Bank Secrecy Act is? Is it Nicholas? See, I can read your name there and see how that worked.

AUDIENCE: I'm not sure what it is.

GARY GENSLER: OK, that's all right. Bank Secrecy Act was passed a few decades ago so probably before most of us in this room-- after I was born, but most of you were born. Anybody want to say what the Bank Secrecy Act is? Daniel?

AUDIENCE: Is it the Bank Secrecy Act that deals with KYC and AML and essentially knowing the parties that you're interacting with?

GARY GENSLER: Correct. That's correct. It's really trying to protect against secret transactions or what's often called money laundering. And behind the money laundering laws is knowing who the customer is of a bank. So you'll hear these letters, KYC, know your customer; AML, anti-money laundering. And the Bank Secrecy Act, underneath it then, has reporting obligations that anyone who has to report under the Bank Secrecy Act has to report when there's large transactions.

If you go into the bank and you ask them, can you please-- I want to take a withdraw of \$11,000 of US currency. They have to fill out a report, because I believe the triggers \$10,000. You walk in and you get \$500, no report. But there's various suspicious activity reporting and other large transaction reporting that gets triggered in the US Bank Secrecy Act.

But you will hear over and over again-- even if you never invest or work in a blockchain company, you will hear something called KYC and AML. And it's these two regimes that kind of work. They're not the best, but they do their job to give the official sector and the banking sector a sense of who owns the accounts and when there's suspicious activity that there's a reporting obligation into the authorities. Aline?

AUDIENCE: So how do anonymous cryptocurrencies fit in here? I suppose at the exchange level you do

KYC and AML.

GARY GENSLER: So Aline is asking how does everything fit in. So how does money transmission laws-- money transmission laws are the laws that were just mentioned by Daniel, the anti-money laundering. CTF is counter-terrorism finance. I mean, Washington is a world full of these letters and jargon and everything.

So how does it fit in? It first is one of the things in the US Department of Treasury-- but again, to internationalize it-- other departments of treasury and so forth around the globe define when do you come under the similar laws. When are you just a user of this property, because it's not a currency? But to confuse matters, the US Department of treasury said it was a virtual currency, a virtual currency which happens to be property for tax law.

This is two parts of the same department. The US Department of treasury said it's property not currency. Another part of the US Treasury said it's virtual currency. And the reason they had to say it was virtual currency is they wanted it to come under this law, the Bank Secrecy Act, without going probably to Congress to have it be amended. Hugo?

AUDIENCE: So cryptocurrency is given a bad rap for money laundering, but what about [INAUDIBLE] this year, I think some bank was fined for money laundering over \$200 billion. And the amount of money going through crypto exchanges is in the maybe \$10 million.

GARY GENSLER: So Hugo's asking the question, well, wait, crypto is getting a bad rap for money laundering, what about everything else? And I'd say, yes, what Hugo is reminding us of is criminals don't change, just the technologies they use do change. But they're still using bags of cash in some jurisdictions and there's still suitcases and cash drops around the globe. I'm told that there's even now some trafficking between crypto and physical cash where couriers can be paid a certain percentage to take suitcases of cash from, let's say, drug runners on the one hand and exchange them a thumb drive or a private key with Bitcoin on the other, so just new means and methods. Sorry?

AUDIENCE: I would just reply that I would say that the amount that that bank was charged was probably a small portion of it, whereas there is probably a higher proportion potentially of cryptocurrency that has illicit uses.

GARY GENSLER: So Christopher is saying maybe there's a higher percentage of crypto that's being used for illicit than the percent of Fiat. That may well be correct, because the world's stock of Fiat is

measured in the tens of trillions. But that may be, but it's still something that concerns, because like water wants to find the lowest level and will drain up wherever the leak is, illicit activity will flow to wherever the lowest level.

So the challenges, the key challenges-- you all have raised many of these, so I'm not going to ask questions. But the pseudonymous addresses, that is a real challenge for law enforcement around the globe. Privacy coins, like what we talked about Zcash and Monero and so forth, that have a cryptographic method to make it harder to track. And then compliance and reporting, there just isn't a lot of-- even well meaning people don't often comply and put in the 600 pages. The US government. Thanks you.

AUDIENCE: I'm waiting for my audit to come.

GARY GENSLER: What's that? You're waiting for your audit to come. I would say the other challenges are also-- these are the things that the regulators and law enforcement talk about. Crypto to crypto transactions are a little bit more challenging than crypto to Fiat. Does anybody want to-- Zan, why?

AUDIENCE: It seems to me that, from a regulator perspective, it's fairly easy to regulate and monitor the on-ramps and off-ramps, right? So when you're dealing with financial intermediaries, you're essentially bringing Fiat into crypto and you can monitor a transaction or if it's coming out. But what happens within the ecosystem, especially when you bring in Monero and some of these privacy coins, regulators have no idea. So it's really hard.

GARY GENSLER: So this term, on-ramps and off-ramps I've heard a lot, not just from Zan, but that's how law enforcement thinks about it. Because they're regulating the intermediary caught-backs, back to the discussion we had about 30 minutes ago, regulated intermediaries give the official sector a node to influence behavior. They have the banks, the JP Morgans and the small community banks, in this system of Bank Secrecy Act compliance.

And even though some are doing sloppy work, as Hugo pointed out, they're in the system. And so crypto to crypto is harder for the official sector, because they don't need any commercial bank. Or in a sense, crypto to crypto is easier for somebody that wants to stay off the tax base, because there's not the same reporting. So it depends on which side of the lens you're on as well.

Decentralized exchanges we're going to talk about in about five or six classes. But trust me,

they're harder for the official sector. Decentralized exchanges are basically-- think of an algorithm that is decentralized, no central intermediary. But through an algorithm, I can and I could trade Bitcoin versus Ether, Ether versus Bitcoin. And this decentralized exchange allows it to happen. Most of them right now are between two tokens that are on Ethereum, so Ethereum token into Ethereum, token two ICO tokens. But they're a real challenge and we'll get to them later. Anybody know what a dark market is? I'm not going to ask if anybody's used a dark market. Don't worry. Does anybody know?

AUDIENCE: I think like the Silk Road.

GARY GENSLER: Silk Road. It is Silk Road. But what is Silk Road?

AUDIENCE: It was somebody using the deep web. The guy's in jail right now. And he had the idea of free trade and it was used for drugs mainly.

GARY GENSLER: So it's basically a website where you can buy and sell illegal things, not just drugs but primarily drugs. And the payments were generally in Bitcoin, even though some have moved on from Bitcoin now. And the technology they were using was a TOR, T-O-R, which is a way that you could do communications on the web and not be tracked, I mean broadly speaking. So that was Silk Road. And dark markets exist. Again, before Bitcoin, dark markets exist. They might have been called black markets. So they have a new name. They're a new technology.

And then state actors-- and no one should doubt that state actors are always in some competition with each other. And even if we're not in a hot war, sometimes you're in other types of competition. And so state actors are also using-- and not just like the Mueller investigation saw that-- they alleged that Russians were using Bitcoin to mess in our elections. But in a more broad sense, state actors could play in this space.

I just thought this chart was interesting. I found it on a website. Diar did a report. But this is US Agency Contracts for Blockchain Analysis. There's companies out there that will go in and do the forensics and analysis. And here is the highest agencies. These numbers aren't terribly relevant that it's \$2 million or \$2.5 million, but it's interesting. It's the IRS, it's the customs, FBI, and the Fiscal Services, and the Drug Enforcement Agency.

That's the parts of the US that have publicly done requests for contracts so this outside service could track it. But it just gives a flavor for who's chasing after Bitcoin usage in the US. It's wonderful transparency. That's illicit activity. Let me move on to financial stability, because

we're going to run out of time.

Financial stability-- the initial assessment of the Financial Stability Board is not big enough yet. I would say though, again, capital control companies are worried about maintaining stability. That's if it could undermine your currency value. In essence, a capital control country, where China has some capital controls for instance, you can't get a lot of the currency out. But if you can go Renminbi to Bitcoin, Bitcoin to dollar, then it's basically a bridge currency to avoid capital controls.

And one of the things I understand the Bank of China is focused on is that with the big miners in China that, in essence, the mining operations are a way to get around capital controls. It's a way to change Renminbi into electricity, electricity into Bitcoin, Bitcoin into dollars or euros. But it may also be why some local officials in China apparently are allowing the mining to continue. And while I don't have any documented proof, it's why some people think that there's probably some arrangements with these local officials.

I mentioned three other areas in the testimony that I think are on the horizon that are worth thinking about. Crypto leverage-- a lot of the crypto exchanges provide a lot of leverage. You can buy Bitcoin, in some cases 100 to 1 levered. Most or not at 100 to 1, but almost all are at least 10 to 1 says our trader, right? So leverage often is where you can get more acceleration of a crisis if it's already happening, more systemic risk. This still is a rather small market, but the leverages, probably something could propagate any crisis if it were to happen.

The market infrastructure itself, like Australia is using blockchain technology to do their clearing and settlement of stocks. They haven't adopted it yet, but they're rolling it out next year and into 2020, so just making sure the infrastructure works. And then central bank digital currency-- so we're going to do two lectures on central bank digital currencies. And I probably should've just skip this slide.

But here are some of the concerns around central bank digital currencies. It could be pro cyclical. A central bank digital currency means the central bank says Joaquin does not have to deposit at a bank to have US dollars. He can deposit straight with the Federal Reserve. Or in Sweden, it's close enough to do it. You can deposit straight with the Swedish central bank. We'll talk about this more in a couple of weeks. But that could lead to runs away from commercial banks to central banks.

AUDIENCE:

I think my key question is, if you do so, you run the central bank digital currency on parallel to

its Fiat currency. And that would jeopardize the ability that the central bank would be able to carry out monetary policy, especially if you use Bitcoin in a way that the supply is rigid, the ability for you to actually carry out for the likes of [INAUDIBLE]?

GARY GENSLER: Remind me your first name? Sean. So Sean, I agree with Sean. Can you hold that for about two weeks when we're going to go deep-- we're going to do a deep dive on all of these. But basically, Sean's point is if a central bank issues currency directly to the public digitally, could it also undermine monetary policy? And there's a bunch of neat trade-offs there. I leave it for you just to say we're going to come back to that.

The investing public-- so we've talked about that the markets are readily susceptible to fraud manipulation. And we're going to spend a couple of lectures on crypto exchanges. But they're not regulated for market integrity. So a simple thing like-- remind me your first name.

AUDIENCE: Michael.

GARY GENSLER: Michael. Michael has trades. And I'm assuming some of those are on crypto exchanges?

AUDIENCE: Yes.

GARY GENSLER: All right. So when Michael puts an order on a crypto exchange, there's currently no rules in the rule books, no law in the law that says that exchange can't front-run Michael. So Michael says he wants to buy Bitcoin at \$6,400 and the crypto exchange could buy some in front of him at \$6,490-- or \$6,390. Yeah, sorry. That's called front running. So there are many, many ways to make money on Michael's order that can just be goofed around. Kyle, is that a question?

AUDIENCE: I thought that front-running [INAUDIBLE] were criminal activities if they weren't covered in a particular law or regulation by FINRA. Is that not correct?

GARY GENSLER: So Kyle is raising-- well, maybe if it's not covered by investor protection laws, might it be covered by other laws? You mentioned FINRA. FINRA, which is the self-regulatory organization in the US for investments, would be investment law. But Kyle, you're right. Certain things are still against consumer laws. I don't think front-running is one of them, but you might be right about that. I would contend-- I'm an advocate that Western societies early on and many developing countries in Asia, elsewhere benefited by layering investor protection over consumer protection.

That consumer protection is about transacting and the fraud that can happen in a transaction--

selling an automobile, selling a baby's crib, and so forth, selling a bottle of milk. Investor protection also layers on something else which has to do with issuers having information asymmetries, that the issuer knows something-- the person raising money-- and the purchaser does not know that information. There's a lot of information asymmetries that you're trying to address in the market.

And then secondly around exchanges the concepts of pre-trade transparency, post-trade transparency, trying to bring transparency and saying we're going to promote economic activity. So in the US, there were two laws passed in 1933 and '34, the Exchange Act and-- sorry, I'm going to have to remember-- the Securities Act and the Exchange Act. But one was for issuers, which was the first one, and the second was for exchanges in '33 and '34. And I think those are the key things.

Let me just mention-- the key question, the definition that we will be wrestling with for the next several weeks is when is something is security, when is it a commodity, when is it a derivative. We don't have to answer these today, but those will be-- is it a security? Is it a commodity? Is it a derivative? Not only are there different laws for each, but there's different public policies and different normative behavior that's implicated.

Securities are when there is an issuer. And fundamentally, just from a public policy point of view, there's an information asymmetry. That person raising money knows more information than the person investing, they probably always will. So you get to, what's the fair exchange of information?

I'm going to skip a couple of things just to say why investor protection to Kyle's question. It goes beyond. And here are what are the Gary Gensler four bullet points. This you will not see in a textbook somewhere. But these are the key things I think investor protection layers on top of consumer protection.

One, investors get full and fair disclosure. You can debate what full and fair disclosure is, but it's something more than I'm selling you this carton of milk. Fraud and deceptive practices are prohibited. Now, fraud is supposedly prohibited even when you buy a carton of milk, but there's some added bits to it. And then this thing I said about the secondary markets, promoting price transparency.

And then lastly one that I hadn't talked about, that the advisors usually have a lot of conflicts in the financial markets. There's almost always, in most countries, some additional

responsibilities around the advisors, whether it's what's called a fiduciary responsibility or some other responsibility. Sometimes, it's just a best efforts, but there's usually some additional responsibilities on advisors. And those four bullet points-- I don't mean to teach a whole securities law course in three minutes or less, but those are how I quite summarize it. Tom?

AUDIENCE: That first bullet, is that from insurers or from issuers?

GARY GENSLER: Issuers. Thank you. Issuers, yes. Sorry. Emily?

AUDIENCE: Is there any consideration for how to prioritize between investor and consumer protection versus, say, tax enforcement? In that I can imagine that if there was increased protection, it would incentivize more investment, which then could, without prior tax coverage, make it so that [INAUDIBLE].

GARY GENSLER: Is that word tax or hacks?

AUDIENCE: Tax.

GARY GENSLER: T-A-X.

AUDIENCE: Yeah. So I would imagine that more protection would encourage more investment, but then more people potentially would be evading taxes if there wasn't already that tax framework in place.

GARY GENSLER: So Emily raises the question, how does any society, in a sense, make some trade-offs between tax and investor protection regimes? And ultimately, if I can take it one step back, that's what some countries are doing now, but they've been doing it for a couple of centuries. How do you promote innovation that might promote economic activity? So I'm broadening your question. How do you promote economic activity while in the midst still promoting whatever social goods you're trying to achieve in some regulatory framework?

Investor protection, so I made it the broadest, because that's what you'll hear often around blockchain and Bitcoin. But it was true when the railroads came along. It was true more recently when the internet came along, how to promote this new technology of the internet while actually still promoting broadly the social goods that we're trying to achieve. I'm one in the camp that says protecting against illicit activity, financial stability of investor protection do, in and of themselves, promote society and economic well-being.

I don't think-- this is Gary Gensler. I don't think they're necessarily in conflict. There are others who say no, no, no, no, you can't promote economic activity or taxes and also promote investor protection. I believe that's more short sighted. I think the regimes and reforms of the 1930s in this country and other decades in other countries are part of why we have had such a prosperous last 70 or 80 years. That investor protection actually lowers the risk to issuers. Thank you for correcting, issuers. It lowers the risk of issuers and lowers the cost of capital. If you have good investor protection, I believe ultimately it lowers the cost of capital, which is what I said and those two bullet points.

So US securities law, did anybody want to tell me what the Howey test was? What are those arches right there? Well, we'll take somebody new. First name?

AUDIENCE:

Actually, the Howey Test is coming from a Supreme Court case which was in 1946. And at that time, the Supreme Court was about to make a decision on, as far as I remember, citrus groves. And at the end of the day, they decided that citrus groves are securities. And right after that, there's a kind of agreement to be able to define something as a security. It has to meet four criteria.

GARY GENSLER:

Let's pause you there. All right. So citrus groves in Florida somehow are securities, absolutely right. A man named William Howey, he ran for governor actually in Florida a couple of times and lost, but he had a real estate venture and he had those arches by his real estate venture. And he figured he could sell part of his land as citrus groves. So the question was, when he was selling that land could that be, actually technically an investment contract?

Because in 1933, the Congress of the United States included in the definition of security these two words, investment contract. It said equity, stock, options. It kept having a bunch of commas. There was a comma, investment contract, comma, and it kept going. So the real legal question that went to the Supreme Court was not whether Bill Howey's citrus groves were securities. It was whether Bill Howey's citrus groves were investment contracts, because Congress had already decided by putting the two words and a couple of commas that it was a security. And that separates us from the European Union and many other jurisdictions, because Congress put those two words in there, investment contracts, which had to do with a lot of scams and frauds from the 1890s to the 1920s.

And to meet the investment contract test is this for part test. Is it an investment of money or

assets? Basically, the SEC has said that if you're giving Ether-- or you're giving Bitcoin to buy Ether, you're giving Bitcoin to buy some Amanda token, all right? That's an investment of money or assets. That's what the SEC has said. And most lawyers kind of agree with that.

Is it an investment in a common enterprise? So is there a group of developers that-- or is this like a common enterprise? Some people debate that. Some people say, well, we weren't-- really, it's an open source. If you're an open source software, that's not going to be enough to get away from being a common enterprise. Is there a reasonable expectation of profits? Most people think of profits coming from dividends or interest on your bond.

The SEC has said, and there's relevant court cases that say profits could be just the expectation of the appreciation of the asset. So I buy a token today for six Ether and tomorrow I think it might be worth 10 Eth. That's a reasonable expectation of profits. And the efforts of others, is it reliant on the efforts of other? This four part test. Jay Clayton, the head of the SEC said earlier this year, in essence, he hadn't met an ICO that he didn't think was a security.

His words were a little bit cleaner than that, but it was basically saying this initial coin offering market is probably mostly securities. Again, it's probably less than a quarter of the whole crypto finance market. It's a very relevant issue if any of you are trying to do a startup. But I would contend it's not the largest public policy issue. But borders and boundaries make a difference. The Duck Test, this is basically how I think about it. Christopher, you want to say it again?

AUDIENCE: If you see a bird that walks like a duck, swims like a duck, and quacks like a duck, I think that's a damn duck.

GARY GENSLER: So if you have a public policy question, like, do I have to file under the Bank Secrecy Act? Do I have to be a security? Do I have to be that? And before you pay that law firm \$1,000 or \$1,500 an hour-- and there are many lawyers that, I guess, are worth that-- ask yourself this question. And I'm trying to impart a value judgment to all of you, too, not only to save you legal fees, but there are many lawyers who are going to try to help you solve your problems.

But when you feel like they're just trying to get between the wallpaper and the wall with the narrowness and the thinness of the slice of their legal judgment, remember how Christopher just gave us the Duck Test. And then step away and say, well, maybe there's another business solution to what you're trying to do, because if it doesn't pass the Duck Test at some point in time, you're probably going to have your friends from the IRS, or your friends from the Justice

Department, or the friends from the SEC knocking on your door. And those are the friends you usually don't want to have knocking on your door.

There's still 200 to 300 ICOs a month. I just wanted to say that the market has not gone away. And the Initial Coin Offering Market, which we're going to talk about in a couple weeks, has all these attributes of the Howey Test. They're raising proceeds and they're usually trying to be functional.

I want to skip ahead a little bit to something on public policy. And we're going to do crypto exchanges, so I apologize I'm running tight on time. But I want to do something that Lauren and Tom have seen. Well, let me pause here. This is regulatory arbitrage. And Kelly, given your paper, you'll like this. But this is the list of where cryptocurrency exchanges were. It's from a Morgan Stanley research paper earlier this year.

But if you can see the little slices on the left, that's Malta, Belize, and Seychelles, three really deep capital markets. Well, not really, not really. But a bunch of exchanges from South Korea, Hong Kong and Asia reincorporated in Malta, the Seychelles, and Belize. And so it's just there is a whole bunch of regulatory arbitrage going on right now.

Public policy development-- this is only five minutes, but I just wanted to mention how public policy actually comes together. And Tom, you going to help me here? You got it?

AUDIENCE: Analysis.

GARY GENSLER: Analysis. Tom starts with analysis. Who thinks analysis is at the top of what happens in public policy? Any show of hands? Tom, no. What's number one? What do you think happens first? What's that?

AUDIENCE: Panic.

GARY GENSLER: Panic. Public policy, huh? Panic? Lauren?

AUDIENCE: I thought this was going to be a plug for your personnel as policy.

GARY GENSLER: Personnel as policy is going to be in here, but messaging. If you don't get your message right, you're never going to get to your analysis. But there's one other thing between messaging and analysis.

AUDIENCE: Coalition.

GARY GENSLER: Coalition building or politics. So messaging-- with your messaging, you can build a coalition, which is called politics. And if you get your politics right, you can actually get to your analysis. This hierarchy, not written in textbooks, comes from an old, wonderful political lawyer from Texas who shared it with me some 20 years ago when I went to Washington. He said, young man, you know nothing about this town. You don't get your message right, you're not going to get to your politics. If you don't get your politics right, you'll never get to your analysis and your policy. And that's how it's all made, kind of.

And so what do I mean by messaging? So let's have a little bit of fun. Does anybody remember this? What's that? What is that? Messaging, right? It's messaging from 2016. Does anybody want to go back to 2008 and tell me what was the message for 2008 to have some fun?

AUDIENCE: Hope and change.

GARY GENSLER: Change.

AUDIENCE: Change we believe in.

GARY GENSLER: You want to go back to 2000? Harder, harder I know. It's almost-- it's not in the history books yet. No? Compassionate conservative. That's W. He was compassionate, he was conservative, but compassionate, a nod to that moderate side. '92? This is going to be hard, huh? It's the economy, stupid. That's Bill Clinton, by the way. It's the economy, stupid. So messaging.

Coalition building, that just basically means, unless you can really bring folks together. So in the blockchain Bitcoin space, right now, there's not a broad coalition. It's not a deep well of people investing in blockchain and Bitcoin in America. But if you were to try to address yourselves to legislative change or regulatory change, you'd need some coalition. You probably can't just be a bunch of miners, or a bunch of incumbents, or startups, or crypto exchanges. There would have to be some form of coalition building that goes along with it.

Analysis does matter. I'm not going to say, Tom, it doesn't matter. It's just-- no, no, it's just to get to the analysis-- if you are sitting down with somebody in Congress right now, you probably also need, as James says, the crisis. My sense is legislative bodies around the globe, by and large, are not engaged in blockchain Bitcoin yet. Gibraltar passed something. Malta's passed

something. The Russian Duma, thank you, has been working on something for six straight months and can't come to a coalition around it.

Some state legislative bodies in the US have passed some modest things. There was a bill in Arizona actually promoted to allow Bitcoin for payment of taxes. It failed in committee, but it's interesting. Question? No. And yes, Lauren, you're right. Personnel is policy. Ultimately, who sits in the jobs matters. And I would just close on it. Think of those several layers. There's the political layer. Those are either elected or appointed by the people that are elected.

There's the political layer. And their risk appetites are different than the senior career level and the day-to-day career level. And the day-to-day career level is usually that person with whom we are all interfacing. But as we all know, if you walk into the Department of Motor Vehicles, that day-to-day person, that bureaucrat really has a very narrow range of decision making.

The senior career person who's in their 40s or 50s has a broader range of decision making, but also always remember they live in a world of asymmetric risk. There's not much upside to saying yes to something new, and funky, and hard, and difficult, but they could be getting a host of downside risk if it blows up on their watch. So there's asymmetric risk. And Bitcoin and blockchain gives that.

So that's everything. Thursday is permissioned versus permissionless systems. So we'll dive into some of that. If you've got more questions on public policy, just ask. We'll be talking about the rest of the semester. And the conclusions, basically, are public policy matters. Thank you.

[APPLAUSE]