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**GARY
GENSLER:**

Welcome to FinTech-- Shaping the World of Finance. We're going to talk about challenger banks today. And we've chatted in our last session about credit, payment before that. But challenger banks is an interesting topic that I thought we should take a moment and just talk about challenger banks.

This is this concept built upon building a bank that's internet-only, building a bank that has no bricks and mortar office. Now, it's not actually a new concept. And in this lecture, we're going to talk a little bit about what was happening even then in the 1990s and the 2000s when online banking started. But this term, challenger bank, and another related term, neobanks, relates to something a little bit later.

Ally Bank, which used to be the old auto lending part of General Motors, the largest-- at one point, at one point the largest auto manufacturer in the US-- Ally Bank in 2009 decided it was not just going to be an auto lender. They're going to become a bank. And in 2009, they said they were going to be an internet-only bank.

Over in Europe, and particularly the United Kingdom, many people say challenger banks started in Europe, in the United Kingdom, particularly when the official sector got involved and through something called the Payment Systems Directive and the Payment System Directive 2 and then later in the United Kingdom around open banking-- we've talked about this, about open APIs-- that it opened up the system a little bit. And by 2013 to 2015, you saw a slew of these challenger banks and neobanks getting into this space, first particularly in Europe, then a lot in the US, now around the globe. You can find challenger banks and neobanks in Brazil, in India, and Southeast Asia, in China. Some of them have been started by big tech companies. And in the last few years, you have big finance reacting as well, like Goldman Sachs starting Marcus.

And so now the term gets a little loose. Is a challenger bank and neobank if

Goldman Sachs is starting Marcus? That doesn't feel like a challenger bank. Goldman Sachs is established 140, 150-year-old investment bank. So it gets a little blurry. And I admit that in this space, there's sometimes terms don't fit well together.

I'm going to upload the slides here for a second and share slides. But Romain is there any questions as we're starting?

TA: Nothing so far, Gary.

GARY
GENSLER: So we're going to go back to a topic that we didn't have quite enough time to finish in class seven, credit scoring and alternative data. And it's an important topic that underlies some of what's going on with challenger banks, not everything. And then we're going to talk about some traditional banking, online banking as it sort of began in the late '90s and in the noughts. And what is this new wave, neo or challenging banks, some of how they're funded and their own valuations, and then the big finance reaction.

So back to data-- there is a company. Many of us know it as FICO. It's actually called the Fair Isaac Company, started 60 some years ago, started by two Stanford graduates, not MIT, but a very good institution. And they were more into data analytics. And remember, credit cards had started in the 1950s.

And here it was, the late '50s, early 60s, a fintech company of its time trying to do analysis on data. A gentleman named Fair and a gentleman named Isaac-- I don't recall their first names, I think one was Bill Isaac-- start this company. It's a data analytics company. And by the late 1970s, it had taken hold. By the 1980s, it was the dominant player for consumer credit ratings.

And their system is now used in 32 countries. And many other companies are using the FICO score system. But it's only one system.

And this gives you a little bit of background. It's about what your amounts that you owe, the payment history on those credit cards and other bank relations. Are you taking out new credit? We could do a whole class just on FICO scores.

They have updated it at least eight times. And in the summer of 2020, I think

they're rolling out FICO 9.0. It's possibly FICO 10.0. So it's not static, but it's built in another era.

It's built in an era about your payment history around your bank credit. It doesn't include many of the things that we would normally think to include. And so what is it that we're going through now? We're going through a period of time where folks are saying, well, wait a minute, maybe there are other ways, alternative ways to figure out and assess your credit.

And it's called alternative data. Alternative Data in a sense is just alternative to whatever FICO might be using. This could be your bank, checking, employment, income, insurance, tenant, utilities. All of this currently is not in FICO scoring.

Now, in some countries, employment data and income data is already and has been for decades used for consumer credit underwriting. But in the US and up to 30 other countries using the FICO scores, a lot of this, even this classic information like did you pay your rent on time, did you pay your utilities on time, is not necessarily included in FICO. It's partly because they didn't have the data in the 1970s when Fair and Isaac were doing this. And eight versions later, they still haven't included a lot of utility and tenancy.

OK, secondly, there's something called cash flow underwriting. And if we go to China and we go to payment wallets around the globe, but let's stay with China, Alipay and WeChat Pay now can really see a lot of your cash flow, not just your expenditures, but your revenues, if you're moving your income in on some regular basis into a wallet. And cash flow underwriting is even more relevant-- again, let's stay with Alipay for a moment-- about small and medium-sized enterprises. So whether it's Alipay in China or Toast, a payment start up in the restaurant business here in the US, Toast can start to see all the revenues and expenditures of a restaurant and sort of make a credit decision based upon that.

So cash flow underwriting is a very important thing. You don't necessarily need machine learning or AI to incorporate this alternative data. But the alternative data is something that FICO doesn't do. And classic banking, doing small and medium-sized lending, doesn't necessarily do good cash flow underwriting. Remain any questions?

TA: None so far on this topic. We got one question from Luke that perhaps you can touch upon later on why online banking started in Europe versus other regions.

GARY
GENSLER: OK, OK. Let me hold the Luke question when we get into that as well. Your consumption, your purchase data-- Visa and Mastercard already are looking at this to cross-sell to us. And others are looking at it to cross-sell. If you're buying sports equipment or hiking equipment, we, all of a sudden, get advertising for it. But can alternative data, like what you buy, relate to your credit?

Well, let's talk about something that's been known for some time. I don't know how many of you would have ever, when you went to replace an automobile tire, decide to get it retreaded. Literally, a retread is putting rubber, new rubber on the old tire.

Now, retreads or something that we don't usually talk about in a finance course. But it has been shown that those who buy retreads are a little bit more susceptible to credit risk, meaning default, meaning they're a higher risk credit. What if you could track people's purchases, whether it's automobile retreads versus new tires-- you see the difference-- or anything else that in the purchase history gives you a sense, is this a higher risk credit or a lower risk credit? You can take purchase and consumption data and tie it to are they higher insurance risk? Are they a higher risk in their credit?

Now, you have to be careful. You have to be careful to comply with local law and societal norms about not using alternative data that might be suggestive of something else. It might be suggestive of cultural differences, of race or gender or ethnic background or sexual orientation. And if your consumption of purchase data has to do with that and you end up with something in the US, you could easily be on the wrong side of what's called the Equal Credit Opportunity Act, that you have to basically be fair and unbiased in your extension of credit.

And this is sort of at the cutting ground of alternative data, is how does alternative data get used, but not inadvertently, or worse, purposely, trip up fairness and bias issues. And we saw that recently with Apple Credit Card. Apple Credit Card rolled out in the spring of 2019-- a partnership between Apple, Goldman Sachs' Marcus and Mastercard, a new, innovative thing that big tech was rolling out with big find in the spring of 2019.

And all of a sudden, a venture capitalist runs into the Apple Credit Card and finds that he and his spouse were going to get 10 times different credit. They file tax returns together. They were together, apparently worth many millions of dollars, maybe centimillionaire. And he starts to advertise on Twitter and promote that the Apple Credit Card had a problem.

And then Steve Wozniak, the co-founder of Apple, publicly announces that he ran into the same problem with his wife and himself. Again, they filed their taxes together. They're both extraordinarily wealthy. Why would one have 10 times or 20 times more the credit than the other? There seemed to be, for whatever reason, some gender bias in the Apple Credit allocation alternative data system.

Now, we don't know yet to this day what it was. But what we do know is that Apple Credit Cards stubbed their toe on their rollout. Sometimes it's about the law. Sometimes, though, it's about business. Sometimes it's about breaking societal norms.

But in that case, Apple had a tough rollout. They roll out Apple Credit Card. And yet they have the co-founder, former founder of Apple saying not so fast, you've got a problem here.

The other sets of data is our social footprint, our social and media footprint-- app usage, browsing history, the like, geolocation, et cetera. And in this world of coronavirus and the crisis, we know that geolocation is going to be used and is already likely being used for a lot of contact tracing in many countries, certainly in Korea from the news reports. And I'm guessing Luke could tell us more about that. But we know that contact tracing and all of the attributes of figuring out who we are as an individual are being traced more and more.

In China, there's a social credit scoring system that is an official part of the government's approach to extending credit. It might be whether you can buy an airline ticket. It may be whether you can even get on the commuter rail system, depending upon your app usage. And that app usage in China even includes, as I understand it, not just your-- what you're doing on Alipay or WeChat Pay, but also what you're doing on dating websites. Literally, I repeat on dating websites, and whether and how you're on any website or any app could be a little bit like the tire

retreading, that you might be-- you might find, through the alternative data, that it's a little different.

Here in the US, many fintech companies are approaching the regulators and saying we don't want to trip up and be on the wrong side of the Equal Credit Opportunity Act. We don't want to be on the wrong side of other laws, like Fair Credit Reporting, Truth in Lending Act, and a series of other laws. Please help us, regulators, interpret how we can use alternative data, how we can actually be more inclusive, provide more and better finance to more people at a lower cost, but not be on the wrong side of these important societal and legal norms. So it's a very interesting place.

I'll use one example from a conversation with Lending Club. I had the honor to be on a stage-- before the crisis, one of the last conferences was an MIT fintech conference. And I was on the stage with the CEO of Lending Club and having a good interview, a fireside chat.

And I asked about alternative data and how they use it. They use it. But what they find is in using alternative data in that marketplace lending company, they then use machine learning on the alternative data. They find some what they believe to be correlations. And then they just use straight up regression analysis.

Once they identify an attribute, they put the machine learning to the side. They've used it. But then they sort of then go to the down-scaled old way, just straight up. That's an attribute we've identified. Tire retreads matter. Let's just use it that way.

So they do it by trying to find some attributes and then move on, as I understood the conversation. So there's a tremendous ecosystem in alternative data, too. This is just a slide that pulled. You can readily get these types of slides on the internet. But this is from CB Insights as to alternative data sources. This is a bunch of companies-- I wouldn't necessarily call them fintech startups, but they're companies trying to service, here's how we can help you either with machine learning, AI, or actually sources of data in this whole space.

So I'm going to move on to the challenger bank discussion, but pause for a moment to see if there are questions. I know Luke had a question, but that was really about challenger banks. So [Romain?

TA: Hassan.

AUDIENCE: Hi, yeah. I mean, if you could just elaborate on cash flow underwriting. I do not quite get it.

**GARY
GENSLER:** So let's do it in a small business. And let's use either the example of toast in the US with restaurants or almost any business that Alipay has the wallet. What Alipay or Toast and see on that small business or restaurant is they can see their revenues and they can see their expenditures to the extent that it's kept inside that payment architecture.

So in Alipay, they've incentivized the millions of merchants using Alipay not only to receive revenues into their Alipay Wallet, but also to pay their suppliers with the Alipay Wallet. So what Alipay can do and does do is they can start to see the entire picture or 80% or 90% of the picture. They might not see the entire picture, but they can literally build a whole 360 degrees around them.

Or take something like Intuit here in the US, which is the company that was founded 20 plus years ago that has the most dominant sort of tax software, TurboTax. Intuit is also in the fintech space. They recently announced buying Credit Karma for billions of dollars. And they also have other fintech offerings, where they can maybe build a greater picture.

I call it cash flow underwriting. It means underwriting, assessing the risk, because you can see the revenues and expenditures and build, in essence, an income statement on the merchant. Amazon can do some of that, not completely as well as Alipay. But Amazon can do some of that through Amazon Prime and what they can see on the merchant. Did that help?

AUDIENCE: Thank you.

**GARY
GENSLER:** And it gives them a competitive advantage. And it's part of why getting into the payment space before getting into the credit space is a business model, particularly in big tech. Now, I'm not saying that's what was the initial reason that Alipay got into the payment space. Alipay was trying to promote their online platform. Amazon got into the payment space to promote their online platform.

And even Toast, the restaurant software business, got into the restaurant business

to sell tablets. They were thinking we'll sell the better hardware to the restaurateurs, because this tablet was important for the servers, what we might call waiters and waitresses, walking around a restaurant. But what they quickly found is that the Toast-- this is the example-- they pivoted from being a hardware tablet business to being a payment business.

And then they start to be a credit business as well, because the data they're receiving in a partial cash flow underwriting-- they don't have a full 360-- allows them to start to underwrite in that business. And frankly, they're likely to be able to do it better than a traditional bank. A traditional bank that might get annual or quarterly financials will not have quite the up-to-date sensitivity as to how that restaurant's doing.

TA: And we have a question from Danielle about data aggregators on the slide.

GARY Please, please.

GENSLER:

TA: Are the different data aggregator players for the purposes of selling to fintech customers or for selling to companies who want to use the data for personalized advertising? And if yes, why? Do you anticipate any consolidation?

GARY No, I think Danielle raised a good question. They're data aggregators. And the
GENSLER: terms, again, are not terribly well-defined. They're data aggregators that could be there, as Danielle points out, to cross-market, to sell.

And even-- let's use Credit Karma for a minute. Credit Karma initially was about providing free access to your credit report. That was their initial insight.

What they found over time is they could cross-sell and become a friendly website for free to give you access to credit. They were cross-selling. But then they were also collecting a fee. And they were collecting more data. And inevitably, they had 100 plus million files, even though they had much fewer customers.

But data aggregation could also come from another space. Plaid, Galileo, and others, we call them also data aggregators. And they started as software providers to provide an open API, as we discussed. But then they create a data warehouse.

And they become data aggregators.

So the term data aggregator can be used in many ways. One small way it can be used is the second way Danielle mentioned, and it's kind of mentioned on this slide of alternative data. There's some companies that just said we will collect data. FICO score doesn't have utility data. We'll collect the utility data and rental payment data.

We believe it will become an alternative data aggregator. So yes, they're are data aggregator. But they're collecting data with the clear mind that they're going to enhance credit scoring.

And as we turn now to challenger banks, challenger banks might say, look, we don't have the ability in our first year or even maybe 10 years of business to be the one collecting all that utility and rent payment or social media data. We want to turn to somebody else. You might create a business simply to say we are going to be a data aggregator to enhance the underwriting of these banks. There's hundreds of challenger banks. I want to be a service provider to those challenger banks.

So Danielle, good question. It could be on marketing. It could be that you've got there because you were in the business of something else, payments or credit scoring, like Credit Karma. Or you could specifically say I just want to have a business model simply about an alternative data field that I think and my machine learning might tell me that alternative data field is going to give us better underwriting. And then I will sell to all the other fintechs. I will service fintechs by collecting data. Romain anything else, or--

TA: We have Nikhil and Brian with their hands up. Go ahead, you two.

GARY OK, Nikhil or Brian and then we'll move on.

GENSLER:

AUDIENCE: I had a question around underwriting based on cash flows. So I wrote my paper on alternative data. And something that came out was most of the alternative data lending firms are focused on small businesses. So the Amazon example that you gave is for their suppliers.

Is there regulation in the US that's preventing a cash-flow-based underwriting for

customers? Because countries like Kenya have it with M-Shwari. Baidu piloted something with Zest AI. So just curious, what's limiting cash-flow-based underwriting in the US specifically?

**GARY
GENSLER:**

I think it's a great question. I think it's not just regulatory. It's also that as of now, as of now, the folks they could probably do the best cash flow underwriting on us are the banks themselves, that Bank of America and Citi sees your rent payment going out, sees your Visa payments going out, and sees your wages coming in. I mean, literally the banks themselves.

And yet, they have not, as I understand it, yet done a full 360 cash-flow underwriting. A number of them are enhancing their credit card products and enhancing those products by taking the FICO scores and then sort of like FICO plus a little. But interestingly, the big banks have collected together and formed something called Vantage, which is a competitor to FICO. And it's a sort of consortium amongst some big banks.

But it doesn't fully include the income side. And I think it does relate to some of the regulatory issues here in the US. In the earlier wave, in the earlier wave of data analytics in the 1960s-- remember, credit cards came along in the '50s and '60s-- we passed two really important laws-- one about bias, called Equal Credit Opportunity Act, and one about credit reporting agencies. These companies like TransUnion and Equifax, they're regulated under the Fair Credit Reporting Act.

And a lot of banks, they're just sort of trying to work through those issues. And again, this sets up the challenger bank discussion. It's part of why challenger banks around the globe-- they started more in Europe-- but the challenger banks around the globe had an alternative. This is one of the reasons I think that they have a bit of an alternative.

I think this is where we're headed. We will, as individuals, be more looked at this way. One little story-- there was one other question, Romain I'm sorry, who was it?

TA: Brian.

**GARY
GENSLER:** Brian and then one little story close out alternative data.

AUDIENCE: Could you please talk about how legislation, such as GDPR and other similar legislation, has affected this space?

**GARY
GENSLER:** So great question. There's also privacy concerns about sharing my data. Now, we all share our data. That sort of horse is out of that barn. But then society sort of says wait, what's your protection here? You're at the forefront of this, passes the GDPR, the General Directive, and the P is not privacy. I'm sorry, I can't remember the--

AUDIENCE: Protection something.

**GARY
GENSLER:** Protection Regulation, data-- data protection, that's right, General Data Protection Regulation. And they passed GDPR, basically the right to be forgotten, the rights about your information, the right to basically review it and so forth. It has some similarities to those laws that were way back in the 1970s called Fair Credit Reporting Act, even, but a lot further.

And what these privacy laws, and more recently in the US, the California Consumer Protection Act or CCPA-- we all got notices in 2019 and regarding from Google and others about the CCPA. What they've done is they've leaned into an ability for you to review your data and potentially edit your data and delete some of what's being tracked. It does raise some of the R data protection-- General Data Protection Regulation. But it doesn't go to the heart of whether using the data is going to lead to biased outcomes, which is about fairness and equal credit, or whether you're going to be regulated like a credit agency.

So I think the GDPR and CCPA better protect the public. They also raise some of the costs and barriers to entry in this field. So there's some economics to it. I think they might also tend a little bit towards then homogeneous outcomes, meaning that all the banks will be doing similar things to protect themselves in the regulatory environment.

So I think it's a consideration. It doesn't necessarily slow this down. It's also an opportunity for a fintech startup. If you think you can be GDPR-CCPA compliant and still be a really talented alternative data aggregator, that's an opportunity for you. If you're ahead of the regulatory curve and lower regulatory risk for the other startups, so that's an opportunity.

One little comment on alternative data that I like to mention-- and I don't remember where I read this, so I apologize. I can't quote this-- the study accurately. But there has been a study about credit as it relates to charging your phones. And so I just pass this along to you, that if some alternative data provider and alternative data underwriter wants to assess whether you or I are good credit, apparently, if one charges your phone every night, we're more likely to repay our credit card and personal loans.

And if you don't charge your phone every night, that's fine with me. That's totally fine. But apparently, you're a little bit higher risk for credit. That's what one survey has shown.

And I apologize. I just don't even remember all the things I've read, where I've breaded this. And so what if some challenger bank just tracks whether you charge your phone? By the way, that's not hard to do. It's easy. These phones are really quite sophisticated-- geolocation, tracking, contact tracing, everything.

So let's talk about the readings and everything. I'm not going to dive into it. But there were three readings about challenger banks, neobanks, and some of the challenges going forward in this field.

What is a challenger bank or neobank? And since we're-- I don't want to run out of time. Let me just sort of say challenger and neobank are often used interchangeably, but they're actually-- to the more sort of specific, they're a little bit different. A neobank is something that is acting like a bank but is not yet registered or licensed as a bank in its jurisdiction. And a challenger bank more technically would be something that has a license.

Now, most people use these terms interchangeably. But there's slight differences. Do they have yet registered? And challenger banks and neobanks are used to talk about this thing that happened in these last seven to ten years. I'm going in a little bit talk about how this relates to the online banking that came before it.

The pain points in traditional banking-- we're going to dive into this in a minute in a few slides. So I'll hold off. But those pain points about the costs that the big banks have, the bricks and mortar legacy business that they have, the legacy technology

are real and they've provided some opportunity to challenger banks. And the question is how will challenger banks and neobanks affect the landscape?

So one is what is this phenomena? Two, why have they been able to tap into this? What's the traditional bank's problems? And three, what's it mean for the future? That's what we're going to try to cover going forward.

So the challenges-- I mentioned a couple of them, but look, we all know it. In the US, there's about 78,000 branches still in the US. That's down from about 82,000 or 83,000. What will that number be in 10 years?

It's not declining leaps and bounds. But particularly after the coronavirus crisis, whenever we get to the other side of this, whether it optimistically is in months or more, realistically, in a couple of years and we-- all this social distancing starts to move around and we start to get out there, this 78,000 branches, do we need them all? And yet surveys of the public, still people like to have a physical branch for that occasional time you go into a physical branch. They have legacy technology.

The products themselves are somewhat commoditized. A mortgages a mortgage, by and large, an auto loan, and even a small business loan. There's a certain commoditization of payments and credit. And how, when you still have 4,000 to 5,000 banks in the US and in many countries still hundreds of banks, how do they literally compete with each other on a product that is somewhat commoditized?

Now, you might say that's hard for the new competitor. But the new competitor then comes in and says, well, maybe I can only provide something to the restaurant business, or I can provide something that is really a great user interface. And the cost and fees are real, too. The traditional banking, not just because of their branch network of nearly 80,000 branches in the US, but also because of their employment, also because of their fees-- a lot of the challenger banks broke in by saying, listen, we're not going to charge you the same overdraft fees or late fees. And if you do a deep dive and a deep study on one consumer banking, a lot of the revenue is on fees, whether it's overdraft, late fees and the like.

And so challenger banks also said we can go in there and try to challenge online in a different way and, of course, provide greater user interface. I think, to Luke's earlier question, partly why challenger banks started in Europe was partly because

of the Payment System directive. There was first PDS, Payment System Directive, what's now called 1 and PSD 2. I think it's partly because of the Payment System directives, but partly the 2008 crisis.

Now, Ally Bank here in the US technically was the first one in 2009 here. But a lot of people don't say that was the first one. But that came after the crisis. And then you saw this spur of them in the early teens that came along.

And I think a lot of it had to do with trust. And the European situation it was going through, the European debt crisis, all the way through 2012, 2013. And you saw an enormous number of these starting between 2011 and 2015.

And so this is a little bit the history of online banking. And I take this from FT Partners, which is Financial Technology Partners, which is a small investment bank started by a former Wall Street banker, I think a handful from Goldman and maybe Morgan Stanley and the others. But we're not going to go through each of these.

But the Bank of Scotland actually started to do online banking back in 1983. In essence, anything you think is new has something way back. Bank of America was already online by 2001. Yodlee, which is-- we talked about Yodlee when we talked about APIs-- had already been in this business. And ING, which was part of a big insurance company, started retail banking in the late '90s.

The internet came along. An earlier wave of fintech developed and online banking came along. Most of it, most of it related to traditional banks. And the distinction that I draw between online banking and challenger banking-- it's a light distinction, but an important one-- online banking generally was related to companies that had bricks and mortars, traditional business models, generally-- not always, not always.

And Mint was launched in 2006, later acquired by Intuit. That tax software company acquired Mint. ING, an insurance company, has something that Capital One buys for \$9 billion in 2011.

So the earlier wave of non-banking online banking, non-traditional banking, like ING Direct and Mint, were acquired. They were eaten up, taken up. And Ally-- Ally was an auto lending company formed 100 years ago by General Motors. It was the first captive auto lending company.

But this set this stage to what if I just started something that never had a banking license, never had a bricks and mortar? It's just a start up. I'm just going to go into some of these cracks, some of these opportunities the traditional banks are giving me-- costs, fees, trust, user interface-- and I'm going to start something.

And so what are the reasons? And from a survey, from a different group, The Financial Brand, these are just some of the reasons people are saying. It's easy to set up an account. I like the fees and the rates. Better experience, quality service, in one survey a couple of months ago. That's an opportunity as well.

Here's a list. You can make the list so much longer. There's hundreds of other companies. But what I tried to do in this is sort of stick to around the world different banks. Ally Bank from 11 years ago, but look at the spate of startups in 2013 to 2016 or '16.

Now, some of these are new, like BigPay in India. Some of them are multi-billion valuation companies already, like Nubank in Brazil, started about seven years ago. There's a bulk of them from the UK, like OakNorth. Now, Revolut is in 30 countries now, one of the earliest and largest out of Europe.

Some are coming from other fintech space. Like SoFi didn't start as what people would traditionally call a challenger bank. SoFi kind of started as an online lending platform, not quite peer to peer. But then SoFi is moving over.

You can put on this list Betterment that we will talk about in the next lecture that does wealth management. Betterment is starting to move into this space. Plaid has started to say they will move into this space.

And then WeBank is an interesting one that's really formed by a bunch of commercial banks in China that's saying we're going to just have an online platform. Is it really part of those commercial banks or is it separately a challenger bank. So I've got a lot going on, and KakaoBank, which is started by one of the big tech firms. I chose not to put Ant Financial on here. But you could arguably say Ant Financial, part of Alipay.

I was trying to stick to things that are really classically called challenger neobanks. So the vocabulary is a little loose. Most people, when they think of challenger

neobanks, they think of Revolut in Europe. If you want to study a case closely, look at Revolut, now in 30 countries. But a lot of other players who try to get in-- TransferWise from the payment space.

So some from the payment space some, from the big tech, like KakaoBank, some from commercial banks, some from investment banks, like Goldman Sachs starts Marcus. A lot going on. Nearly every country-- Australia is represented here, China, Southeast Asia and the like.

But this sort of gives you a map of it, back to that FT Partners thing. This blows it up even more, just with their logos. But you can see it's really around the globe right now. Kind of was emanated out of Europe, populated out of the US then, and then all of a sudden, you just saw it kind of all around the globe.

Brazil, enormous contributions out of Brazil in the business models as well and the like. Paytm out of India as well, in a sense, I should have mentioned. Quite a sort of interesting-- and this will be up in Canvas, of course.

So what are their product offerings? What are their product offerings? Well, any bank has the same sort of list of product offerings, of course. And this is just one example, again, from this FT Partners.

Checking and savings-- to be a challenger bank, it's usually right there, somewhere in debit cards, credit cards, checking, savings. And basically, they would say it was easy to an account. And we will actually pay you something.

Revolut, interestingly, started in the cross-border payment area and basically said you could have an account-- you can be in one country and you could have an account in multiple currencies. Traditional banking is a single-currency product, partly regulation, partly history. But Revolut says we're online. You can have multiple currencies. And we won't charge you all of that cross-border cost.

One might say it started as a payment company. But it was really an offering you accounts as well. And this idea of offering an account-- remember, the term neobank and challenger bank, often used interchangeably, but neobank is something that's not yet licensed.

You've seen a spate of companies in the United Kingdom getting licensed from 2016 to 2019. Many that were not licensed as traditional banks then filed for their banking licenses. And you've seen that happening along the way. When will SoFi, for instance, get their banking license in the US, so to speak. You'll see that sort of going along the way as well.

Romain I'm just going to pause for questions just to see-- get a little engaged here. And then I'm going to go to their account base. And we're going to talk about their account base. And then we'll turn to funding, valuations, and a little bit how traditional banks are reacting.

TA: Excellent. Alessandro, do you want to go?

AUDIENCE: Yeah, thank you. Hi, Gary. So my question is many of these companies that offer credit cards, they often partner up with banks. Is this because of regulatory issues or a balance sheet issues?

**GARY
GENSLER:** It's a great question. It's really both. And it's not just-- it's not just in the credit card business. You found that marketplace lenders also partnered up with banks. The idea of entering part of finance-- you always have a decision in any business of buy versus build or rent versus bill.

You can do this with your cloud storage. Do I want to build my data warehouse or rent it? Well, by and large, if you're a fintech startup, you're going to rent your cloud storage now, right? You're not going to build your data warehouse.

You might similarly rent somebody else's balance sheet. And so part of what you've seen is about balance sheet. You start a business and you try to find some funding, but you don't have the funding yourself. You don't have a balance sheet.

And you can get a warehouse line of credit. And you can use the asset securitization market as well to offload those credit card receivables, those auto receivables, student loan, and, of course, mortgage receivables. And-- excuse me-- [SNEEZES] and so you see [SNEEZES] in some lines of business, particularly mortgages, that what one might call alternative finance-- Quicken Loans, PennyMac, and others have built very significant-- well over 50% of mortgages in the US now, 50% to 60%, originated by the non-banks because they can readily offload the balance sheet

issues.

But to your question, a lot of it is also regulatory. And in the credit card space and in the peer-to-peer lending space, without a bank license, it's hard to do all the pieces you need to do. And without kind of diving into each of the regulatory reasons why, you tend to-- so Amazon partnered with Synchrony, for instance. And subsequent, it looks like they may have also partnered with JPMorgan Chase on credit card offerings.

And there are banks, like Synchrony and others, they will say we'll basically white label. Some of them, like Synchrony, that's a co-brand, on Amazon-Synchrony. Some will say we'll just be in the background. And there are actually some licensed banks that make a business out of servicing fintech companies. And there's a whole group of licensed banks that in both Europe and the US feel that's a line of business in and of itself.

AUDIENCE: Thank you.

TA: Martin.

AUDIENCE: Yes, with so many banks and with so many similar credit offerings, how do you see the differentiation will happen? And there--

**GARY
GENSLER:** Great question. Look, this is a very exciting space, but it's going to shake out. I mean, it's hard to imagine that they'll all be there.

There is one website-- I didn't choose to put it up here-- that actually follows the top 10 challenger banks, by every six months, they post who is getting the most web traffic? And part of it-- if you're SoFi, and in one year you get the most web traffic, but three years later, people aren't going on your website, that's a problem. I'm not saying SoFi yet has that problem.

So the way that these companies-- they've each started a little different. Some start in a slice of a domain, like Revolt is the cross-border. Some come at it from the open API side. Some come from the low-cost side.

They find one pain point and they try to do that well. All of them that are successful now pretty much started between 2013 and 2018. So it's a little harder to think

somebody is going to get in now.

But it might be a geography. It might be like BigPay, which I think is in Southeast Asia. It might be a geography as well.

But I do think there's going to be-- there's going to be shakeout. And even amongst the unicorns, those that are valued over \$1 billion, customers matter. And maybe this sets up. I'm going to show you two competing charts on challenger banks.

This is just Europe. This is just Europe. But you see the growth in customers-- Revolt, N26, Monese and so forth, just this remarkable growth of customers.

That's getting noted by traditional banks. You get 5, 10 million customer accounts, that's a remarkable thing to happen. We'll talk more about this when we do asset management in the next lecture. But most of the biggest online brokers, to give you scaling, were somewhere between 6 and 12 million customer accounts, E-Trade and the like, TD Ameritrade, so forth.

So to give this on a scale of customer accounts, these started to really get noticed. And another customer account chart-- different service, it's hard to know whether these numbers are accurate, but these are self-reported by the companies. This is by year of crop, the 2013 startups-- Nubank, Aspiration, Tandem, Chime.

Well, Nubank getting to 15 million customer accounts or KakaoBank in Korea getting to 10 million customers, Chime, 6 million, 5 million for MoneyLion, Revolut, 6, and some other figures show Revolut might be closer to 9 million now-- these are significant in and of themselves, that they can get to that. So part of a business model-- you can see hundreds of challenger banks. But many of them still only have 100,000 to 400,000 accounts. And that's a great start, but you've got to kind of get further. And the venture capitalists behind it have to decide what's their exit strategy? Can you sell this to somebody else who's trying to get a foothold in this space or not?

Stash, by the way, that's listed here is more in the online brokerage business than it is on an online banking. So I chose not to list it earlier. Tandem, only half a million customers, is a really big one in the UK. But Starling Bank and Revolut and Monzo are bigger. So how does Tandem break through when you've got four or five that

are bigger, just as an example, in the UK?

And so then valuations-- and it's really hard to get behind valuations. All of this is before the corona crisis. Some of these are going to be winners. Some of them are going to be losers, this one taken from a Forbes article in late 2019 based on PitchBook Data from their last funding round.

Now, Nubank-- look, let's go back. Nubank, 15 or so million customers-- Nubank's been the big success story here. Revolut, if that's a true number from their last funding round, that seems a little out of what the customer numbers are. It might be an out-of-date figure.

Valuations aren't clear. This is not stock market valuation. So I'm going to give you another take on this as well, is this is the actual funding-- back to the FT Partners survey-- this is actual funding that these companies have done and then what they call pre-money valuations of Nubank and Chime and some of the others.

So these are not insignificant players in the market. If you're thinking about going to work for one of these, it would be an exciting career path. But even the Nubanks and Chimes and N26s have to figure out how they stay viable, how they stay vibrant against the traditional players and the big tech companies.

And if you're all the way at the other end, if you're a company like Dave-- Dave is thought of as just maybe a unicorn and it's only raised 76 million. Now, that number may or may not-- but if you're Dave and you're there with a couple employees, will it be there in three years or not? What's their exit strategy? So I think you've raised the right question about all of these.

And the history of banking is we don't-- we do have 5,000 6,000 or so in the US. But they're community banks. They locally serve and really work hard in their communities. They know their business community. They know that. And they have some bricks and mortars.

In an online space, we know that network effects matter. And with network effects online, how many of these will exist is a great question. Romain one more slide on funding, but questions is I thought this was kind of interesting. I don't necessarily subscribe to it. But they-- this one site sort of said let's take a look at the funding

numbers. What are their funding numbers and how many customers they have?

So if you take what their last valuation number is divided by their customers, and they come up with this concept, that customers are worth about \$730 apiece, if you just average everything, you divide their valuation by their customer count. It doesn't work perfectly. It absolutely doesn't. But you can get a sense of this is about an account aggregation model. Can you build accounts, get to a million? Can you get to 5 or 10 million and actually service and provide?

So what's happening is a lot of these companies are negative funding. By negative funding, what they're really doing is they're offering products to the public, but they're not covering all of their costs. They might be offering interest rates on the deposits. They might be having lower costs and fees, lower late fees and account maintenance fees. They might not have account maintenance.

A lot of these will allow you to have in essence micro payments and micro accounts. But how they're funding that is the venture capitalists are funding it, basically, because what they're trying to do is build valuation. Their whole model is about building value and then exiting somehow and judging when to do that exit.

Now, some of them will get to be income positive. But those that right now aren't in the corona environment, coronavirus crisis we're in, there's a new term that you'll hear amongst venture capitalists, is runway. How much runway does a company have? Did its last funding round, did they raise enough money to sustain them for six months more or two years more?

And a lot relates to one was their last funding round? If their last funding round was in the last six months and they have enough runway, enough cash so that their cash burn, they can last two or three years, that's more optimistic than if their runway is six months and they haven't done their last funding. It's been a year ago. They did their A round, but they haven't done their B round. And they've done their C round, haven't done their D round.

And, in essence, they have to-- a lot of these companies in the middle of the coronavirus crisis have to figure out how to extend their runway, maybe do a suboptimal new funding round that doesn't boost their valuation, merge or consolidate. So it's also a challenging time, depending upon what they hadn't

anticipated-- quote, how much runway they have, when was their last funding round and the like, and have they gone cash-flow positive? Most of these have not necessarily gone cash-flow positive. Romain I'll pause for questions, and then I'm going to talk about traditional banks.

TA: So you almost just answered. We had a question from Alida in the chat asking whether this model is profitable.

**GARY
GENSLER:** Alida it is profitable in terms of selling equity to venture capitalists. It is profitable for some of the banks that have been sold even earlier times to traditional banks. And for some on bottom line has crossed over and is profitable. But we don't have financials for the hundreds of challenger and neobanks.

But by and large, most, before the coronavirus crisis, would have been in a negative earnings space. And what they were trying to do is basically build digital footprint, build customer base to get to that first half million, to get to that first million, to get to the 5 and 10 million round. You get 5 or 10 million customers, what you've built is you've built a valuable thing that somebody else might want to buy.

And you've tended-- you've tended to then to get to cash-flow positive by then. But I don't have the financials. I wouldn't be able to tell you which ones of these small players are yet cash-flow positive. I will say this-- three to six months from now, more of them will consolidate, go out of business, or get cash-flow positive. They'll have a need to, as I say, extend that runway.

And then we have Carlos with his anecdote.

AUDIENCE: Yeah, I have-- I have a question as it pertains to these banks in developed versus developing markets. And I guess it's for two reasons. One is that on one end, the extent of the unbanked or underbanked population in-- and especially because when you showed the valuations, right, Nubank is by far an outlier in a country like Brazil. So one is that probably a lot of people that are clients of Nubank did not previously have bank accounts or were significantly underbanked. And in a moment like right now with the corona crisis, I mean, they're going to need these accounts more than ever, whereas people using neobanks in developed markets, like the United States, arguably, in a lower-interest-rate environment might be less prompted or less interested in actually holding onto these accounts, versus what

they can use in traditional banks.

**GARY
GENSLER:**

I think you're right. But there's one other aspect that you imply, but you didn't explicitly say. It's the cost structure and the competitive structure in the countries.

So taking Brazil-- Brazil is a very high-cost banking sector. It has a lot of historic reasons about the concentration. It has to do with the government involvement.

But of not just Latin America, but around the globe, it has, if not the highest, one of the highest net-interest margin. This is the margin that the traditional banks, like Itaú and others, are able to charge between what they lend money at and what they borrow money. That's called the net interest margin.

And if in the US and even in Mexico and Canada, we're running, give or take, around 300 basis points, meaning what you pay a depositor versus what you lend on the other side. In Brazil, it's multiples of that. Even for high-grade corporate borrowers, it's more than that. But for small, medium-sized businesses and the public, it's close to 10 times that, meaning it's 20% to 30% net interest margins for a certain sector of the market.

So I think Nubank and the four or five others in Brazil had an opportunity because it's a highly inefficient consumer banking and small and medium-sized banking market. And recall from our last class, I said that fintech companies have largely focused on the household sector, whether it's mortgages, personal loans, credit cards, and the like. They've focused on the consumer sector of savings accounts and credit card provisions and the like.

And they focused on small and medium-sized business. They're not trying to compete. Nubank is not trying to compete with Itaú about the big corporate lending. And they're not going to compete in Brazil, as about half of the-- half of the lending at the big corporate level is from basically government-banked-- government-backed banks.

So I think when you look at the developed world-- the Europe, the US, and so forth-- we have challenges in our banking system, but they're-- it's around those pain points I talked about earlier about legacy systems and legacy user interfaces and sometimes high fees and so forth. But in every country, you have to look at what's

the inefficiency of the current traditional banking system? And is online banking, is that an opportunity to shed a costly branch network, shed costly legacy systems, or, frankly, just do it better, cheaper? Ultimately, that's what it is about being an entrepreneur. Can you do a better, cheaper, faster?

And so how have the traditional banks reacted? They're not staying still. All the way back from the online banking movement, they were right foursquare in the online banking movement of the 1990s to the late noughts. What have they done in the last decade? They've started to say maybe we have to rebrand and do something different.

Goldman Sachs is not the only one with Marcus. Now, Goldman Sachs is an investment bank. They were not protecting their brand. But, as I said, Cap One in 2011 bought this big ING Direct. Cap One said oh, for \$9 billion, we can move to this other area.

But then others are starting to have named branded products. JPMorgan and others are saying we maybe should do something that looks like an online-- we'll even use a different name and call it something else and react. So I wouldn't count out any of these big traditional banks. And where we are in three or five years is going to be interesting.

I also would encourage you to think big tech. Apple Credit Card is not quite a challenger bank. Amazon Prime is not quite a challenger bank. But when do they, like Alibaba, file for a banking license, like Alibaba did and got Ant Financial, like in Korea Kakao has done and already is just getting huge market share?

So I don't think that's too much in our distant future. I think that's near term, that we'll see that. Now, we have different traditions in the US. We have a tradition, both in culture and embedded in law, about separation of banking and commerce.

And we went through this in the 1980s and 1990s, when the department store chains, like Walmart, wanted to get into banking. And they-- there was all this sort of back and forth about whether they can have banking licenses, what type of banking license, and industrial loan companies and other things really in the intricacy of banking law and licensing. We will have some of those debates and challenges as well as, I believe, Amazon and Apple and others and Google get further into this

space.