

THE BROOKINGS INSTITUTION

CHINA'S PAYMENT SYSTEM:  
REVOLUTION, EVOLUTION, OR PASSING FAD?

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## P R O C E E D I N G S

MR. KLEIN: Good afternoon.

AUDIENCE: Good afternoon.

MR. KLEIN: The dangers of doing events after lunch. I'm Aaron Klein. I'm a fellow in Economic Studies and the policy director of the Center on Regulation and Markets. And it's my distinct honor and privilege to welcome all of you here.

There are some seats up front, so everybody's standing in the back come on, join, it's more fun up front. I promise. Maybe I'll tell you the slides are really small font so it's hard to see in the back, I don't know, but everybody ought to -- everybody ought to come up and start.

And I thought I'd start today by starting on how this project came to be. I was in Shanghai about three years ago on a totally different issue, having a set of meetings to try and understand more about the financial stability of the Chinese banking system, and I had a friend from Shanghai, and I was really excited to use this opportunity to buy some clothes.

The suit you see and the shirt I'm wearing, off my back, were purchased in a souk in Shanghai by my friend's custom tailor. And I go into this, kind of, like old shopping mall with these rows, and rows, and rows of tailors all competing, yelling: come on, you know, check, I have the best, I have the best.

And I go this guy, and we make the deal, you know, take my measurements, a couple suits. And before going, having been an international traveler, and having gone to many of these kinds of places, I made sure to go to the ATM to have cash. And when we finally haggled and negotiated the price, I pulled out my money, and she said, no, no, no, no, no. And she said Alipay. And I said, what? She said, WeChat. I said, huh? I said I have cash. No, no, no, I don't want that.

I said, you don't want cash; I said, here's a card. She goes, no, no I don't take -- I don't take American credit cards. And that I kind of had expected, but what do you

mean you don't take cash? She said, no, no.

And my friend, who said to me, he said, oh, no, they all use these phone barcode things. You know, obviously my friend is American, he doesn't have it. After a lot of lengthy negotiations, she reluctantly agreed to take my cash.

And I said to myself, what the heck is going on here when these types of stores don't want your cash? And I came back and I started doing some research, and it started to jive with what I'd seen, which was China was experiencing a revolution in their payment system, and it's one that hasn't been fully understood or appreciated. And I applied for a grant, and thank you to the Rubenstein Chinese Program at Brookings which funded this research, and here are the results that I'm excited to share with you.

So, I want to start by talking about a payment system, because people don't appreciate, we take this for granted, but our entire economy works on creating efficient payment mechanisms. You can't buy or sell or transact in a modern capitalist society without an incredibly efficient, effective and secure payment system, as Chairman Powell recently stated.

In China their payment system is totally different from what we are used to in the U.S., and the way I'm going to try and structure this talk is explain and bring you from like a 101 understanding of Chinese payments to a 301, and describe what it means, and describe what it means for the -- how it relates to the U.S. context, and why what I think is a fantastic new payment system in China isn't going to come to the U.S. in a broad way.

And I'll tell you why I don't think we're all going to be using these systems, and then explain a little bit about the differences, and yet what it means globally.

So how the system works is very simple. Everything as a QR code, the photo on the left is a parking garage at a hotel at the conference I was in Shenzhen. And the way it works, is you go in the parking and you scan your code, then when you scan your code to go out that your phone triggers that you've paid parking, and you go in and out, no little tickets, right. Who doesn't love to search for their parking card ticket, right? The time

stamp is there, it's efficient, it's effective.

On the right, it's just a typical merchant Alipay, you can see here, this is WeChat in green, these are the two dominant forms, you have a QR code on your phone and the merchants can scan it, or you have a -- you pull up your camera app, within the app, and you scan the merchant's code.

And anybody can have a code anywhere. Any sheet of paper can be printed out and turned into a QR code. This is not hyperbole, but this has replaced tin cups for beggars on the street. You walk down in China and there's a beggar holding a piece of paper, and you just scan that and then you've made payment to them, and then when they go to a store to get something to eat they put their piece of paper up and it gets scanned. That's how you can make -- to charity.

So, here's how the system went, what I would call mega viral, and these are a number of active users and it ends in 2018, Alipay has reported passing a billion users, these are thousands of millions, hundreds and thousands of millions.

But you go back a few years, you've gone from a hundred million to a billion users, 355 in WeChat, and the origin stories of the two are a little different, so let me start with WeChat.

WeChat was started by something called red packets, so in China what they tend to give is cash around New Year's, in the U.S., for whatever reason, we don't give cash, if you guys recall that famous Seinfeld episode, where they tried to give cash as -- cash as a gift.

Economists are perplexed by this, because actually you should know what you should want with your money rather than me, so an economic rational person should only give cash to other economic rational people. If you want to know the limits of economics look under a Christmas tree.

But in China this is what they do, and they created this experience in WeChat that just took off; right. In 2015 -- it starts 2016 -- by 2017 you're getting almost 50

million people getting a person-to-person. This seeds your digital envelope, your digital wallet, so instead of getting, you know, in the U.S. maybe you get a -- you know, one of the last few checks you get is in a birthday or Christmas card from your aunt, right. This is all an electronic experience networked through WeChat, which is kind of Chinese Facebook.

It's important to understand at the beginning, and for those of you who don't know, Alipay is kind of like Amazon digital commerce platform, WeChat is kind of like Facebook giants social media. And this seeds that wallet there.

Alipay is a little bit different, it's seeded more the same way that we enter into all of our credit cards when you enter into Amazon or Amazon Prime, that's the origin story for Alipay.

This is how much money is moving. This is hundreds of trillions of Chinese currency, so the 2018 figure is roughly \$50 trillion, a little bit below that, that's capital "T" trillion.

Think about for those of us who've studied international digital finance, how much has been written on M-Pesa, the digital wallet situation in Kenya, we're not talking about trillions let alone \$50 trillion, these are gross flows, they're not total dollar amount, right, I can red envelope person-to-person or retail-to-retail, these are gross flows. These are huge amounts of money.

So how does the system work? This is the basic, this is simple photos you can get, and I apologize. You have a person, and they can transact directly with the merchant through a QR code. Either I scan the merchant's QR code or the merchant scans mine.

I have a digital wallet that's linked to the QR code that can be linked to a bank account, and it actually doesn't have to be. I'm not just a researcher of this, I'm a user. I've got a -- I've got a Chinese friend of mine to send me some money on my WeChat, and I now exist in the ecosystem.

But for most people they have money in their bank, they upstream it to their

digital wallet, it goes immediately to the merchant's digital wallet. The merchants, if they want, can downstream it to the bank, or they can recycle it within that ecosystem and purchase more things in that ecosystem using their digital wallet.

One thing you'll find in the report is that -- and this we'll get back to this -- downstreaming it to the bank has a fee, existing within your ecosystem does not, which generates both savings but also some potential competitive concerns and questions. And then the merchant can access the digital wallet directly or the bank.

I'm just going to compare it for a second. This is what the U.S. system looks like; right. You see that thing in the middle, that's a point-of-sale terminal, we've all seen those. Do you see the big difference? The point-of-sale terminal, there are only about 30 million point-of-sale terminals in China.

For an economy of their size with that number of people, it was hard for me to find an actual U.S. number, I couldn't quite find how many U.S. point-of-sales -- hundreds of millions of those little machines; right. That machine has a bank which then has a different intermediary situation. So, you see you've gone from three banks, the payment processor bank, into this; right.

Now, let's return back to the American system which we all know. In this system you have a card, and the card is the reader that -- the intermediary that goes through it, and contrary to your understanding the card is your financial transaction account; right. You don't have a Visa or a MasterCard, they're not lending you money, there's a bank that's lending you money that's standing behind that credit or debit card, or a prepaid issuer that's holding that card, and that bank is standing between that, and that's who's providing you funds, whether it's your own bank through a debit card.

Now in America these cards are incredibly popular. The growth of noncash transactions, there's another slide that could be shown about the decline in check volume, where America is not becoming a cashless society, contrary to what some folks may write, but we are increasingly becoming a card-based system which is growing -- you know, these

are over a hundred billion payments, not dollars, just transactions.

So what's in your wallet? Here's a situation, I want to poll the room. How many people in the room have a prepaid card? I've got two hands.

One out of every ten swipes in America is a prepaid card; that's how different this room is demographically from America, and what you have to appreciate here is this is highly correlated with income. So you see the average cash value for a credit card just under 100 bucks, for a debit card around 40, and for a prepaid just a little bit over 20.

If I know how you pay I probably know what kind of income you have, and the forms that we have in America of payment are very highly correlated to income, and a very different economics up the income ladder, and the growing size of prepaid, 131 billion transactions in the U.S. from a form of payment that only two people in the room have; right.

How many of you think about on your own side, how many of use debit cards versus credit cards, right. You'll see debit cards are the predominant form of transaction although credit cards have much higher volume, almost twice as -- more than twice as much money per swipe and, you know, about 80 percent as many number of transactions.

These are highly correlated to income, another big difference in the Chinese system. In the Chinese system it's almost universal adoption not really that differentiated among income. In part, it's because the Chinese system has very little credit card adoption, despite of a world of having seven billion bank accounts.

So, let me pause for a second and talk about the one U.S. retailer that's had the most success in making people move into a digital mobile wallet, and that's Starbucks. You see 30 percent of Starbucks' transactions are on a digital wallet.

How many people here have a Starbucks digital wallet? All right, that just crunched the number of debit card users. And you can see where they stack up in terms of your deposits.

The economics of the Starbucks' digital wallet; and Starbucks moves more

money than Apple Pay, which is interesting because all Apple Pay is, is a credit card -- a different interface for your credit card. Apple Pay isn't actually a lender, they're just providing a new function for that. I've seen a lot of people get that one wrong,

But what is Starbucks? Starbucks is letting you upload your funds once into a digital wallet and then spend it down. In that process they're saving a lot of swipe fees. So, say you upload 50 bucks, they get paid one swipe fee on your 50 bucks, instead of doing that ten times for coffee, if it's 50 -- \$0.40 a swipe they save \$4, they give you one free coffee that probably costs them \$0.40, they've made a killing.

A lot of people think that this is a loyalty play, or something about the float that they're going to earn on your money, and that there is some of that, I mean, there's a billion dollars sitting there, but it's really a system about changing the economics.

And this is where I want to go. Now, I'm going to use a specific -- and the numbers of this very buy your payment instrument, but I'm going to focus on the upper income payment cards because this is why I think the American system is going to continue to dominate in the U.S., and the Chinese system, despite its pros and cons, will not, and it has to do with this kind of transaction.

So, you buy something for 100 bucks, the merchant ends up with about 95, and it's probably a pretty nice credit card, right. Your card gives you 1 percent cash back, so I've gotten one dollar, the thing has actually cost me 99, there's a little money that goes into the various different banks that are providing the service, the merchant gets \$95, right.

The consumer, in addition to getting a dollar back, probably has a month without having to pay interest on the \$100, a nice grace period to help them manage their own cash flow, their own float, et cetera, and so forth.

So the consumer in the U.S. situation is benefiting, the merchant gets a series of value propositions, universal acceptance, not having to handle cash, not anything to do all these transactions, but the merchant pays an amount for it, and the credit card processor in the middle makes some money, has to handle some fraud risk, has to handle



some security and identification for example.

So, let's go back to China. In the Chinese system the money basically moves through with very, very little amount going out. The only place where the money is going to go out is if the digital wallet down-streams it and it doesn't exist within the ecosystem, it goes down.

It's hard to get exact data. When you look online they talk about -- I used percent, they talk about one-tenth of a percent, but then they are usually some other fees attached to that, and I wouldn't take that number exactly, but either way it's a much, much lower cost of transaction from the merchant's perspective.

From the customer's perspective they're getting no cash back on the elite end, and they've had to pre-fund this \$100, there's no 30-day grace period. It's a very different system in its simplicity and its benefits and cost. Okay.

So, let me pause for a second, because I'm going through a lot, and throwing a lot at you, but what I want to get, if you're going to walk away with one kind of, you know, 20,000-foot thought, because it's Brookings and you wanted to think something big here, right.

We, in America, have a divide between banking and commerce. It's in our law, right. What's Mitsubishi it's not a -- hint, it's not a car company, it's one of the largest banks in the world; right. In America we differentiate the two, and we segregate in this line we've never really thought wireless payments.

Why? Because payments have always been part of the banking system, because the banking system, inherently, has been able to provide that efficiently and effectively and with broad and wired adoption; we have a series of legal and regulatory structures that assume banking payments are part of banking. But the legal separation does not place payments in the banking system, it's relatively silent. The banking system is about taking deposits, having insurance, making loans. It's not about processing payments.

And if the U.S.'s payment system were to migrate away from the banking

system a large measure of consumer protection and regulatory oversight would migrate away with that within our existing legal structure, and we've not thought through this.

There are also concerns you might have about banks in terms of their profitability in the system, and in terms of what's to happen in the financial stability, because again, because of our regulatory and government insurance, right, you're pretty confident that your money is in your bank no matter what happens to your bank.

What happens to your digital wallet if one day that there's a security breach, there's this, there's that? Our system hasn't thought about that because we've assumed the digital wallet is ultimately somewhere in the banking system. China shows that that doesn't necessarily have to be the case.

In addition, there are some concerns about: what happens from a competitive nature? To go back to this slide, remember, I now have an incentive, as the merchant, to buy things using my digital wallet. I think this is where you're going to find some of the growth in China, which is digital wallet companies providing services to merchants, payroll processing, all these other things, currently it's kind of rare to pay your employees through this.

But now it's cheaper for me than to downstream to MyBank and buy off platform. This raises some competition and privacy questions, it raises some data questions, it raises a series of other competitive concerns that don't exist in the banking construct, because banking doesn't have those other ancillary issues because they've been separated, broadly, from commerce.

So, in the last minute I have, as I summarized. First, Chinese payments are going global, this is from Japan. You're going to see Alipay and WeChat pay more in the U.S., you're going to see it where tourists go, here in Washington, at luxury hotels, in New York, in Las Vegas and Disney World, you're going to start seeing adoption far more, and it's going to flow.

Just like when we go overseas we almost expect, without thinking, that

there's going to be a place that takes our card. They're going to think that there's going to be a place that takes their QR code.

However, it's unlikely to catch on in America with American consumers for the wealthy who are well served by the existing system, with the merchants who have some costs of putting the money in their digital wallet system, creating a QR scanning code replacing their existing system.

Consumer behavior is very tricky. Right? How many people here enjoy the process of chip-and-sign where you get to wait longer in your terminal for putting your card in? But has it stopped you? Has it changed how you pay? And the existing regulatory system provides a series of well-thought-through protections that are not necessarily extended. But should it change? We are not well prepared.

With that, I thank you guys very much. I'm happy to take some questions from the audience and go back. And if you could just give your name, who you're with, and ask a question; it's the only three things. Yes, over there, and then the second mic, if you could get to that guy right by the door, and we'll go through quickly. Is there a mic -- you can have a mic, but it can't work.

QUESTIONER: Okay. If you look at the sort of local economy perspectives of things and small merchants across Asia, there's a, you know, really vivid dynamic there which is also captured by this. So whilst I understand why you don't think it's going to come to America, I think it's going to keep on going everywhere else that wants local economies to thrive.

MR. KLEIN: So, there are definitely lessons to learn on this, and certainly in China, but you also have to ask the question: in external countries in Asia, right, there are some digital wallets that are -- that are growing up but they're competing against more well-established banking systems; in Korea, in Japan, that have a set of card-base, and adoption and point-of-sale terminals.

I think where you're likely to find more adoption are places like China that

started from ground zero and have a different system. You could have a QR-based system that still is through the banking system. What's unique in China is the large amount of disintermediation that's become -- that's gone out of the banking system that may be replicated in some other countries, but I think it may not in many.

Sir in the back, and then will come up front.

MR. TUGENDHAT: Hi. Thank you very much for the talk. I'm Henry Tugendhat, I'm a PhD student at SAIS Johns Hopkins across the road, and I work on China Africa Financial Relations. So, I was interested in your talk particularly in the perspective of when I've done field work in Nigeria and Kenya if you stay in Chinese hotels they will often allow you to pay for your hotel stay in Nairobi, or Abuja, or wherever, by paying in QR if you have a WeChat account in renminbi.

And obviously that's great from their perspective, because it means they don't have to lose money when converting money back into renminbi, but I'm very curious as to how the regulation of this works, because I imagine in the African context there's going to be a lack of regulation this, whereas in China it must be very well developed.

MR. KLEIN: So, in terms of the regulatory state overseas I don't know, in terms of the paper I'm hoping I'm better balancing the amount of research done on China versus M-Pesa, to the dollar transactions that are occurring between the two, because I think there's a huge disagreement.

The regulation of digital wallets in the U.S. is something that the Consumer Financial Protection Bureau had, they promulgated what I thought was a pretty good initial rule that would have extended the Electronic Funds Transfer Act or EFTA, which is the regulatory construct, and brought it under digital wallets. And I think that's the right answer.

It was brought under prepaid cards, before that there were large amounts of consumer abuse particularly in the prepaid card space. I've been disappointed at the current CFPB leadership, which kind of has the idea that even if the last group solved the problem well, because the last group solved it that they need to do it differently.

And I'm concerned that they've put out that they may change or rescind that part of the prepaid card, I think you need a level playing field, and this is why I'm concerned if we don't level the playing field and provide those same protections, if this thing goes off and viral in the U.S. it could end up poorly.

There's a woman in the second row?

MS. TURNER: Hi. Kay Turner at Treasury. Both Alibaba and Tencent had existing businesses to whom they sold payments. I was wondering in a U.S. context what the limitations were for large tech companies that have existing businesses to whom they sold payments; given your point, if you could thread the needle about the limitations.

MR. KLEIN: Yes. So the clear parallel is, you know, tomorrow, it's widely rumored that Facebook is going to release a digital currency of its own to provide payment in intermediary, they've also, you know, purchased Venmo Amazon, obviously as the Alipay situation. There are networks in the U.S., social media that have a clear economic incentive to try and reduce costs and enter into the provision of financial services.

A generation ago this debate got focused on Wal-Mart and banking, and the acquiring of an industrial loan corporation licensing. I think the future -- but what I think people fail to appreciate was that was about the taking of deposits and triggered a series of banking.

When you're thinking about the online context, or the person-to-person payment, you're thinking about the payment system, and that can be done completely within the business of commerce. There's nothing special about our legal structure that precludes commercial companies from operating their own payment rails.

Sir -- okay go, go, you have the mic.

QUESTIONER: I was wondering about your thoughts on the Chinese system versus more like the Swedish system, Swish, and how that's kind of received blowback for, not discrimination, but difficulties with immigrants, refugees and retirees, and whether that's a valid argument, or if we are going to see more of a cashless system across

Europe as well.

MR. KLEIN: So, I'm not so sure you're going to --Sweden is a little bit of a special case, one, it's a pretty homogeneous population. I know that there are -- it's not completely homogeneous, they have a high amount of government transfers.

That's something in China. You're shocked that China has this system because they have so many bank accounts. One of the things that drew me to this project was: why would banks be disintermediated in payments in China, given that they had seven billion debit cards, right?

I don't think you're seeing a cashless society in many places. I think actually as my colleague Marcela expressed, you know, as laws about migration change, the desire to pay in cash may grow.

So, the other situation you have here is, on this digital divide issue, you don't need a phone to exist in this Alipay-WeChat system, you need a piece of paper with a code printed out. So, I think it's far more inclusive in that space.

Sir on the left; and I want to take somebody from the back.

QUESTIONER: Thank you. Carl Galvan. Doesn't this potentially really challenge the whole Western privately-controlled central bank model of money but being brought into existence at interest, where it seems that--

MR. KLEIN: There's no borrowing in this system it's all pre-funded.

QUESTIONER: So in essence --

MR. KLEIN: That's another core distinction. We think when we buy something, when you buy something on a credit card you're borrowing, when you buy something on a debit card you're not. And this is all on a prepaid system. It does challenge, and I'm a little bit worried about central banks because they believe they have to control the payment system because they -- it's been part of the banking system. Maybe.

QUESTIONER: How might this have a relationship even with the potential for digital or block chain related gold-based moneys in circulation?

MR. KLEIN: So, let me -- I mean, I think -- I think using gold savings for transacting money is silly.

Sir there in the -- right there in the back, yes.

QUESTIONER: I have a question about your thesis of disintermediation, because I have Alipay, and I never gave money to Alibaba because it always takes money from my direct card.

MR. KLEIN: A direct pull; a direct pull.

QUESTIONER: Yeah. So, of the \$50 trillion you surveyed or you cited, how much is that -- is directly from debit cards, not going through Ali or WeChat?

MR. KLEIN: Well, so it does go through because they're pulling it direct. So, what you have to be clear is -- I thought I had this up here. Can we get this back up here? I guess not. I went back to the original Chinese payment slide. It's over there for some reason.

So the point there is that you direct pull from your -- there you go -- so you're just direct pulling so you're not leaving money there. In fact, a lot of people actually use their digital wallet and then go to ancillary services, a money market fund, or another place to get interest, because the digital wallet itself doesn't bring interest. They're direct pulling.

There's actually a fee in that situation, but Alipay is paying that fee. So, the bank is extracting a fee, as the \$100 goes upstream on the far side there, but the Alipay is paying that back because they want to promote you spending money on that ecosystem --

QUESTIONER: (Inaudible)

MR. KLEIN: Well no, there is a disintermediation because it goes from one digital wallet to another. There are two banks in this picture, in this picture there are three, so I've just cut out one of the two banks, right there.

And then I hope you have -- I'm going to -- this is the speed round, because I only have time for one more question, so I'm going to take a couple at once, and the best

one wins.

MR. POLZER: Karl Polzer of Centre on Capital & Social Equity. So, in the non-feed part of this China system there's a lot of stuff going on and there are services being provided, that has to be paid for. So, in a sense they're sort of reinsuring these individual wallets, they're doing a lot of transactions for these subaccounts. And what if there's fraud? I mean what if somebody steals my code who -- what's the organization in that, that's assuming all that risk, and how do they make their money?

MR. KLEIN: Dan, and Chuck?

MR. MURPHY: Dan Murphy, Milken Institute. Sort of an open-ended question here, you mentioned the float before, my understanding is that the Chinese Central Bank acquires 100 percent of the float be kept at the Central Bank of some of these platforms.

MR. KLEIN: Mm-hmm.

MR. MURPHY: So I just wonder if you have any general thoughts on that, or some of the other systemic issues that might come out of any of that, and how it maybe should be regulated.

MR. KLEIN: Great. And Chuck, last word.

QUESTIONER: So, you effectively argued that I'm better off on the American system, where on the demographic economic scale does it flip and U.S. people are better off under the Chinese system?

MR. KLEIN: Right. That's a really good question and it's -- I've thought a lot about that and I wish I had a really crisp answer for it, because part of the Chinese system involves the money to be there, either prefunded in your account, or pull-funded from your account, and it depends how much you value the ability to get that level of credit, and then what the terms and cost are of that credit.

And it's not entirely clear. I think the merchants, by and large, are better on the Chinese system, however, the economics on the Chinese system begin to become a



little bit intriguing when you realize that the platforms are going to get a tremendous amount of control and incentive about how you purchase, from whom you purchase, and how your situation moves.

Right now, if you're a merchant you say, oh, you know, I don't like the terms of MyBank I'm going to switch banks, that's not going to change how you show up in a Google query about where you want to go, or what business.

QUESTIONER: I'm saying about the (inaudible)?

MR. KLEIN: About the people? It's an interesting question, the day labor is probably in cash, let me -- for Dan, you've clearly read page 11 of the report, which doesn't surprise me, where we talked about, originally the Chinese government started with requiring 20 percent reserving, and then 50 percent, and then 100 percent which they thought was going to be a billion dollars a year in annual interest.

But part of that had to do with the point -- the gentleman in front of you said about money situation -- if the digital wallets are only reserving a fair -- less than 100 percent, then the digital wallet is creating money. When the digital wallet has full reserving then there's no money creation.

So, I think I'm now two minutes over. So, I'm going to turn to the panel, and if you guys could come and take your seat. And I'll introduce David.

David Dollar is Senior Fellow in Brookings, and the Head of our China Center. And when David and I served together at the Treasury he was the point person for the U.S.-China Economic Relationship in the Government. Besides that he's had a distinguished career in a variety of other ways. And for those of you who don't subscribe to his podcast, *Dollars & Sense*, you are missing out. So whatever you do, as David -- before you leave here subscribe to that podcast and you will learn a lot.

MR. DOLLAR: Okay. Thank you very much, Aaron. Please, you join our panel as well.

So, Aaron has given us a lot of interesting food for thought, and we have a

great panel to explore in more detail.

Immediately to my left is Claudia Biancotti, who is a Senior Economist at the Bank of Italy, and visiting the Peterson Institute across the street.

Frank Tuscano is the Senior Manager at the Royal Caribbean Cruises which have started taking Alipay and WeChat Pay on some of their cruises. So he's going to give us a perspective from the real world of business.

Huang Yiping has many titles, including Deputy Dean of the National School of Development at Peking University, and a leading expert on Chinese finance. You've already met Aaron.

So, actually, Yiping, I'm going to start with you.

MR. HUANG: Okay.

MR. DOLLAR: You just arrived from Beijing last night I know, so to give you a chance to talk before you get tired. (Laughter)

MR. HUANG: Okay.

MR. DOLLAR: One of the things Aaron's report emphasizes is the issue of financial inclusion, and it's pretty dramatic, you know, going around China seeing how these electronic payments are used. So, could you go a little bit more detailed about the inclusion? Is it really reaching pretty much everybody in China? And how do you see that?

MR. HUANG: Well, as Aaron's numbers show, that each of the major service providers, WeChat Pay and Alipay has around the one billion active customers. That just shows how popular it has become. But I think the real story why it started was in fact most of them didn't have any option of a payment on both sides.

On the one hand, as you said earlier, there are lots of debit cards around but lots of people actually don't have access to that service. On the other hand, I think what really makes it popular now, and inclusive is that in fact, the most of the street side stores don't have any means of payment. So, that's why I think the reason why it became successful, it's really not just the payment system itself, but the ecosystem around it.

So basically, I mean, I now just can live just with my mobile phone, I can order my lunchbox, buy my air tickets and I pay my electricity bills, almost you can do everything whether on WeChat Pay and Alipay. And I think that makes things very attractive.

I met some people when I made field trips to the rural areas, and there are people there, in fact, some of them have bank accounts, some of them don't, but many of them like the very remote area, so once you have this, and this is the only thing you could have. We have a very nice map to show we have at the Peking University on the Digital Financial Inclusion Index to just measure the level of digital finance in different municipalities.

And you find that in 2011 the coastal area was a leading, but the inland provinces it was really lagging. But in 2018, and we have a number for every year, seven years later that the color converged quite significantly. The lagging region was catching up are very, very significantly.

Finally, we also have done some studies to show the impact of adoption of the payment -- mobile payment of services, are ordinary people, and we found a number of very interesting findings. Number one adoption of the mobile payment actually promotes the establishment of new registered businesses, which means it's a very useful for people to start new businesses once you adopt this.

And a second, similarly, we use the householder survey data. You also find the farmers after they adopt the mobile payment service, are much more likely to become informal or formal business operators and the income levels rise.

So these are the just the evidences you find, and they have real impact, not just to make people's life easier, but also promote economic development.

MR. DOLLAR: So, one of the questions, already came up, was sort of thinking about the U.S., sort of what's the -- you know, kind of what's the cutoff point of the income distribution in a sense, you know, below which you're not really getting served by the

U.S. system, you might be (inaudible).

MR. HUANG: Right.

MR. DOLLAR: So, can I ask any of the other panelists, or Yiping, if you happen to know. So, what would you do if you're down at that bottom of the U.S. distribution? You know, what is the reality of payments down there and, you know, how costly is it compared to this Chinese system?

MR. KLEIN: I mean, I'd say it's very expensive to be poor, and I would say that, you know, we have 7 percent of America that's unbanked, those people are spending money for wire transmissions, other -- money orders, payments, 20 percent of Americans are underbanked, they have a bank account but they're paying other things.

Americans spent \$35 billion a year in overdraft fees last year. The average family that over drafted had three a month, and so if you're a -- heavy overdraft use, about three a month, that's 1,200 bucks a year. That's how expensive for things that are basically free for the top 40 percent.

MR. DOLLAR: So Yiping, Aaron emphasized how in the United States if you're at the high end of the income distribution there a lot of benefits. But do you have similar benefit -- do high-end Chinese using Alipay have similar --

MR. HUANG: Well, we probably do. In fact, though when I heard you're talking about the comparison between the Chinese payment system and the American payment system, it's a very similar story when we compare the banking payment system in China and a nonbanking payment system. You find that banks very slow and a very lazy, but because they capture a fat profit.

But the Alipay and WeChat Pay, starting their businesses because they start from nowhere, and they had to serve these are poor people. So I'm probably a little bit less pessimistic than you are about the possibility of this mobile payment spreading around.

If you say, well, 10 percent or 20 percent of the population are not a well-served then I think, potentially there is a way of doing it, even in China, for instance.

These payment services are so widespread now, they still only accounted for 8.8 percent of the value, of the payment of value. It's a small number. But in terms of volume they're already 77 percent, because every transaction is so much smaller than the bank payment.

But they still make huge money because with the tech knowledge the platform, the so called "long tail", once you set up with the system you can serve whatever amount of customers that are there, the marginal cost is almost zero.

So I think if that is potentially also applicable, then there is an option -- a probability that this system could also spread. But I can't just say for sure this will definitely happen, whether if it's for Alipay or for WeChat Pay, it happened,

To some extent it was accidental, so for instance the WeChat Pay, why it suddenly spread, well obviously you had a good system, ecosystem around, but the reason why it started was the red packet.

I myself was not very enthusiastic about these electronic payments, but I started with the WeChat Pay about three or four years ago, during the Chinese New Year. People all sending out the red packet. And for quite a while I didn't really hit the button.

But then it was for so long, and I hit the button and I send to somebody who distributes the money, and then somebody spotted, and then said, oh, Professor Huang is also in the group, why don't you send around some money. So, I tried to link it up with my bank accounts, but I just immediately would delink my bank account from the WeChat account. But after three times just get used to it, and I've now been on for a very long time.

MR. TUSCANO: And just add to that, David. I think one of the things that really led to widespread adoption was -- so in China they had a quantum leap in technology that was -- that dovetailed really nicely with the burgeoning middleclass expansion in China. So, they largely went from an analog society to really advanced smartphone technology overnight. They skipped the laptops that many of us are still tethered to, and that was really one of the things that that made the platform pop the way it has, the platforms.

MR. DOLLAR: Okay, thanks. Claudia, I want to turn to you, I want to ask

you about data privacy and data ownership issues. So I know you're thinking about and writing about the data issues in general, and how Europe, the U.S., China are all developing different standards. It's an issue in this particular topic, you know, who owns the data, and we can hear from Yiping a little bit about China. But I wanted to talk to you first. Okay?

MS. BIANCOTTI: Sure. So, I think that if we want to understand fully what data protection issues are involved in this a story of mobile payments we should be looking at TikTok. And, you know, TikTok is Chinese app, and if any of you who have teenagers at home you will know about it because it's very popular with teens. And last year it was more downloaded than Facebook, Messenger, Instagram, WhatsApp.

You know, so far it's only popular in this niche demographic of teens and young adults, and this is true in the U.S., this is true in Europe.

And I totally concur with what Aaron was saying in his report when he says WeChat and Alipay are not going to take off in the U.S. because they don't have the networks, because Americans are on Facebook, they're on Instagram, they're not on WeChat. So they don't see the appeal of having a payment instrument integrated into a social network they don't use.

But what if TikTok tomorrow added a payment feature that was widely appealing? If I understand correctly, you already can exchange coins within TikTok, it's not linked to the banking system as far as I know in the U.S. and Europe, but it gives the idea that if you ever had Chinese social media, social media outlet that gets popular in the U.S., and takes off for the general population, then you could have a payment system within it that's also linked into the banking system.

And so which kind of issues of data protection that this raised? And I wanted to lead off with a concrete example because it's actually happening. I mean it might be tomorrow that an app like that appeals to a broader demographic.

So right now the situation would be quite different in Europe and in the U.S., because in Europe there have been a lot of efforts fielded to develop a so-called the "digital

rise model", and in 2018 you had the General Data Protection Regulation come into effect. This is a very strict data protection regime that embraces all of the European Union's member countries.

And what is important about this, is that this piece of legislation has extraterritorial scope. Meaning that when a company harvests data on European citizens it cannot export these data anywhere except if the receiving jurisdiction offers the same data protection guarantees as the EU. And if that is not the case, there must be specific contractual agreements assuring European citizens that their data are going to be kept private, confidential, only used for the purpose they were explicitly collected for.

So, you know, in theory, no data can be exported to China. I'm saying "in theory" because this legislation is only one year old, there has not been any major case involving a Chinese company, the one major case has -- only has involved Google which was fined, by the way.

But the European legal system and the Chinese legal system are structurally at odds when it comes to data protection, because in Europe the law says: I cannot send you data if you don't offer the same guarantees. And the Chinese law says: the government must be able to access any data collected by private companies. And you can't have this together.

And actually before this problem existed with China it existed between the EU and the U.S. Actually, one of the reasons why the EU has such a strict data protection regulation is because European legislators wanted to make sure that there would be no mass espionage on the part of the NSA.

So basically if -- no, that's not really -- sorry, that's actually what brought about, in part, this whole reflection about privacy. So right now there is a very strict agreement between the EU and the U.S., and only under certain conditions can European data go to the U.S.

There is no agreement of this type with China, so if a payment processor

which collects a lot of data from China was ever to become popular in Europe, you would probably need the two governments to sit down and negotiate a data privacy agreement.

Is that possible with China's national security law compelling the government access to privately-collected data? This is probably not possible but it's going to be a big deal, so this is where the incompatibility of the legal systems is absolutely evident, because of this privacy law with an extraterritorial scope.

With the U.S. it's a bit more unclear. So what if TikTok were to become popular with all of the population and people would -- and people started using it to pay their bills, maybe in partnership with WeChat or with Alibaba?

This is not clear because the U.S. does not have a federal privacy law with extraterritorial scope. So in that sense, commercially, it would be easier for TikTok to become a payment processor in the U.S., and kind of paradoxically, the U.S. would be more exposed to both the privacy risks, and more importantly the security risks that go with that.

So it's a very fluid situation, I'd say, when it comes to data protection.

MR. DOLLAR: All right, so that sounds like a pretty serious impediment. I mean how realistic is it to actually enforce these regulations?

MS. BIANCOTTI: Well, I believe that enforcement will have to build on technology. I mean, in the relationships between the EU and Google you can take Google to court, right. It's possible because you have international cooperation in this arena as well, that European authorities could audit the operations of Google even outside of the EU. I don't see that happening with China. I don't see the Chinese authorities granting a European Court the possibility to audit the operations of TikTok, or Alipay or Tencent in China.

So in that case, either you manage to find some kind of self-enforcing technology whereby users have a transparent view of what it's been doing with their data, and there is a lot of research on this right now, but it's not commercially viable yet.

Or, I guess, it's probably going to be -- to fail. There's probably going to be



a commercial divide when it comes to anything that needs personal data to work, which is pretty much anything, so yeah.

MR. DOLLAR: Yiping, can I ask you about the data privacy data ownership issue? Is it clear in China? Is there a discussion about this?

MR. HUANG: Well, there are certainly lots of discussions, and I think a part of the reason why the think tank industry developed so quickly is because there's no serious law protecting privacy. But I think the real question it raises is, I think this is a challenge for everybody, not just China, how to balance between the benefit of big data analysis and the protection of privacy.

Just to say, I mean, I think it's pretty clear privacy is not well protected. So, for instance if I buy a car in the morning, in the afternoon I was received at least a dozen of short messages about the car-related services.

The problem means my phone number was sent -- was either sold, or sent, shared with somebody. So, this is a big problem we need to look at. But at the same time I just also want to share with you some of the things they're doing, and actually it becomes hugely beneficial.

So for instance, you all know there's a bigger problem about providing credit to SMEs, small, medium enterprises, because traditionally the banking sector would assess credit risk, only look at either the historical data, or look at your fixed assets as a credit rule, or look at the impressive government guarantees, and SMEs don't have any. That's why they're all struggling for a very long time. The government has been trying for six, seven years. I don't think that there is a significant turnaround in that situation.

To just give you one example, Alibaba has a bank, an online banking a Hangzhou, it's called a MyBank, it's online so they don't have any branches across the countries, and they have about 600 staff in one single office. Every year, now at the moment, they are serving something like a 7 to 8 million SMEs every single year, without even seeing the customers, what they call the 310 Model.

Three minutes -- it took three minutes for the customer to fill in the application for the loan, one second the money is into your account. There's no human interference into the process. The only reason why MyBank can do that is because they look at your data and they pre-approved an amount of loan for you.

So, I think that the big data can really do a lot of things especially to help with the poor, but, again, I think a balancing that two is something we needed to work on.

MR. KLEIN: So let me jump in, because that's been huge in the U.S. context, because what you've seen is a new linkage form between payment processing and the provision of credit, Square Capital and PayPal have kind of led the way in this.

And let me just give a couple facts. In the U.S. context a bank often wanted to see three years of transaction flows for a small business, so here's who's not eligible, any small business that hasn't been in business for three years.

Now, in a cash flow basis you could do it three months. If one of these places is seeing your three-month cash flow they have a pretty good idea as to what your loan will be, and they'll make the loan immediately on your 310 Model.

But here's the catch, and this is true, I'll do Square. You pay back on the basis of each swipe that goes through the payment processing, and one of the benefits of it is, in fact, they don't actually have a fixed-term loan. If you want to borrow \$10,000, you pick your daily swipe fee between 3 to 5 percent, and 3 to 5 percent off the top goes back to paying back your loan; right.

They'll forecast and they'll say, at 3 percent you have to pay us back 11,000 at 5 percent, you have to pay us back 10,500. You can't actually calculate an APR, which is our common form of interest rate in a consumer disclosure regulation, because an APR assumes the term of loan, because what bank makes a loan without knowing the term, but because it's on payment processing.

The second conflict on that is that while the loan is technically unsecured, it's actually first in line in the creditor queue. Why? Because every day and every swipe, at the

end of the day that money is going right back to your loan before you are getting access to it.

So if you have a secured loan, or you think you have a secured loan anywhere else on the -- on the loan hierarchy to that business you've been leapfrogged by the payment processor. Square is able to do this and still not be a bank because they've raised private capital under Square Capital to do that type of lending.

Eventually, and they're starting to apply for this, they need to eventually change that model to get another source of capital, but this relinking of payment processing has a huge upside to reach more small business, but raises a set of other legal and regulatory questions, that in the U.S. context, have not been well addressed.

MR. DOLLAR: Okay, thanks. Frank I'm going to turn to you next. Your company has started accepting Alipay, WeChat Pay for certain transactions, so I think it would be good to get a little reality of: why you made that decision, what does it actually involve, what are the benefits, what are the costs?

MR. TUSCANO: Sure. So, thanks. As Aaron very correctly asserts in his paper, consumers tend to spend more roughly to the tune of 77 percent using a form of mobile payment than they have in the two previous years that they've taken a vacation, or they've gone abroad. And so that really struck a chord with us, along with really the way that the red packet system, and the way that it took off and almost immediately, that led us -- got us into thinking: how can we -- how can we evolve our payment systems on our vessels, on our ships?

And it's important to set the context of the business we work in. So these are -- these are cruise ships from a multinational company that are based and serviced Mainland Chinese guests, there are three ships currently in the region, in China, and on these ships the demographic is close to 97 to 87 percent Mainland Chinese, and 2 percent, 3 percent in international mix.

So given that breakdown it made a lot of sense, but the thing that we look at most is, apart from the safety and security of our guests and crew members, as you would

imagine when you operate a business in the ocean, almost entirely, apart from our private island destinations and the terminals, that's your number one concern.

Secondarily, to that would be the guest experience. So what guest experience means is: Okay, are you having a great time? And how likely are you to promote us to a friend, a family member, a colleague to say, hey, come sail with us?

And that's really what we looked at was the guest experience. It didn't really have -- we didn't look at any financial, monetary, benefit or gain. We said how can we improve this, if we offer a seamless, frictionless payment system in addition and alongside with the China UnionPay CUP, CUP, debit and credit forms of payment, and along with all the international credit cards that we accept.

And along with the cash you stick the China mobile platforms, you line them up with that, and then what you're saying essentially is, we're happy to take whatever payment you're willing to use. And we're going to make it easy, we're going to make it very fast, because when you're on vacation you don't want to spend your time calculating the interest rate that your bank is going to charge you, or, you know, concerned with these things.

You want to get -- you want to go so on the surf simulator, or a climb a rock wall, or go on bumper cars. So, what we found was, let's deploy -- let's deploy Alipay first, we followed very closely with WeChat Pay. It was a tremendous hit, we deployed it to all the retail venues throughout the ship, maybe let the crews know.

You know, there's no there's a lot of shopping to do, there's a lot to buy. And so we did it at the spa, the retail, and then it quickly, it quickly evolved and migrated to the food and beverage outlets as well.

And it really stuck, it really resonated with our guests, so much so that based on the success of the region, we deployed it to ships. Chinese tourism is massive, Chinese Mainlanders are traveling all over, so Caribbean, Europe, Alaska. So we put a scaled-down footprint in those markets -- on the ships in those markets and those regions as

well.

So with a fleet of 46 ships you start to say, well, what are the economics behind this project that was launched? It started with successful for guests -- a satisfaction perspective, but what does it look like as a merchant?

So number one, the low fees are massive, so we're talking about three or four times the basis points that we would pay through traditional forms of payment; it's three or four times less of a cost.

Secondly, there is repair and maintenance, very expensive point-of-sale terminals, and I think with point-of-sale terminals, essentially, on their way to extinction nearly in China, I think there are 34 million point-of-sale terminals in the entire country of China at the end of 2018, and probably decreasing.

How can we put out hardware that's cheap, easy to use, easy to upgrade, easy to scale? It's a tenth of the cost hardware-wise. It's a lot easier to repair and maintain, you don't have to upgrade it every time, a chip is added combined with signature, and you have all these variations of chip, swipe, magnetic stripe and signature. We don't have to do those updates any longer.

And then thirdly, and this is the most difficult one to pinpoint, and it's really around the incremental revenue that we are seeing as a result of these forms of payments. We'd like to have access to more of the data so we -- it's really not an equitable share of data at this point, we have a transaction ID, we have a dollar amount for the item, or the service that was purchased, but we aren't able to directly correlate that in a meaningful way that allows us to effectively market the products to the right person, at the right time, in the right location.

Because also what the WeChat platform affords is the ability to do that type of marketing directly to the consumer while they're on the ship. So, we cannot only leverage the WeChat platform, and to some extent the Alipay platform to accept it as a form of payment, but we can also take that a step further, and say, all right, well, so you're using

location services, and not to be too creepy about it, but using location-based services, okay, you just walked by the spa. Well, here's a coupon to use in the spa, and by the way you can pay using -- (laughter) -- right?

It's a vacation, you want to have a good time, we want to enable that for you. So, that's -- that's really how it came to pass, and how we ended up offering it on Royal Caribbean.

Some of the things that keep me up at night, probably I share with the rest of the panelists on the stage here, and that's really around the data protection, and how do we get -- how do we get ahead of that?

We've taken an approach where it's the long pole in the tent. Let's try to adhere to GDPR as one of the most stringent policies globally. And, you know, with China and from an outsider, as a representative for a multinational organization working with China, we receive an announcement that there's going to be a data protection policy that's going to be issued, and this is what it's going to look like.

And then I think that's a little bit different from the enforcement of that announcement, so different things, but we've been extremely, extremely cautious in terms of data protection because, clearly, that that's a risk that any business can't afford to take.

And in terms of -- I'm sorry David, one more point. In terms of deployment the technology itself is simplistic, quick response codes have been around for ages, smartphones have been around, you know, since 2005, roughly, when the first iPhone came out. So we're talking about a decade, a-decade-and-a-half of the technology existing.

The most challenging piece was really a contractual agreement and building trust between a company based in China and a multinational company based in Miami, Florida, for us specifically. Sorry, David.

MR. DOLLAR: Frank, so as I understand from talking to you earlier you're pricing these services and goods in dollars?

MR. TUSCANO: That's correct.

MR. DOLLAR: Your Chinese tourists have Alipay WeChat Pay accounts tied to their Chinese yuan bank accounts.

MR. TUSCANO: Right.

MR. DOLLAR: So there isn't a foreign exchange issue which I find interesting. So can you say a little bit about how that works?

MR. TUSCANO: Certainly, David. So, yeah the onboard currency on all cruise ships within our brands, our umbrella brands is U.S. dollars. So, there's an exchange rate, and yes and our guests and consumers are incentivized based on their loyalty tier within the Alipay and WeChat Pay framework. So, based on your tier, you're offered a more advantageous exchange rate

So, that's about collecting money, the money is converted by the platforms, the tech platforms, into USD for -- on our ships. That money is then, in turn, taken and in the case of -- in the case of Alibaba we work with Ant Financial, signed financial, well then again reconvert that money -- we'll actually take that money and repatriate it for us.

So there are cross-border payments, and they will deposit that money in a bank account. There are a couple locations in the APAC region that we use that that will handle it in USD.

MR. DOLLAR: Okay so one of the rules for lawyers; is never ask a question to which you do not know the answer, but I guess there's different rule for moderators. So I don't know if anyone knows, so is there a limit -- and Yiping, you maybe, maybe you know, or Frank. Is there a limit, you know, kind of an annual limit on the extent to which you could use your Alipay or your WeChat Pay abroad?

MR. HUANG: All together? I don't think there is an explicit limit, there might be, but usually the limit is if you -- you can't transfer money more than 10,000 a day.

MR. DOLLAR: Right, but would that occur for these -- sorry would that be relevant for these purchases which are basically current account transactions?

MR. HUANG: Do you mean overseas?

MR. DOLLAR: Yeah. So, you know you --

MR. HUANG: Overseas, in theory, it's the same current account management, and the regulation is that everybody can spend no more than USD50,000.

MR. DOLLAR: Okay. Per year; per year for sure, right?

MR. HUANG: Per year, yeah.

MR. TUSCANO: And that's aligned with the contracts that we negotiated as well.

MR. DOLLAR: So you can't buy the \$100,000 Rolex?

MR. TUSCANO: Well there's a workaround for that. (Laughter)

MR. DOLLAR: You have to do it -- you have to do it together with your wife.

MR. TUSCANO: It's two transactions back to back, that's how it's handled.

MR. DOLLAR: Aaron, so Aaron, I wanted to ask you, I think you mentioned that Facebook is going to be launching a so called cryptocurrency tomorrow, and I read that it's going to be linked to a basket of currencies, so I'm not sure to what extent it's a cryptocurrency. But it certainly has the potential to become this kind of payment system. So, based on your prediction, are you suggesting this is going to be a failure?

MR. KLEIN: No. I think I'm going to -- let me just aggregate kind of three things within the prediction. One is the adoption of QR codes could very well occur, right. We've adopted barcodes, we could move into a QR payment system, right. You're seeing people try to become smarter. Remember the garage example I had, of how you just scan the QR-code, all right, so now anybody here parks at Dulles, you actually put this credit card in, and the credit card out, it gets rid of a little thing.

That's great as long as you remember which card you came in with; right, because most people have multiple cards in there in their wallet.

The QR system I think could well get adopted. The mobile wallets, digital wallets, in the U.S. it's still ultimately a bank-centric model. The digital wallet is ultimately part of the banking system and the banking experience. Apple Pay is not just an



intermediate (inaudible) in the banks, they're layering on top.

In the Facebook example, and there needs to be more information out about this. When I transact in Facebook currency is there a bank underlying between that, or is it two digital wallets within the Facebook ecosystem? If it's two digital wallets within the Facebook ecosystem, it may have a place. It may have a place in international money transmission; right?

There are seven million Americans who live part of the year abroad, they may want to transact in that currency within their social network in a multinational context. There are many other people all around the world that are more global who may want to settle in different things. At some point there could be a play where multinational companies have interest in franchise, rather than pricing everything globally in dollars, want to price everything globally in a different currency.

In that area that could be fine. And it could take off, it could not. I don't know. What it's not going to do is replace the credit card. What it's not going to do is replace the debit card as a general means of transaction, particularly on the higher-end credit spectrum.

MR. DOLLAR: Okay. Claudia, I want to ask you a central bank question, coming from Bank of Italy. So, are there central bank worries about these developments? Is there a problem with the conduct of monetary policy? If Aaron is wrong, and this new Facebook currency takes off very quickly in the U.S. and Europe, what is there for central banks to worry about?

MS. BIANCOTTI: Well, so details on the Facebook currency right now are very sparse, and I'm actually very much looking forward to reading the white paper tomorrow. But what I understand is that the plan is to have this coin that is actually minted by Facebook, and its value will be pegged, as you said, to a basket of currencies, and the crypto part comes in how transactions are secured, because they are going to be secured on a block chain, so through cryptography.

The point is, right now we don't know anything about how many of these coins are going to exist. Who is going to set their growth rate, or no growth rate, as it were? And I guess that understanding these details is extremely important because potentially this looks like currency that will be spent in something like 100 countries. We've never seen that before.

And it was already quite problematic to set up the euro which, you know, it started -- it started with far less than 100 countries, and you have all sorts of issues with monetary policy, or fiscal policy, when you create a monetary area.

Of course, you cannot do that without the approval of regulators. You cannot have private currency. I mean you technically can in some countries. Like the German law allows for private currency in certain settings; and of course you can have your own thing with your friends, but you cannot call it currency until there is an obligation for merchants to accept it, which is like legal tender.

The point with Facebook, you know, Facebook is so big. You know, with Bitcoin, there was of course worry in the central banking community about whether it will impact monetary policy and financial stability, but in the end the bottom line was, it's not a big issue because Bitcoin is small.

And so as long as it stays small, you don't have any problem of, you know, what's happening in the Bitcoin market affecting the exchange rate, between the dollar in the euro. Now with Facebook coin used by -- potentially used by two million users, so you could have these feedback effects.

You could have, you know, demand for these global coin, as it's supposed to be called, explode so much that it has an effect on the exchange rate of Fiat. I mean anything could happen because it's huge, and it's going to be so hugely transnational.

Right now we don't know what it's going to be about. I mean, my personal prediction is that Facebook doesn't want to get into trouble with regulators, and they don't want to get into trouble with the Bank for International Settlements. They're not making a bid

for having legal -- their currency to become legal tender, at least for now, so they're going to start very slow and negotiate with regulators.

And this is going to have to be -- like to control, this is going to have to be a control process, but I mean we'll know tomorrow.

MR. DOLLAR: I'm not sure we'll know tomorrow, but we'll know more tomorrow. I think we can turn now to questions from the audience. This gentleman with his hand up, we have a microphone, so please just tell us who you are, and ask a question?

MR. POLZER: It's Karl again. I identified myself before. So, with Alipay, who owns the money in the packet? And is it my money still as a consumer? And what is Alipay if it -- if Alipay doesn't own it, what's their fiduciary obligation to handling the money? How's that regulated and how enforceable, you know, is that fiduciary duty example?

So, another thing I can do, so I go to China and I have \$9,000 to travel and I haven't bought a ticket home. I thought I bought a little red book that was in -- I have one actually from the Swedish Embassy in 1968, an original one. It was supposed to be \$800 but my little -- the vendor actually took \$8,000, and kind of cheated me.

Because I don't understand this Chinese renminbi stuff, and now I can't get home. So, will Alibaba or Alipay help me, as the credit card company would help me with a dispute with a vendor?

MR. DOLLAR: All right, so your more general question is about fraud, right, and there was already a question asked which wasn't answered. So, Aaron, can you handle this?

MR. KLEIN: Yes. So, let me talk about this in the American context first, which is the Electronic Funds Transfer Act secures your rights with respect to your bank. So when you use the term credit card company, it's a great explanation that people don't fully understand that you do not have a line -- you do not have a relationship with Visa, right, you have a relationship with the bank.

The bank is not your credit, you think of the bank as your credit card

company, but what the bank is, is it's a bank with the bank regulation, and under bank law who has extended you a loan, in your revolving credit card and that's why that's covered under a debit card structure, right,

The CFPB originally proposed to extend that to a digital wallet structure. So, you currently have this exact problem -- how many people here have PayPal? All right, now how many people here have a PayPal balance, money in their PayPal account?

So the rule about this issue is different if it's a PayPal balance than the other people who didn't raise their hand, you're just direct pulling your debit card through your PayPal, and you're right of recourses with your debit card at your bank under EFTA.

What the CFPB structure said is we are going to treat those two things parallel, because previously the law did not. And if that rule sets into place then I think this problem that you're describing is covered.

If the CFPB pulls it back, which they're talking about doing, because the rule came from the last crowd so they've got to pull it back, right, without stopping and thinking. I think this will actually slow adoption.

When you go back -- for those of you are closer with this -- the most cited -- David made this comment about lawyers. The most cited economic theorem in laws I understand, it is the Coase Theorem, named for Ronald Coase, a Nobel Laureate. He said, it doesn't matter, the government needs to assign property rights, if they're tradable they can get out of the way.

Under EFTA, the property right was that you're actually liable for the first \$500. And this was in the '70s, it's much closer to about 2,000 bucks today, 1,500 in inflation. What's happened is because they were tradable the industry went, and in competing for your business, most folks in this room probably have zero liability.

That's an offer that's given by the industry because if they have to put in such a construct to remediate fraud against the tail risk event, they feel pretty good about covering the first couple hundred bucks as well, and in that situation, it's created this great

tradability.

So, I also get a little wary about places where you put in -- assign liability without allowing any market mechanism, because it turned out \$500 was not the market clearing amount of liability, thanks for willing to assume all of the liability, another benefit of having payments in the banking system.

MR. DOLLAR: Right. Now, do we know in the Chinese context, Yiping, have there been cases of fraud using either of these electronic things?

MR. HUANG: Two things. If there is a fraud Alipay, or I think the same for the WeChat Pay, they're simply just paying for the money. At the moment the probability, I mean we just saw the number, for every 10 million yuan transaction there was a risk, an average risk of five yuan.

So, Alipay simply is just paying for whatever. Their slogan is: as long as you're willing to pay we are willing to cover whatever problems you incur. That's the policy, and it's going now for -- I mean I haven't heard any complaints about the major problems.

The balance Aaron mentioned in the Alipay or WeChat Pay account they used to be kept by the service providers. In fact, they deposit this money with the commercial bank and make a big interest income, but the last year the Central Bank changed its regulation. All money have to be deposited with the Central Bank with zero interest so they complained a bit but then there's nothing you could do about it, so.

MR. TUSCANO: I can certainly support Yiping's statement in terms of the low availability -- or the low occurrence of fraud. We do have a refund process in place to address it, but what we've seen, and our data shows, is that it's in this low-tenths of a percent in terms of when we actually have to process a refund on board our ships. So, it's a very low occurrence, much lower than traditional forms of payment.

MR. HUANG: Right.

MR. DOLLAR: Other questions? This gentleman here.

QUESTIONER: Thank you so much for the panel. Mr. Tuscano, I'll direct

this to you. It seems like American vendors have a sort of very blinkered view of what -- and I'll take WeChat as a particular example -- what WeChat can do. And I think the first time I saw a WeChat sort of QR code was like in a Las Vegas outlet mall, or something.

But they put it on the door, like, we accept Visa, MasterCard and WeChat. And I think that's what I think the value is. But I think it's -- well I know it's so much more than that, you know, as you mentioned, it's so integrated to the sort of social network, there's so much capability to upsell somebody, you know. If a hotel lets somebody -- lets a Chinese consumer pay with their WeChat wallet they can then sort of upsell them on the breakfast buffet when they walk by the restaurant or something.

So, I suppose my question is: is there -- if sort of American vendors and merchants kind of knew the capabilities of what you could do with WeChat. Of how, for example, when you sell -- when you send coupons to somebody, you're not just sending like a newsletter to somebody's spam box, you're literally sending it to their sort of WeChat queue, and they can see it just like you'll see a message in Facebook messenger for example.

Do you think once people sort of know that, and know how sort of integrated this is, and how much -- how it's such an ecosystem, that that could sort of, you know, serve as an impetus, for more sort of adoption. I don't know if that's clear, but.

MR. TUSCANO: Well, in agreement with Aaron's position in the paper, I'd still say no. And the reason is, is ubiquity of the platform and the users within that platform domestically, and that's really where we are going to struggle in the American context. But in terms of the unique niche that we have, which is multinational with Chinese consumers, it's clearly that it's almost endless possibilities.

I mean, the capabilities are expansive, and those implications, as you stated, are far-reaching in terms of the marketing possibilities, and the way people transact and trade, in essence, on these platforms.

MR. DOLLAR: This woman here?

MS. LAING: Hi. Thank you very much. I have a question about financial inclusion. And I want to thank Dr. Huang for sharing the statistics about how these payment systems have helped with the SME growth. So my question is around gender, and do you actually have some of these statistics disaggregated by gender? Are these payment systems helping women entrepreneurs more than men entrepreneurs?

MR. DOLLAR: Can you give us your name? Thank you.

MS. LAING: Oh. Patricia Laing. And I'm with Save the Children. Thanks.

MR. HUANG: I'm so sorry that should be a good question to have, but at the moment I don't. But I'm traveling with some colleagues from Ant Financial and MyBank. I'll go back and check, during dinner time maybe, I'll send the numbers to David.

MR. KLEIN: So, I think on page 16 of the report --

MR. DOLLAR: You have it. (Laughter)

MR. KLEIN: I don't have it by gender but this is not an uncorrelated, which is that according to the U.N., according to the U.N., the United Nations' high-level panel on digital cooperation, Alipay, more than half of their loans have gone to business owners under the age of 30. So it's not a disaggregation by gender, but I'm going to guess there's an age-gender correlation, I'm going to guess younger people have a higher female percentage than, say, over the age of 60. That's just speculation, but.

MR. DOLLAR: I should get that gentleman way in the back, so we don't discriminate against the back. (Laughter)

QUESTIONER: Hello. Thank you. My name is Peter Knack, and I'm at the School of Government at the University of Oxford and a Visiting Scholar at the Center for New Structural Economics at (inaudible). My question is for Professor Huang. I've followed the Digital Financial Inclusion Index, and it's very clear that China has moved --

MR. HUANG: Thank you.

QUESTIONER: -- the frontier of including many more people in both -- in transactions, payments and credit. What I hear, having been in China last month, is that the

discourse is moving away from maximized financial inclusion to make it commercially sustainable. NPR ratios have been rising, Hainan Province has 42 banks with NPR ratios over 5 percent. Do you think that China having moved way beyond Western countries, and financial inclusion, is hitting a frontier of how far it is commercially sustainable to extend credit to SMEs and other people?

MR. HUANG: Can I clarify? When you said NPR ratios are rising, you're talking about the traditional banks, not the -- all right. Okay. So, these are the two separate issues. I do think that we found kind of a possible solution to the very difficult financial inclusion problem by applying the digital finance -- the digital technology.

In fact, I forgot to mention MyBank, and the same for other online banks as well, while they're giving out so many loans in a year, the average nonperforming loan ratio was 1.5 percent. They started from a relatively high ratio because they were learning about how to use machine learning and a big data analysis to do credit risk assessment, but actually at the moment they're doing so much better now.

I think you're right in terms of the commercial banks. I think the government is probably doing something not exactly right. For many -- for many years now the government is trying to deal with the issue of the SME funding, but the policies they're always trying to promote are two.

Number one is asking the banks to provide more bank loans to SMEs, which I think is fine if most of the banks are state-owned commercial banks. But the second a policy they also advocate, which I think is ridiculous, is that they ask the banks to lower the lending rates, which makes it even -- just impossible for the banks to do the businesses with the relatively risky SMEs.

Now, we mentioned earlier about the short lifespan of the SMEs. In China the average lifespan is four or five years, and that means the risk is relatively high. When the government forced the banks to lend more money to the SMEs, and ask them to lower the lending rate, either they don't want to do it, they just make some -- a lot of tricks.



And one of the stories I heard during the Chinese New Year, because last year we had a big crisis for SMEs, the private enterprises, so the government made a big turnaround in the policy and forced everybody to extend more loans. The one story I heard, it was during the Chinese New Year, one private entrepreneur was approached by his bank, and to ask him to take more -- to take loans.

And he said, I don't want loans because the business is doing okay, but the economy is taking a downturn it's a time for you to expand. The banks said, well, we've been supporting you for the past 20 years; it's time for you to support us. (Laughter)

And he said, well, fine but what are the terms? The bank said, we are going to lend you at 20 million yuan. He said, that's too much; but the bank said, well, the interest rate is at 2.8 percent. He said, well, that's fine, I can take it. And then the bank said, well, we'll give you that money but you're not allowed to use it. You can buy wealth management products that we issue, which pays 4.8 percent.

So, in that game the entrepreneur was happy because he -- for no reason he made a 3 percentage point interest spread. The bank was happy because now he can tell the government that we actually extended loans to private enterprises. And I'm sure the Premier would be happy when he saw the number.

In fact, we saw the number at the end of March. The private sector loans -- outstanding loans was up by 19.1 percent which was a 5.4 percentage points higher than the average loan growth. So the Premier could have celebrated with himself about the policy. But this is exactly what is happening.

So I think that is the background of the story you're talking about. If the banks are forced to make more loans the NPR ratios will rise, and even with these good numbers we saw after March, we'll continue to see the government who will be struggling with the same policy.

So, I think it's just the wrong policy. Now fortunately we have Alipay and WeChat Pay, which are not directly supported by the government, but that they are doing

the job of financial inclusion.

MR. DOLLAR: That was a very nice note to end on. So if you were paying attention, Yiping just gave a very nice --

MR. HUANG: Thank you.

MR. DOLLAR: -- indictment of state-owned financial system. Let's give the panelists a round of applause. (Applause)

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