China Economy Lecture Series featuring Chang-Tai Hsieh - Special Deals from Special Investors: The Rise of State-Connected Private Owners in China, April 1, 2021

- [Mark Grady] Hi, welcome to today's China economy lecture. We are going to begin in about a minute. We're gonna give a couple of seconds for people to log in, it's the last minute, and then we'll start our presentation. Thank you for joining us.

- Okay, thank you so much to the Fairbank Center for organizing us, my name is Meg Rithmire, I'm the F. Warren MacFarlan associate professor at Harvard Business School where I focus on China and the Chinese economy, and I'm the convener of this seminar on the Chinese economy. We have a great guest today that I'm going to introduce momentarily, but I just want to let everyone here know that our next meeting would be April 19th and it's at 8:00 pm, Boston time, we're gonna have Angela John from the University of Hong Kong speaking on her new book, "An Antitrust Policy in China." Our speaker today is Professor Chang-Tai Hsieh who is the Phyllis and Irwin Winkelried Professor of Economics at the Booth School of Business at the University of Chicago. He's a very well-known economist who works on growth and development in a variety of countries including of course, China, where his recent work has looked at the, extent of State Connections in the Private Sector, and he's presenting a paper on that topic today. He's the recipient of an Alfred P. Sloan Foundation Research Fellowship and elected member of Academia Sinica and the recipient of the, Sun Ye-Fang research, award for research on the Chinese economy. So he's a trained economist which means that he doesn't mind interruptions, when he presents a paper, I'll be monitoring the Q and A, if you do have a question, before the conclusion of today's talk feel free to pose it in the Q and A, and Professor Hsieh has given me permission to rudely interrupt him at any moment to ask for clarification or probably start an argument if it's a useful one, so please do feel free to use the Q and A liberally throughout the presentation. And with that I'll thank Professor Hsieh and turn it over to you.

- Thanks, let me just share my, can you see my screen? Okay, great. So, I thought that the way that I would start is just by, so here, so let me talk about, so I gave a talk at December, gosh, it must have been five years ago. And there the story that I was trying to tell is that, so, maybe the way I would put it is that, there's this puzzle at least from an economist point of view about China, which is that how can you have sustained growth over such a long period of time, what looks like such a dysfunctional institutions. And the story that I told when I was last at the seminar five years ago, is that you have to look at what I'm gonna call the informal institutions. That is you have to go beyond what you hear people in Beijing say, what the official policy is, and you have to look at what is happening on the ground. And there the story that we told is that, the key informal institutions in the 1990s in the 2000s were two main things. One is what we call special deals that were provided by law, by a local government, so, and it's simple, I mean, it is something that you can easily see if you ever spent any time on the ground that the key thing of what local governments do, is at they basically spend a lot of time soliciting business and providing support for the local, business. And again, it's one of these things that everybody knows is being done, but there isn't any official policy about this, so it's not, you know there's no five-year plan, there isn't, there's been no statement from, the Politburo, the National People's Congress that doesn't make any statements about this but everybody knows that it's a key thing that is going on. The second part, which we said was important is that it's not just a special deals but it's also the tremendous amount of competition that you see between local governments. The story, I'm coming back here because I wanted to tell the story of how the system has evolved. And we wanna tell them that the key mechanism that I wanted to show you, is that this informal is the informal institution has become more, for lack of a better term I'm gonna say it's become more formalized. It's become more formalized in the following sense that, it is now, I would say easier to do and the way that it takes place is that instead of soliciting support from, somebody from the local government, what you do is that you get special deals by bringing on a connected investor into your company. So there are a couple of terms that people in China use for this, they call this, you wanna bring in a strategic investor, or you wanna bring in a connected investor, so the basic idea is that you basically, essentially give a share of your equity in one of your companies to somebody that is politically connected, to somebody that's connected in the hope that this person that this investor smooths the way for your business, right? And again, I wanna say that, and again I think that I would show you that I think that this has been a big part of what's happened in the last 15 to 20 years in China, but again, it's one of these things where there's been no formal policy, there's been no formal policy statement, there's been no statement by the Politburo Bureau or the National People's Congress about it, but it's, I will show you, again, I'll show you that it's been very large and it's played a very big role in what we've seen happen to the Chinese economy in the last 20 years. So the way I thought then is that I would just start by giving you some early examples of this system, okay? And the way I wanna start is I wanna bring you back to the precursor of China 2025, or what people call the strategic emerging industry industrial policy that was prevalent from roughly the late 1990s and it was officially killed in 2014. And I find looking at this useful, when we wanna think about Chinese industrial policy, because it, at first it was just the previous incarnation of trade use industrial policy, but also looking at what happened, I think is very useful in understanding how the system work. So, let me for, just give a quick summary of what this industrial policy is. So in a same way, that there were a couple of products, there were a couple of industries that are being chosen in China trade, in the China 2025, under the strategic and emerging industries, the government chose 14 strategic industry, and perhaps the key difference then compared to now is that, the way the government was gonna once, was gonna promote these industries, it wasn't through lots of slush funds, the main instrument was basically that they were gonna reserve these industries for state firms. That was the key policy instruments. So these were things like steel, aluminum, cars, it's also useful to go back and look at the list when, because none of these are really the key industries in China now, so what would you wanna us to think about the wiseness of having somebody from the central government choose what the strategic industries are in the future? But the really interesting thing about when you go back and look at the strategic and emerging industries is that, when you look at what happened although the goal and the policy was that these industries were to be reserved for certain State owned firms, when you look empirically at what happened this only happened in one industry. But if you look at 13 of the 14 strategic industry what you saw was this massive violations of this policy, primarily from, you know, from the combination of local government and private firms, that basically didn't like the fact that these industries were reserved for State owned firms. So they found a way to get around these, the strategic emerging industry. And I'll give you two examples of this, and, I'm picking these two because the way that it was done, was through an early version of what I'm gonna document now. The first example is what happened to the car industry? So the car industry was one of the strategic industry and basically there in the car industry, production was reserved for six state owned firms. So companies like First Alto Works, Beijing Auto, Shanghai Auto. In the late 1990s and 2000, there's, this a story that I really like, there was this car company called Chery, and it was basically operating illegally. That basically it was producing cars, it was basically, you know, its first product at the time, as sort of its first product was a knockoff of the Volkswagen Jetta. It's, but the main problem that it had was that it was not part of Chinese industrial policy. That is, it didn't have the license, it didn't have the relevant license from the NDRC to make cars, you know, there's a really, a long fascinating story about all the things that they did in order to get the license from the NDRC, none of it worked until in the early 2000, they hit upon the strategy of going to one of the State owned firms, Shanghai Auto, which is if you know anything about the car industry in China it's the largest car maker in China. And, the deal that they reached with Shanghai Auto is that they basically gave a 20% equity stake of Chery to Shanghai Auto. So in the early 2000, the registration of Chery changed, such that, you know Shanghai Auto now held a 20% share of Chery, It was registered as a new company, and what the people at Chery did, is that they basically then with the new registration, that went back to the NDRC, and they lobbied again for a license to make cars, and the rough argument that they made is that "Look, you know, the Shanghai Auto has the right to make cars, it's covered under state industrial policy, they now own 20% of us, we should be treated in the same way as a Shanghai Auto." Not sure exactly what was the argument that worked, but after that, they got the full license from the NDRC to make cars. And then it's gone on and done other things since then. And then after about two or three years, Cherry bought back, it's a 20% equity share from SIC, so this is the only version of the use of strategic investor, and in this case, the Shanghai Auto was Chery's strategic investor that basically, that enabled them to do and run around Chinese industrial policy. The second example is again from Chinese industrial policy and this time from the aluminum industry. There it was the same deal, that basically the aluminum industry was reserved for state owned firms, and in this case, the monopoly, it was a true monopoly that basically only one company was allowed to make aluminum, the state owned firms called the China Aluminum Corporation. And it wasn't just that, it wasn't that, there was also a restriction, that any company that, that produced bauxite which is the main raw material that you need in order to make, you know to make aluminum, you could only sell it to the China Aluminum Corporation. Well, around the same time that Chery was doing what it was doing, there was this company called the East Hope Group, which at the time was primarily a distributor of animal feed. And the company was looking around for what else to, what else they wanted to do. And they decided to expand into aluminum. They had two problems. One is that, they, that, both of them related to Chinese industrial policy. One is that they couldn't get the license to produce aluminum because a private company producing aluminum was a violation of the law. Second of all, even if they wanted to do that, they couldn't get the bauxite because the companies that produced bauxite couldn't sell to them. What they did, is that they basically went to this local government in Western Han province to the small city called San, to the small city called Sanmenxia, and, I don't know exactly why the went there, but here's my guess, that, a large number of the reserves or the Chinese reserves of bauxite sit in this city, so, they thought that the main problem that main thing they needed to crack was the supply problem. So they went into the city, and they basically created a joint venture with a local government of Sanmenxia, so they basically, so their joint venture partner was locals state owned firm, called Huanghe Electricity, and they created this new company as a joint venture called East Hope Aluminum. This was around in 2002. So with this new company, they were able to basically start to produce aluminum, and by 2008, the state share of the aluminum sector it was previously at 98% in 2002, with the entry of the East Hope Aluminum into the market, East Hope captured about the 20 to 30% share of the market, the State owned firm is still the largest company but it no it no longer had monopoly on the market. So, I'm gonna come back and just tell you more about these two companies and what happened to these companies since then. But what we're gonna do is that we're gonna just show you how these early, these were early examples, of what has grown tremendously since the early 2000s. So the key thing that we're gonna bring to the table, is that, we're gonna, we have new data. We have administrative data, on the universal firms in China, so we see everybody. So we see everybody, you know down from the noodle shop vendor to the largest firm, to the largest company in China, and I'll say more about it, we also see all the holding companies which is going to be key. And the key thing is that it is administrative data, so we also see the owners of every single company. So we could tell you for every single company in China, who is the ultimate owner of this company, okay? And once we identify the owners, what we can do then is we can look at, well what are the relationships between the different owners and how are the relationships forged, okay? So what we're gonna document for you is that is that these investments by special investors, by politically connected investors, the kinda thing that Chery did, that Chery and Shanghai Auto did, or the kind of thing the East Hope and the Sanmenxia local government did, has really, you know, has really expanded dramatically in the last 20 or so years, okay? So, let me just give you a quick summary of what is it that we find and then I'll jump back and just show you more of the data, so you can get a sense of what we can measure and what we can't measure. So we document four key things. First of all, the first thing that you see, is that there's been a big increase in investments by state owners in private firms. And this takes place so there are two main margins in which this whole study takes place. There's what, using the language of economists, that there's been an increase on the extensive margin, that is what fraction of state owners are doing this, okay? And that number goes up from 3% of state owners were doing this 20 years ago, and now it's 25% of state owners are doing this. Second, there's a conditional on doing this, there's also be an increase on what we call the intensive margin. So conditional on doing this, a state owner was investing in three other private firms, back 20 years ago, and now that number is 50 plus, is about 50. So there's been a five fold increase of this type of activity on the intensive margin. Now, the consequence is the product of these two things is just the increase in the number of private owners that have these special connections. Such that by 2019, we have about 100,000 private owners that have these ties with state owners and these owners account for about 17% of all the registered capital of China. So it's a sizeable chunk of the Chinese economy. The second thing that you see, is that it doesn't end there, what you see is that these owners that become connected to the state, become connected, what you see them do after they become connected, is that then they start to grow. so I'll show you some evidence of this, is that so their businesses grow, they expand into new businesses, they expand into new geographic locations. And the third thing that they do which is gonna be, I think, an important part of the story, and I think is less well known, is that these connected owners, what they also do is that they turn around and they basically do the same thing with other companies. So in a sense, they then become the godfather, if you like that term, so I'm gonna borrow from Meg's recent paper. So they then become the godfather for other private, for other private owners. So that this is the key mechanism through which, this network of influence spreads. It's almost like, I mean if, from an economist point of view, you can almost model it like in the same way that you modeled the spread of COVID. And a lot of the underlying analytics of the model is almost exactly the model of the spread of COVID. The, not sure how much political scientists have delved into the model, but by now, every single economists have dived into the basic mechanics of that basic public health model which is called the SIR model. And then the model that we basically adopted is almost exactly the same thing. That basically the way that the system spreads is that, you know, I, get infected with the state owner, and then the way the system spreads is that then I go around and infect other people, and then these people go around and affect other people as well. And this is exactly what you see has happened. What will we see happened. So, just in terms of the numbers, there's been a large increase in private owners that are not directly connected to the state but there are what we call indirectly connected to the state, through this network. And these, the second group account for about 19% of the Chinese, of all registered capital. So if you wanna, let's say think about what's the size of the private owners that are connected, it's about 38%, in the last year of the data that we have, which is 2019, okay? So unless there are questions then let me just dive into the details of what the data is, so that it's, I'll just pick a two second pause, to see whether Meg wants to ask something.

- Yeah sure, but I mean, I think you're probably gonna get into it, but what--

- Okay.

- I mean, so one question I have is what's the time, what's the timing of a lot of this? And so, I mean, to say basically by 2019 is one thing, but we know, for example, there's a massive entry of state capital into the private sector, into other, you know, non-state firms in 2015, and so, what time period is driving the number you arrive at which is like a total of 38%, and then I mean, I have a bunch of other questions too, but maybe you'll, about the logic of what this is, and how we can tell why it's happening, but, maybe that's better left to after the data.

- Yeah, if you give me, I'll get to you to the first question in two slides until then. But first let me just describe the, let me describe the data to you, okay? So the data that we're using for this, is China's firm registry. So it's basically the administrative data, in which, that contains all of the firm registration, so the basic idea is that whenever you start, whenever you create a company the first thing that you do is that you basically have to register your firm with this body called the State Administration for Industry and Commerce. We have two cross sections of this data. We have the cross section in 2000, and we have a cross section in 2019. So we have all the companies that were operating in 2000 and in 2019, plus in both of these years, we also have all the companies that existed until that date but are no longer operating. So, it includes also the data also includes the firms that are no longer operational. So just to make clear, like just to be clear, the data in 2019, it also contains all the companies that were operating in 2000, all right? The key thing that we have in the data, that you can observe in the data, is that you see the owners, because it's the registration date, okay? So we see the owners of every single company in 2019 and 2000 or the company no longer operational they're the owners of the exit, okay? And when you look at the owners, it's useful to just understand a little bit about ownership in China. They're basically in the data they're gonna be three types of owners, okay? There's gonna be what legally is called an individual owner. So think of that as a person, okay? And a person is identified in this data with an anonymized personal ID. So that's a, the second type of owner is what the Chinese call a legal person, okay? And we have the name and the ID of a legal person, so this is important, so I'm gonna spend some time to it. A legal person is basically either another company, or, what is also very frequent is that it's just a holding shell, right? And when you look at some of the largest companies in China, what you're gonna find, is that most of them, in most of the largest companies in China, they are gonna be owned by a bunch of holding shells, by a bunch of legal person. So think of this as being, yeah, it's just a shell company, so think of this as companies created by the full, by the famous full sector law firm in the Panama, right? The law firm behind the Panama Papers. The last group of owners is what is called a collective, and the collective is basically the publicly traded shares of a company that obviously is publicly traded. So we have the equity share of each, of each owner, and this is what's important, okay? So, and I'll just say there's a fourth, I mean, Meg knows this well, but for any of you who've ever looked at the large Chinese businesses, the first thing that is gonna be clear is that it's very difficult to figure out who the owners are. And the reason it's difficult to figure out who the owners are, is because when you look at who, when you look at who there, who on paper is the owner of the company, it's a bunch of holding shells, right? It's just a bunch of holding shells, so again, think about the Fonseca law. But this is what is really important, what you can do with this data. That, if it's a Chinese holding shell, okay? The Chinese holding shells also have to be registered. So, a Chinese holding shell is also somewhere in this data. So what you can do then is that, you know for when you look at a large company and a typical large company is owned by 20 holding shells, and most of the time, you know, at least for, you know, if you're doing this in the U.S. you come up with, you know three companies in the Bahamas, three Delaware, there's nothing that you can do because it's all hidden behind law firms. But in China, what you can do is, if it's a Chinese holding shell you can basically look for that holding shell in the data and look at who the owners of the holding shell are, right? And what you're gonna find is that in the majority of the cases, the holding shells themselves are owned by a bunch of other holding shells so, and then you look at these holding shells, they're owned by other holding, by a bunch of other holding shells as well, so the ownership structure is very, it's like this Russian doll, right? But, again, you know, once you have all the data, and you have infinite patience with your computer, what you can do is that you can just write a program and just get, you can write a program, and you could just keep on going until it finally stops, until you finally get to an individual person, a state owned firm, so that's what we essentially do. We basically use the data and we basically penetrate the holding shell structure, and we basically identify for every single company who is the ultimate owner of the company, not the immediate owner but the ultimate owner of the company. One important caveat, okay? If it's a Chinese holding shell, we can find it, right? But if it's a foreign holding shell, a foreign holding shell is not in the data. So, if it literally happens to be the Fonseca law firm, then we know nothing, right? So then when, or if it's a collective owner, if it's a publicly held shares, we also know nothing, like this, we don't know who the shareholders are. It just tells you that there's this collective share that owns 20% of the company, but we don't know who the individual, and if you give me, in two slides I will, three slides I will show you, you know, how much of the Chinese Corporate structure we are able to penetrate and how much we're not, because it's going through, the part that we can't identify the owners are the parts in which that is owned by the a foreign holding shell, or, that's owned by a collective owner. Lastly, we know the year the company was established, if the company is no longer operational we know the year that the company left, and the main limitation of the data is that we only see the registered capital, but we don't have sales, we don't have sales, we don't have employment, so that's the trade-off, but we have done a little bit where we have merged this administrative data with the manufacturing census, so at least for the manufacturing sample, we can say something about sales, we can say something about the employment, but that's but, you know, obviously I don't think that manufacturing is where a lot of the interesting action has taken place in China. So let me just give you, I'll come back to my two examples again, and again. Let me just give you an illustration, okay? So I'm gonna go back to East Hope, and I'll just show you what the administrative data shows you about East Hope. So here what I'm gonna do is that I'm showing you what the administrative data identifies as the owners of two of the companies in the East Hope Group. So these are the companies at the bottom, okay? So that's East Hope Aluminum at the bottom here, and this other company also based in the of city of Sanmenxia called Sanmenxia Dachang Mining, okay? When you look, so East Hope Aluminum was their original company in Sanmenxia this was the company that basically broke, the China Aluminum Corporation monopoly. When you look at in 2000, so this is the data in 2019, when you open up that data and you look at who the owners are of East Hope Aluminum, it's basically three holding shells. It's this company called the East Hope Group Limited that owns 37%, and these two other companies that called Shidebang Metal and Shidebang Trade, Trade limited. Let's look at the East Hope Group. What you can then look in the registration data and look for the East Hope Group, and what you're gonna to find is they're owned by two other holding shells. One is called East Hope Enterprise Management, this gray, light gray circle here, and this company called East Hope Investment hol, East Hope Investment holding. East Hope didn't give as much grief, or it didn't take us that much work, because once you look at these, at the two holding shells at the top, then our work ends. Because at that point, what you find is that, these two shows are owned by two individuals, okay? And you look, and it's not that hard to figure out that these two individuals, it's a guy called, Liu Yongxing who was the founder of the East Hope Group, and this other person who, you know after some Googling, you can easily figure out that it's a [indistinct], right? So let me just say that, East Hope Aluminum is 100, is fully and let me just say one last thing, okay? The other part of East Hope Aluminum is owned by these two companies called Shidebang, these are also holding companies but they're not in the data because they are holding companies that were registered in Hong Kong. So they're not in data, so we searched a little bit in the Hong Kong registration data, we were able to find out that these two these two holding companies are also owned by the two Lius. So in this case, it wasn't hard to figure out that the East Hope Aluminum is 100% owned by the Liu family, right? Through this structure of, through the structure of a hol, the structure of holding shells. Let me just quickly go through the other company. There's this other company called Sanmenxia Dachang Mining. It's 13% of them is owned by this other company called Mienchi Mining, I should have said it, the colors in this circle are indicate, are guesses of what type of company it is. If it's a dark gray, that is that we are, that's our sign that these are real companies. If it's a light gray, then it's is a holding shell, blue means that it's a person, and red means that it's a state owned firm, right? That's what the, so mienchi Mining is a real company, and you look at mienchi Mining they're owned by two other holding shells, and it happens to be the case that two of the holding shells exactly the same holding shells that also own East Hope Aluminum. So, the Liu family through these holden shells, and through this real company, mienchi Mining owned something like point, it owns something like a 13% share of Sanmenxia Dachang Mining. The other 13% is owned by this other company called Sanmenxia Jinjiang Mining, and that's another complicated company. That's, mostly a private conglomerate that's a mining conglomerate that is based somewhere else, and the majority of the company, 75% of the company are owned by five state owned firms, that are locally owned. That are owned by the local government. So this is just to give you an illustration of what the typical company that looks like. The typical large company looks like. It can get a lot more complicated than this. It can get a lot more complicated, but I would say that this is more typical, that two or three layers is, in terms of the owner, and I think there's just this fascinating work to be done at trying to understand what is it that's accounting for these multiple layers? What is it that they're, that these owners are trying to, are trying to accomplish? With that being said, let me say that that's not what we do here. What we're gonna do is we're gonna treat all that as a nuisance. And we are just gonna, we are gonna, we are going to ignore all these layers, and we are gonna focus on the owner, the ultimate owner of every firm. That is, we're not gonna focus on East Hope Investment holdings, we're gonna focus on the Liu family, okay? So we are gonna penetrate all these holding companies, and we are gonna just focus on the ultimate owners, and the second thing we're gonna do is once we've identified the ultimate owners, then we're gonna focus on the links on the equity links between the different ultimate owners. So in this case, what we're gonna say is that the Liu family has an equity link, has an equity tie, with basically six bodies. With the five state owned firms here, and with the Sanmenxia Jinjiang Mining Group or whoever the owners are of that group, okay? That's I'm where we're gonna be at, so, let me now just move, just take the East Hope Group, and let me just move up a circle, and let me now with, now that you understand the structure, let me give you the full, actually before that, let me just show you what the data looks like. So this is the data, just a summary statistics of the data. The total number of firms that's in the first column, it goes up for about a million to 37 million, and the other columns show you the number of owners in each year of the day, so you can see that the big increase is in terms of the number of individuals that owned some of the firms. This is the share of, this is the table that showed you the share of registered capital of the different types of ultimate, the different type of ultimate owner, so the first column shows you the share of registered capital of private individuals, and this is something that is well known, that the share that, I mean, this is basically the share of the private sector. In this case it's the private owner after we traced through we've gone through these ownership layers. So the first part of the, so the first column it just shows you what is frequently stated which is, you know, one way in which you can think about China is that it's the decline of the state sector, you see that here, and the rise of the private sector. But what we're gonna do is to show you that the story it's not that simple. That, what I'm gonna show is that the rise of the private sector is primarily driven by the rise of the connected private sector. And then the last two columns are basically the share register capital of the sector that we cannot penetrate. Which is the foreign share and the collective share, that is, we don't know who, I mean it could be the case and I think that a lot of the foreign shares really ultimately are, Chinese, but we just don't know that, right? We just don't know that. And then in terms of the collective sector, we also don't know who are the ultimate owners behind this, okay? So with that, let me then, go back to the East Hope Group, okay? So I'm gonna use these two companies a lot so, I've told you a story of one of these companies, then I've shown you what the ownership structure looks like, and now what I'm gonna do is I'm gonna show you the totality of the East Hope Group, okay? So, the way I'm going to define the East Hope Group, I'm gonna define it as companies where the Liu family after you penetrate this ownership layer, owns at least 10% equity share. So how many companies are these? They're 236 companies in total, after you worked through all the data, and after you've worked through all these complicated ownership change. So the 236 companies, 27 of them are joint ventures, okay? 27 of them are joint ventures, and if you aggregate the Liu family's, the Liu family share in all these companies in 2019, it aggregates up to 26 billion yen, right? So if you wanna know what's the rough size of the East Hope Group, it's 236 companies, and the Liu's family equity in these companies is about 26 billion yen, right? But, let me now, let me now hone in on these joint ventures. What are these joint ventures, and who are these joint ventures with, okay? That's what I'm gonna show you in the next two columns, okay? Of the 27 joint ventures, 15 of them are with state owned firms, okay? What are the characteristics of these state owned firms? Well, the state owned firms on average have 600 companies, that's this number here, and they're also big, they're much bigger than the Liu family. So each state owned firm on average if you aggregate their equity in all these 600 companies, their equity, if you add that up, it's a 226 billion yen, okay? So, one group of companies that the Liu family is having joint ventures with, are with state owned firms that are much larger than they are, okay? But that's not the only thing that, that's not the only thing that the Liu family is doing. They also have 12 joint ventures with other private owners. Who are these other private owners? Well, if you add up their companies the equity of these private, of the other private, these other private owners, that is only about 5 billion yen, right? So only, right? Only, but the first thing I want you to see is that, is that, you know the Liu family has a bunch of joint ventures and they have joint ventures and they have joint ventures with two types of owners. One are the state owners that are invariably much larger than the East Hope Group, and they also have joint ventures with other private owners and the other private owners that have joint ventures with are typically small, okay? Let me know, do the same thing, and let me show you the case of Shanghai Auto. And let me just show you, what is the full dimension, what are the full dimensions of Shanghai Auto. So what I am doing in this table, is I'm doing the same exercise but now I'm focused on the state firm called Shanghai Auto. So the same thing, you know, one of the companies that are part of the Shanghai group, I'm going to define the group as being companies where the Shanghai Auto owns a least a 10% equity share, how many companies are these? They're 586, okay? So it's a big, so you will be missing a big part of what is the Shanghai Auto Group if you only focused on Shanghai GM or Shanghai Volkswagen, you know or, you know the, the companies that are at the front, if you will. But what you also see in terms of in Shanghai Auto, is that, you know 360 of these companies are joint ventures, with other people, okay? And Shanghai Auto was, you know, that they're big, that if you add up Shanghai Auto's equity, in all these 586 companies, it totals 169 billion yen, okay? Who are the joint venture partners? Some of the joint venture partners are other state owned firms that are roughly of the same size as Shanghai Auto, and the other joint venture partners are private firms. And here I'm gonna break down the private owners into two groups, okay? The first group, which is what I show in the third column, are the owner, are the joint ventures of Shanghai Auto with three companies, with Anbang Insurance, VW, and GM. There are 10 owners that are behind these three companies, two of them are obviously GM in the U.S. and VW in, in Germany, and there are 50, and Shanghai Auto has 57 joint ventures with the owners that are behind Anbang, VW and GM. And, you know these are pretty big companies but they're smaller, or, the owners, the 10 owners behind Anbang, VW, and GM, they're smaller. Their registered capital is about 11 billion yen. And lastly, the last group of private owners, so Shanghai Auto has 157 joint ventures with 145 private owners that are just tight, relative to Shanghai Auto, they have a registered capital of 1.4 billion yen, all right? So let me just summarize this, that, what do we think, we take away from this? That, there are multiple ownership links, that Shanghai Auto has investments with 155 private owners, East Hope has joint ventures with 15 state owners and 11 private, 11 private owners. The second thing is that what you also see is that there is I think a clear hierarchy of owners. That they're the largest owners in the two cases I gave you, the largest owners are Shanghai Auto, and in the case of East Hope it's the state owners that have a joint venture with an East Hope Group. Then there's the next tier in the hierarchy are the private owners that have equity ties with the state owned firms. That's East Hope and then the owners of Anbang, VW and GM. So these are the owners that we're gonna, the language we're gonna use is that we're gonna say that these are private owners that are directly tied or directly connected, with the state owner. And then there's gonna be this next tier, which is the private owners in the table I gave you, the private owners that don't have an equity tie with the state owner, but they have an equity tie with another private owner that has a tie with the state firm, okay? So these are, these the private owners that are connected to the East Hope Group, but they don't directly have a joint venture with a state owner. So, the language we're gonna use is that these are private owners that are indirectly connected to the state owner. So, what I wanna do next, is I'm gonna go beyond these case studies, and I'll just show you the evidence systematically, for all the companies in China. But let me take a pause here.

- Yeah there's a couple of relevant questions, so, Hao Chen, who is from the University of Southern California asks, "What does it really mean, what do you mean by a second layer, a third layer, even more layers in joint ventures? And how is pretty familiar with this data also." But the question is kind of how would, what kind of influence should we interpret from N-layer joint with an SOE background? What kind of, how do we know if there's any influence say of an SOE over a firm if the ownership links are that attenuated, how would you interpret that?

- I mean, that's partly what I wanna, I mean that's partly what we wanna try to figure out with the data, right? That's partly what we wanna see is, when companies get connected at different layer, so lemme think I guess I shouldn't answer this way. What we mean by layer, the language we're gonna use is basically, how distant are the ownership links with the state? So if you are, if you're 10 layers were moved away from the state, well what we mean is that, you have a joint venture with a company that has a joint, that is not directly tied with the state, but in which it's closest tie with the state is nine layers removed from, from the state. So just the way, what is the influence of the state? I mean, there's nothing in the data that would, that say's anything about it. What we can say with this data is, what happens to companies after they become connected? What happens in terms of the growth? What happens in terms of the extent to which they are providing connections to other companies? What other companies do they create? What, you know what is the geographical reach of these companies? So that's what we can measure empirically in the data. One of the things that one I think wants to know and there's nothing in the data but I think it's a great question or if there's a way to do this is, what happens if somebody high up in the party wants something, or, does the equity link, does the equity share gives the party more leverage? And I don't have a way of answering that question. And there's nothing that would say, yeah so, I agree that it's a great question to answer, but we don't answer it here. We just ask what economically happens to these companies? So to these owners.

- Can I then, so there's another question from Ying Qin Su and the question is basically related to that. So what do you, what is the behavior difference, right? Between the companies, either the ones that get state investments that get attenuated state investment or don't, so, you can tell and I guess you're gonna show us that they, whether you wanna say, you know, I guess in fact the rest of the economy is the right metaphor but, are they more profitable, are those firms, do they become larger and, you know, are they more efficient? Can you say anything about basically the economic performance? And, I mean I think the ultimate question is what is the policy and economic implication of the rise of say connection that you're measuring?

- Yeah so, I'll get to this in few slides but basically what we see, is that there's a clear hierarchy of companies as measured by size, that depends on their distance from the state. So, roughly the way that what we think is going on, is that it's the most powerful, and it's the largest private owners that manage to get these direct ties with the state, and then, but for the people that are smaller than that, the state owners don't pay attention to, don't pay attention to them, and that's why, you know, you don't see these ties, but then what you see is that they manage to create these links with other private owners, so there's a, I'll show you in the next slide, in three slides, that what you see is that there's a very clear hierarchy in terms of who manages to connect at different layers. And there's a very clear hierarchy in terms of size, and there's also a very clear hierarchy in terms of who connects at each layer, and the kind of, and well, more precisely it's the number of connections that they themselves can provide to other companies. So state owned firms provide the most connections, then the ones that are directly connected the private owners that direct, they provide a second largest number of connections, then the next tier provides even less and so on. So what this seems to suggest that it's what would you do, it's almost like a model it's like what you would get in a model of all sort of x the match. And, and matching at different layers means that you also also get less. Now the second part of it is what happens to these companies? Well, if you also see the same thing in terms of how their performance changes, you see the biggest jump in performance among the ones that are directly connected, you see a smaller jump among the ones that are further, that are connected at layers that are more distanced from, that are more distant from the state.

- Just a last question about data before we see that from Terry Stickler who says it's very interesting, and she wants to say, just to be clear, do these data cover the entire universe of firms in China all sizes, all sectors, industry services, et cetera? And if not, if there's anything missing, what is it?

- The only thing that is missing are the self-employed, that's the only thing, they don't have to be registered with the data. But other than that, everybody's here, yeah.

- Great.

- Yeah.

- All right, are there bigger questions for later but I think we should move on, this is great.

- Okay, let me, okay. So, what I'm gonna do now is that I'm gonna just tell the essentially the same story, the same story, but now I will show you the patterns for all the firms. So, I've gotta go beyond the East Hope and the Shanghai Auto example. So the first fact is that it's just the idea that top owners in China are connected. So here's a simple way to illustrate this. So if you look at the top 100 largest owners in China but which we mean that we look at the owners with the largest amount of registered capital, 63 of them are state owners, 37 of them are private owners. So these are the companies that mostly will know, right? Or, you will know some of these companies, you may not know, you probably will not know the full dimensions of the owners, of all the things that the owners are, but of the 63 state owners that among the top 100 every single one of them is doing this, they are connected with somebody, with, in this case, they're connected with a private, with some private owner, in fact, with multiple private owners. Of the 37 private owners that are in the top, 131 of them are directly connected with some state owner and three of them are indirectly connected. So this just, and then let me just, the second column just shows you the same thing but for the top 100,000 largest owners in China, you have, there are 7,000 of them are state owners, and the majority of them are connected, and then 93,000 of them are private, and 17,000 are directly connected and 37,000 of them are indirectly connected. So roughly more than that. So the takeaway from this is that, the distinction that a lot of us wanna make between the private and state. At least for the largest owners and larger firms, it's really hard to make that distinction now. Because they're all closely interconnected. The decision only makes sense when you talk about, you know, small firms, so when you talk about small owner, but for the very largest firms, it's not a very useful this example, I mean, so sometimes the way I say, what would I say and this is the way I think about China is that it's all, you know, it's not really public versus private, is not a useful distinction to make, it's all these shades of gray. And then the question is whether it's closer to the black or it's closer to the white. But that's a first take away. Here's another way to make the same point, which is let me look, so this is a plot of all of the state owners in 2019, where I'm basically breaking down to state owners by their size, and I'm basically say, what of state owners in each size percentile, what fraction of them are doing this? And if you look at say state owners that are the top 10 percentile about 80 to 90% of them are, doing this. And when you look at the largest state owners, most of them are doing this. But when you look at the smallest ones, if you look at say the ones that are in the bottom 20%, in the bottom 20 percentile that's about 2 to 3%, So very few of the smallest state owned firms are doing this, so this is the phenomenon that I'm describing is primarily something that you see occurring at the very top of the distribution, okay? But because it's occurring at the very top of the distribution, it's, I'll show you in a few minutes, that it accounts for a very large share of economic activity in China, okay? Fact two, which is the hierarchy of private owners. And I'll show you this in two ways, okay? I'm going to define a term, I've said a little bit about this in response to a question, but I am going to define this just to be clear, I'm going a term called distance to the state, which, it's defined as the minimum number of private owners that are, that you have to go through, between the owner, that, between the owner in question and the state owner. So East Hope Group, okay? Is directly connected with a state owner, so that is an owner that we are, the Liu family where we are gonna say the Liu family distance to the state is distance what, okay? So you just have to move one step before you get to the state, to the state owner. So, and owner, that's a distance two, is basically it's a private company that East Hope has a joint venture with. That is, before you get to the state owner you have to go through the East Hope Group, okay? And what the, and I'm gonna show you this, I mean, part of what we were just astounded by, when we started to look at this, we started to look at this data, is just the proliferation of owners that are not directly connected, but, are indirectly connected with the state owner up until distance 10, okay? So, that's the definition of distance, and what I'm showing you here, is basically the average registered capital of the private owner at each layer, at each distance from the state, relative to the private owner, so this is all relative to the private owners that have no ties to the state, okay? So owners like the owners of the East Hope Group, that's a distance one, on average, they have a registered capital that's 250 times large than that of the non-connected private, non-connected private owners. But what you can see here is that, this gap, right? So the difference in size drops pretty dramatically. It drops about a distance two, it's a gap, it's about 25 times larger distance three, it's about 15 times larger, and by the time you get the distance 10, there are about three times larger, than the non-connected firm, okay? Another way in which you see this, is, by looking at the number of what, of the number of joint ventures that a typical private owner at each distance is making with private owners that are more distant from them, from the state. So think of this as being downward investments, if you will, okay? So what we're measuring here is basically in the case of the East Hope Group, is basically how many investments do they have with other private owners? So, and then a company like the East Hope Group on average, they have three joint ventures with companies that are smaller that are, and when you get to distance two, that number is, on average they have about two, and when you, by the time you get to distance five, on average, they're only making five, they're only making, the owners of distance five they're only making investment, okay? This is gonna be a very important number in determining how the system propagates, okay? So, let me just go back, again. Go back to the COVID literature. I don't know how many of you have followed the technical literature people, I mean, the key variable in epidemic is this thing that the public health experts call R-naught, which is the reproduction rate. It's the reproduction rate is the key variable that determines how the pandemic spreads, right? Think of this as being essentially the same thing, okay? Essentially the same thing, and it's really the same thing that if R-naught is greater than one, then the pandemic spreads to the entire population. If R-naught is less than one, then eventually the pandemic dies. Think about this as being essentially the same thing. It's basically, once you get in infected in this case, infected with the state, then how many other people do you pass this onto? And if that number is always greater than one what eventually happens is that you basically pass, that you basically pass this virus off, you pass the virus to every firm in the economy. If this number is less than one, eventually it dies off. That is, it's, and what you can see is that, you know, at some point at distance five, it gets below one, below one so then, eventually the fraction of owners that are connected in some way with the state, stops. That is, it doesn't propagate to the entire economy. And the other part is gonna be important, which I will show you next is that, the equivalent of this R-naught variable. It's the key is one key variable that has increased in the last 20 years. It's almost is of what's happened in the last 20 years, is that the effective reproduction rate of this virus has gone up. And this is, a big part of what, you know in some sense has led to the expansion of the size of the connected sector, okay? So, I'll show you that in a minute, but this is just shows you that you see the hierarchy in terms of the size of the owners and in also in terms of how each owner reproduces herself to the next group of firms. Fact three, this goes to a question. This is just a plot of the share of the equity of the connected investor in the businesses of the of the firms. So a typical owner at distance one from the state, the state has about a 20% share in the equity of the businesses of the owner. For example, let me just bring you back to the case of Chery. Shanghai Auto equities stake in cherry was 20%, and what this says, then that is a very typical number, okay? The number goes up when you once you get to distance two, but it typically is around 40% in rare cases, do we see that number going above 50%. So I guess what this, you know one question that you might have is, whether state owners are, whether state owners are the controlling shareholders of these companies, and it looks like in the vast majority of cases it's not. They're not the controlling shareholder. Let me just say that it doesn't look any different when, if you wanna think about their control right instead of their share of the equity. That is, it's not the case. At least with the state owners it's not the case that they're owning, that the state owner owns 50% of a holding shell and that holding shell owns 50% of another holding shell, and there are 10 other holding shells so that with an equity share of what, you know 1.5 to the power of 10, that is, imagine this chain where like if you have only enough money to own 5% of a company, but you still want to have, control rights over the company, one way which you could do it is a structure it through these layers of ownership. At least with the state owners, that doesn't seem to be what it's doing. That is, the share, another way of saying this is that, state owners don't seem to be using this network, this layer of a holding shells, it's the private owners that are, that seemed to be doing this. Fact four, the other thing that you see, is that, over the last 20 years, the number of connected owners has increased by quite a bit over time. So what this plot is, it's a cross section of three years, so this is maybe an answer to Meg's, question at the beginning. It's a cross section in 2000, 2010 and 2019, of the number of connected owners by distance from the state, okay? So, for example, if you wanna know how many owners were directly connected to the state in 2000 that's given by this number here, which is about 20,000 and by 2019, that number had increased by a factor of five, so it's now by 2019 that number is a 100,000, okay? But the other thing that you see here is that, the big expansion is in terms of the owners that are distantly related to the state. That is in 2000, there were basically, there were very few owners that were distantly connected to the state, but by 2019, that number had just gone up by quite a bit. So what, but what this says is that, the big expansion is really in the companies that are indirectly connected to the state. And then you are gonna miss if your focus is only on the companies that in which the state has an equity share in that you're gonna miss out what I think is a big part of the action. Let me just say, a simple way to decompose this, to think about the forces that could be behind us, first, just focus on the increase in the number of owners that are directly connected to the state. That's gonna be a product of two things. It's gonna be a product of of how many state firms are doing this, and conditional state firms doing this, how intensively are they doing this? So, here's a plot of the share of state owners with joint ventures with private owners, and that number goes up from about 3% to 25% by 2019. This is a plot of what you see changing on the intensive margin that is conditional on having joint ventures, did this, just to be clear again this is focused on state owners, we're on average, they are making three, three investments at the beginning of this period, but by 2019, that number had gone out to more than 50. So, obviously the product of these two things is just is gonna, be the increase in the number of owners that are directly connected to the state, okay? But that's not the only thing that is going on. The other thing that has is going on is basically there's, you also see the increase in what I call the effective reproduction rate. So this is basically looking only at the private owners and basically asking how many investments are private owners at each layer, at each, at each, distance from the state, how many investments are they making with other companies? And that number say, companies that were directly connected to state in 2000, they were making on average one, okay? But by 2019, that number was 3.5. So now think about just in terms of the basic math, how many firms, how many owners are you gonna have in layer two? Well, there are two things that are happening, right? State owners are doing this, so there's an increase in the number of private owners that are directly connected to the state. Now, condition, or being directly connected to the state that the typical firm was making one, was making one in investment in 2000 but now by 2019 number going up to 3.5. So the increase in the number of owners that, and this is two from the state, it's gonna be the product of two numbers. It's the product, it's the product of the five fold increase in number of owners that are directly connected to the state, and the increase from one to 3.5 in terms of the reproduction rate of the private owners that are directly, that are, that are directly connected to the state, okay? Somebody asked this. Our fact five is about what happens to the private owners after they become connected with a state? And here what I'm gonna just show you, so this is just a plot of what you get from a standard event study on, you know and the event is just being connected with, is getting a connected investor, and this is the increase in the number of investments, so the dash line is the pre trend, and then the red line is what you see in the data. So there's an increase in the numbers so there's a break in the trend in terms of the number of investments that they make, there's a breaking the trend in terms of the number of provinces that that owner operates in, and there's also a break in the trend in terms of the number of industries that the owners firms are operating after the get connected. Let me take a pause here before I go to the fact, 'cause I know I've gone on for a long time.

- That's great, and there's some really good questions actually, so I do want to ask them. So let me try to pose a couple of them together. So one is, can you tell who's, I guess can you tell who's making money from all of this, right? So do you have any visibility, Jeff William asks, into the flow of dividends upward through the networks? And a related question is kind of, which someone had early on, which is this kind of connected business dealings seems to carve out market opportunities for select groups, so then reap these massive gains for their own cohorts. And so do you think it exacerbates income and wealth inequality and is it viewed, is this viewed as a social problem in China, or is this just business as usual? So what are the kind of welfare effects of this?

– There's a great question about the flow of dividends. I don't, observe that. I mean, I think that's not in, I mean that's not in the data. I can say something from just a couple of case studies, so we have looked in major 50 companies, we've looked in detail at about 50 companies or 50 owners that have done this, and I guess in, and I guess the majority of the cases, what you see is that, both parties are benefiting from doing these. I would say that both parties are, I mean, the, connecting investor is benefiting because, you know they have a 20, 30, 40% share of the business, so, they, so that's their share of the profits of the company even if the company is not delivering dividends, you know there's still the value of the company after the company is growing. And I will say that in the cases that we've looked at, there's perhaps more resentment on the recipient side that is, they do this because it's necessary but in a couple of cases, you know they do express some resentment that they have to do this, in order to grow. But the fact is that they do, I mean, in at least in the number of cases that we have looked at, they do seem to do well. What are the social consequences of this? I mean, I guess I'm of two minds about this, that I... I mean, on the one hand, it's a way, one way which you can think about it is that, think about what we would typically say. If we see a system where you have a group of politicians with a tremendous amount of political power, over what the businesses do, and, what, and the way that we would typically, I would say that way, if you say, are typical responses are well, what we should do is that we should level the playing field and we should remove the power that pol, that we should remove the power that politicians have over what a business would do, and, create a level playing field. The way I think about what's happened in China is that, it's not the route they've taken is not bad, but they basically take, that what through these two mechanisms, the first mechanism in terms of what local governments are doing, and now through this, through the mechanism that I'm describing here is that, they're basically marketizing their political power. I mean, they're, you have powerful people that are basically selling, they're selling their, their access. So, and then I guess the other thing, that I think is important is that, once you, that, after they sell their political power and the other people then become wealthy, and then part of what you get from being wealthy is that you also have some power and access of your own, then they then start and do the same thing themselves. So then what that does is that, it basically spreads that power among more and more people, so I just wanna just bring you back here, I'm gonna bring you back to this graph here. Which is just, so I'll just remind you of two graphs. Think about the owner that's at distance 10 from the state. They're not that big. They're only three to four times larger than the unconnected firm, okay? So these are not, I mean, you know, by no means would you say that these are powerful large wealthy owners. But what you have is that these guys also do have something, right? And the other part of what you see, I'll just come back to this piece of evidence, is just the other thing of what you see is that, you see lots of these guys emerging, lots of owners that are distance 10 from the state, they're not that big, but they go from basically zero to 200,000, by 2009, so it's almost like, so this is a long long-winded answer, but because I think what will you see happening is that, what you see is that this is a system that is providing market opportunities to more and more people, but it is also true, of course that there are people that are left out, right? Which are the owners that are, which are the owners that are not connected.

- We only have a few more minutes but I wanna ask this one last question 'cause I think it's a really good one, and then you can move on to your last fact. So Charlie Wong says, "Is there an equivalent model that exists in Western systems such as connected venture capital, private equity, or corporate investors, and how would this compare to China's connected investor model you've presented?"

- Let me bring you back to the news from six months ago, or seven months ago about when the Trump administration announced the Tik Tok deal. Do you remember, which is no long operative. What struck me about the deal is that it was very much like this kind of a deal. You think, remember that deal that basically Tik Tok was a sell itself, it could survive in the U.S. if it sold itself to connected investors. U.S. connected investors. In the case of the Tik Tok deal, it was Walmart plus somebody else, right?

- Microsoft, yeah, Microsoft.

- Yeah. And then... But I would say, yeah, I can't think of, I can't, maybe for venture capital it's the same thing that basically, if you want to go, if you wanna grow then you, that you basically get, some, you get influential venture capital firm on board and that's a way to signal what, to signal what your type is. So, I think that there's, some of this going on in many places, I would say that the difference is just the scale and the magnitude in which it's occurring in China is not something that I have seen anywhere else. I mean, certainly the notion of a connected investor, is something that is well known here. Is well known here, but just, but just not at the scale with which I see that is taking place in China. Let me just show you my last fact, which is, so I've shown you two facts which is that there's an expansion, there's an increase in the number of owners that are connected, and then the connected owners grow. The product of these two things is just gonna be, the share of the connected owners in the economy. And that's what this table is. So this is the registered capital share of different types of owners, so the first fact I've already shown you which is the increase in the registered capital share of the private owners, that number is 15%, but what I'm showing, what, the table is showing in the next two columns is basically how much of that is coming from the private owners that are connected. So if you add up the directly connected and the indirectly connected owners their share over this period goes up by 16%, so basically all of the increase in the private sector, the share original capital of the private sector is coming from the connected sector. And the other part is that the connected state owners they themselves shrink, relative, so just to be clear, it's not as that they're shrinking in absolute terms, they are growing, but they're shrinking in relative terms, that is, the owners whose growth they've enabled is just much larger, these owners grow much more than the state owner that are at the top of this chain, if you will. So let me just take 30 more seconds and just summarize, what I think that this is saying. That, think that what we're saying is that, what's happened the last 20 years is that, it's become easier to scale the connections of the connected owners. So the consequences of this is that you see an increase in the number of owners that are connected or you see an increase in their size, you know. So what this is that it's, I think the broader story is that it's an expansion of the special deals bridge in the sense that, you no longer need to have direct access to a local part, to a local party boss, you need access to a connected investor and what the connected investor does, is that she scales her power, her advantages on your behalf, right? So that's what I think we are seeing. But it does raise questions that we don't, and that I think would be lovely to answer is what does it mean when you have an economy where you, where you have such a large chunk, of the large and successful private owners they depend critically on this power in order to, they depend on this in order to operate. If I were political scientists but that's what I would be thinking about. So anyway, I'll stop here but, I'd love to take more questions if there's time.

- Well, I wanna respect everyone's time, so technically we only go until 5:30, but I think I mean, if you're willing to hang out for just another few minutes, and answer a couple more questions and then I'll just pose a couple at the same time. I mean, sure, I take the bait as a political scientist that way I have to answer this question. You're gonna show me the big data part of it and measure it, and then we have to answer it. I have ideas, but I'll leave myself out of it. So a couple of good questions, so one is this question about whether this is, and I guess it's like a question about what are the effects of this? So, Austin Jordan asks, "Is this, you know, do we find connected investors picking firms that are already on an upward trajectory, or is it about basically firms are all equal and then they do better once they attract government performance?" And you can see how that would have different kind of macro outcomes, 'cause like, is this about a state that's picking affective winners and investing in those winners and enabling them more? Or is it about, you know, red seeking, et cetera. And then the other question and the last question and then we'll say goodbye, another graduate student, Saul Wilson asks, "Is this, you know, when you talk about formalization, of something that's informal, is it a formalization," he asks, "of either [indistinct] sorry, or like you are attracting investment basically, or is it a formalization of dai hong maozi of private firms that are trying to pretend to seek cover through state connection basically?" I think you'll probably understand the distinction there.

- Let me just take the first question and let me just go back to the slides. So, the answer is that it's, so if you stare at this, right? What you see, if you stare at these three slides, this one, this one, and this one. What you see in all cases is that, there is a pre trend, right? There, is pre trend, so it's not the case that connecting the vessels are picking random, that they're picking firms that are growing, right? They're, it's clear, it's clear and, that they're picking from third world. But what you also see is that after they become connected there is I think statistically significant evidence that the growth trajectory changes. So... Yeah, I mean, that's, And I just, it would be surprising if you don't see a pre-trend like, if, 'cause the way that you want, the way I have to think about it is like you only have limited ability to do this, if you are politically connected person, a politically connected that individual. So you wanna pick the ones, so it's, think of these guys is being doing what a venture capital will do, that is, it's, I mean, the craziest thing to do would be to randomly pick. You're not gonna randomly pick, you are gonna pick the ones that you think are gonna benefit the most from what you can, from you can provide. I think you are seeing that here. And, but that also makes it difficult to answer the question, what is your value added? I mean, it's like, you know, it's the question, you know I wish we could answer this question in the academic community 'cause, you know what we do all, the essence of what we do is that we pick, we pick and then what is the value that we add, I think it's a very tough question to answer. How do we wanna think conceptually about what these companies are doing? I don't think what they're doing is that they're putting on a red hat ideas, I don't see them pretending that they're state-owned firms, what I see them doing, at least in the cases that I have looked at, they're basically relying on their connected investors to do favors for them. So there's something that they need and they call upon the investor and then they, and it's, this person, or this company, you know benefits from the success of the company, but, I don't see them pretending to be state-owned firms, so, I don't think that that's it, you know, and so I don't think it's the phenomena from the 1980s. But, again, you know, I have a sample size of 50, and, you know, there's several million here. So, I'm sure that one can find other case studies in which they are putting on a red hat.

– Well it's very provocative work, I wish I had your data, it's amazing to see some of these trends that some of us have, feel like we've been observing kind of anecdotally formalized in this way. So, it's great work, I mean, we all have a lot of work to do to figure out what the implications of this are, but, lemme just thank you for your time, it's a great presentation, and thanks to all of you for attending and your questions, and I'm sure Professor Hsieh would appreciate feedback in written form since we don't have time, but, he's a very open person, so, thank you.

– Thanks, Meg this was fun, thanks again.

– Great.