Critical Issues Confronting China Series featuring Bert Hofman – A Broad Assessment of the Growth Outlook for China—Will it Meet Xi Jinping’s Goals, Will China Overtake the US? How Will China Seek to Achieve this?, April 27, 2022

- [Moderator] Hello, everyone, and welcome to today's talk. We will get started momentarily after we give another minute or so for people to log on. We thank you very much for joining us.

- Good evening, good morning, and maybe good afternoon as well. Welcome to the Critical Issues Confronting China series. This is the last of this academic term and today we are very delighted to welcome Bert Hofman, Director of the East Asian Institute at the National University of Singapore and also Professor of Practice at the Lee Kuan Yew School, to share with us his assessment and perspective of the growth outlook for China. And the questions that we have in our mind, of course, would include, is this growth outlook going to meet the country's goals? Will China overtake the US? How will China achieve this? And maybe I would also add, is it going to meet the Chinese citizens' expectations? Before joining the National University of Singapore, Bert has been working with the World Bank for over 20 years and between 2014 and 2019, he was the World Bank Country Director for China. He was also the Chief Economist for the World Bank in East Asia and the Pacific Region for 2011 to 2014. And needless to say, he has extensive experience in advising governments around that region on the wide range of development and economic issues. So we are really delighted to have him today. We're equally honored to have Professor Huang Yasheng, whom I think need no introduction to this audience. Yasheng is the Epoch Foundation Professor of Global Economics and Management at MIT Sloan School of Management. He served as an Associate Dean for MIT Sloan's global partnership program and his Action Learning initiative in 2013 to 2017. He has published 11 books. One is going to be published in 2023 called "The Rise and the Fall of the East: "Examination, Autocracy, Stability, and Technology "in Chinese History and Today." At MIT Sloan School, Yasheng founded and also runs a China lab and an India lab to provide low-cost consulting services to hundreds of small and medium enterprises in China and India. And I'd like to also mention that he's a founding member and is serving as the president of Asian American Scholar Forum, an NGO dedicated to open science, protection of rights, and wellbeing of Asian American scholars. After Bert give his presentation, Yasheng will be providing some commentary and his perspective as well. And for the audience, please type your questions in the Q and A box and I would like to encourage you to make your questions succinct and brief. If you would rather not be named, you can put in anonymous. And finally, before I turn it over to Bert, I am Winnie Yip and I am the acting director of the Fairbank Center last year and I'm a professor of global health policy and economics. So over to you, Bert.

- Thank you so much, Winnie, and thank you so much for inviting me and thanks to the Fairbank Center for having me and great to have Yasheng Huang spend some time to comment on me. And I hope that Bill Overholt, who is also here, will also kick into the discussion. There's a lot going on in China this week and everybody wonders whether the 5.5% growth rate that China has targeted for this year is actually still feasible in the midst of COVID, in the midst of a war, in the midst of a slowdown in real estate. But that's not what I want to talk about. I want to talk about the new era. I want to talk about the first and the second phase of the new era, so 2035 and 2050, and look at what is a feasible growth path for China, and indeed, will China overtake the United States? I will try to answer that question, but of course, I'll give an economist answer. The answer is it depends, and it depends what China will do, but it will also very much depend what the United States will do. And I'll try to illustrate that with scenarios that are not the truth, that are not projections, but that are a reflection of what I believe is feasible for China and what would be feasible for the United States. Of course, China's long-term growth, that is extremely relevant for the world. China has delivered more than a quarter of world growth in the past decade, already more than the United States because it has been growing faster, and continued growth in China will be important. In today's world, it is also important from a geopolitical and strategic perspective because that transition of one country becoming the biggest and the other one becoming the second biggest, that doesn't happen too often. The last time it happened was actually when the United States took over China and that was in 1870. Of course, there was the British Empire. So if you add India and Canada and Australia to the UK, it was still the biggest and then only the United States took over in the 1930s, but it was really in 1870 that China became second and the United States became first. Most people have forgotten it because China at that point was a very weak power. Today is quite different and therefore the implications of China's growth are quite different as well. We have a lot to cover, so let me start by sharing my slides. I will talk quite quickly on this. Let me see whether I can actually get them up. There we are. And I will use some economics, but I try to keep it as simple as possible. I apologize for it in advance. The economics are not important, but it will illustrate a little bit on what I want to say. So I use some economics as I can. All right. So the outline is how did China grow in the past? It's important to know before you start thinking about the future, knowing how fast China grew and what were the factors of growth? And then I will use those factors to look into the future. And the four factors that will determine, from an economist's point of view, the future, that is demographics, it's human capital, it is physical capital, and then something, the secret sauce, total factor productivity, the overall efficiency in the economy. Then I present some growth scenarios, as I said, and then I'll compare China and the United States. The only difference between the growth scenarios in China and the United States is really that we're not interested in projections in today's dollars. We're interested in projections in future dollars. When will China take over in future dollars? And that is a bit harder. For that, we need to have a view on the exchange rate, as well as on the growth rates, but I'll start with the growth rates and looking at the past. Well, Xi Jinping has a view on growth rates as well and he has a very clear view for the new era, so that by the middle of the century, China should be a great modern socialist country that is prosperous, strong, democratic, culturally advanced, harmonious, and beautiful, and on top. For that, the midway term, and that may be when he might still be chairman, that is in 2035. And he was asked after the Poly Borough met on the 14th Five-Year Plan. He asked, well, what is the plan for 2035? And he said, well, I wouldn't be surprised if the economy were to double by then. That implies a growth rate, average growth rate of 4.75%. So according to Chinomics, 4.75% is the growth rate and it is feasible. I'll talk about that later, but it will require work, in my view. The plan on how to achieve that is grandly titled the "New Development Concept for the New Era," or the New Development Philosophy, which is innovative, coordinated, green, open, and shared development, lots of good things, with two big economic pillars. One is the dual circulation, and really, it says that China has to rely more on domestic demand, has to rely more on domestic supply chain and indigenous innovation. Why? Well, the plan was written in the context of the emerging tensions between the US and China and so it is more self-reliance. And then second, after the moderately prosperous society was achieved in 2021, the aim is now common prosperity. That's if you want to view on society and how this prosperity will be shared, and it will have economic consequences. It will have consequences because of the establishing a distribution system, an economic distribution system, and just excessive incomes, and I think Jack Ma already knows what that means. Prohibit illicit incomes, so the anti-corruption campaign continues. More equal public services and the like. So that's the plan. Well, let's look back on how China grew over the past. And China, of course, is already the largest economy in the world if you look at it in equal prices, in purchasing power, in parity, in the same prices. Why is China already bigger? Well, it's really because in developing economies, they're undervalued, the production is undervalued because services are cheaper than in developed countries. And that means that if you correct for that, China is already the largest economy. China grew very rapidly. This chart shows China's growth since 1978 and that growth of other countries since the level of income that China had in 1978. So there are some of the real growth champions, Korea and Taiwan. Japan is not in because Japan, even by 1950, already had a higher income than China in 1978, so I couldn't get it in this chart, but Korea and Taiwan clearly the growth champions, but China is doing a pretty good job. It's higher than the 75 percentile of countries in this chart and therefore had almost a 9% growth rate in national accounts terms. In other terms and the Penn World Tables, it's a little different. I'll come to that. Countries such as Thailand, countries such Indonesia, and even countries such as Brazil had a similar growth projections, but then got diverted, Thailand because of the Asia financial crisis, Indonesia, the same, and Brazil because of its debt crisis in the 1980s and '90s. So going forward, it's not a given that China's line will continue to rise. It needs to be managed at rise. I mentioned that there is some differences on China's growth and most people, most economists use the Penn World Tables because it gets such a great international comparison, but at the same time, China looks a little bit more modest in the Penn World Tables than it does on the national accounts. In the national accounts, it's almost 9% growth since 1978. In the Penn World Tables, it's 6.2. Both are pretty high in terms of the growth distribution. So the frequency distribution is very high up, but much higher up in national account terms than in the Penn World Tables. So in the Penn World Tables, China is a bit more average. The correction of the Penn World Tables, frankly, is a little bit of a mystery to me. It's based in part on work of Harry Wu, which is a very reputable economist who had done corrections, especially in price levels and especially in investment price levels. But it's quite unclear how the Penn World Tables makes the correction. It's important because it gives a very different view on how China's growth actually came about. So if you look at the Penn World Tables, and this is, again, productivity, or this total factor productivity, productivity of the overall economy, if you want, if you look at the Penn World Tables, really, the peak of TFP or total factor productivity was in the mid '50s and then it declines during the Great Leap Forward. It doesn't do anything until the entry into World Trade Organization in 2000. You have a big bump from that and then it sort of falls flat, whereas if you take China national accounts base that I will use for my projections, you get a very different story. You had a very modest beginning in the 1950s, a drop during the Great Leap Forward, a little bit of a recovery, and then on the , a fairly major boost, the China man incident here, a drop in total factor productivity, but then almost continuous rise and the leveling off, more or less, over the last decade. Quite a different pattern. Frankly, I think the national accounts-based numbers look a little bit more credible, but that's debatable as well. So where are we now? I believe I'm on the wrong presentation. I'm very sorry. I have to interrupt this for one second. I need to get to the right presentation 'cause I'm missing a chart, an important chart. My apologies. So where are we now? China has grown quite rapidly, but still, at this point in time, China's only at about one quarter of the labor productivity of the United States. Well, you could say, so China is far behind, but you could also say China has a big potential to still catch up. The catch-up growth is not yet done. If China were to only do what the United States does, it would be far more productive. And of course, many, many other countries are in between. India in the world economy is less productive than China. It's also far smaller because it's a much younger population. And therefore, if you want the size of the employment, which is on the X axis, is much smaller than in China. By the end of the century, if things go right and if India catches up like China has done, or even less so, India will be the largest economy in the world. Okay, so let's decompose China's growth a little bit and then because I need it for going forward. And to do that, I use a fairly standard growth equation. It decomposes growth into a total factor productivity. There we have it again, this overall efficiency of the economy, growth in a capital stock, growth in human capital or education levels, growth in the labor force, and then the beta as a labor share in the economy, not that relevant for my analysis. So we look at that and look in the past. You see that China's growth got a very big boost from employment, from number of people in the workforce. Why was that? There was a major decline in the total fertility rate or in the number of babies born already starting in the '70s. it was reinforced with the one child policy and therefore China got a lot of more employment per capita in the 1980s going into the '90s, but then it sort of peters out. China also did a lot of reforms starting with the household responsibility system. It turns into the urban reforms and then it turns into the entry of the WTO, lots of reforms, the state enterprise reforms in between. And so the total factor productivity, which is strongly associated with reforms with making the economy more efficient, it is a major contributor to growth, but not over the last decade. Over the last decade, we get very little out of employment. We get a little bit out of more schooling in the economy and lots out of investments or capital. So increasingly, growth in China comes from investment. That's not necessarily good thing because if you invest more and more and more, in the end, you get less and less production out of that investment, decreasing returns, as economists call it. To give an example, if you build a six-lane highway right next to another six-lane highway, the first one can be pretty productive. The second one, maybe less so. So that's the problem that China will face and as one of the challenges that it needs to get more growth out of other factors. That's not gonna be demographics. There's a lot that China can do, but the demographic headwinds are quite strong. And this is the population projection for China until the end of the century with the current low variant from the 1.3 total fertility rate, the number of babies that women have during their lifetime. With that, China's population will go from 1.4 billion to less than 700 million by the end of this century and the old age dependency ratio will skyrocket. One retiree is currently supported by five workers. By the end of this century, it will be one retiree on one worker. The third effect that you see along the line is a major increase in the average age. It's unclear what that actually does, but it does change dramatically the nature of society you get from if you want a youngish type of population to quite an aged population and median age of 59. So more than half of the population will be older than 59. It does do a lot for the labor force, but only over time. And if the total fertility rate of 1.7 was the old assumption that China was also living with, the new assumption with the new census is 1.3. For the first 15 years, it really doesn't make any difference. Only then it starts making a difference. By 2050, you have a 50 million difference and only by the end of the century, you see a major difference in labor force, which is important because labor force in the end produces the GDP. What will start changing quite more earlier is the savings rate. And this is a projection done by the IMF that takes the aging profile as implied in the UN populations projections and thinks through what that means for the household savings rate. And you see a fairly major decline, a more than 10 percentage point decline. It's not only households that are saving in China. Everybody is saving. Enterprises are saving. Government has savings, but they also get affected, especially government savings. With an aging population, China needs to spend more on healthcare. China needs to spend more on pensions and part of that will have to be financed from the public purse. So it's also government savings that will go down. The implication of that is that there's less savings to be had to invest in capital and that, in turn, therefore has consequences for growth. Aside from the labor market effect, it also has a savings effect, the aging of society, that will affect China's growth going forward. So what about human capital? Well, as a famous book by Scott Rozelle, "Hidden China," already registered, China, given its level of income, it's almost a high income country. Still has a very low level of tertiary education in the labor force. This is the overall education content of the labor force. And it's only, well, according to the OECD, it's only 11% of the total population has a tertiary education. In the most recent census number, it's a bit higher, it's 15%, but it's still relatively modest compared to most others. That is going to change quite dramatically. This is the gross tertiary education enrollment. So this is the people currently in school and there you see the tertiary education really skyrocketing ever since the 2000s. You see almost like a duplication of what Korea did in the 1970s and especially the 1980s and '90s. China seems to be replicating that type of pattern. So the new people coming into the labor force are far better educated than the ones currently leaving the labor forces. A lot of them don't even have a completed primary education. That will have consequences for the total human capital in the labor force, which in turn will drive growth. So what about physical capital? Well, I said physical capital has started to take a bigger chunk of growth, has been a bigger part of growth in the past decade and really since the global financial crisis in 2008, 2009. It's where China started large infrastructure investment that was growing. It started accelerated housing development that has been important for driving the demand side growth, but also in the end supply. But actually, business investment as a share of GDP has been relatively modest. There hasn't been a dramatic increase in business investment. That's good news for China. Whether China can continue to invest a lot in housing and in infrastructure is debatable. But if you look at the business investment, it means that overall, the efficiency of capital in business hasn't really seen a dramatic deterioration. Yes, it has been rising. So the incremental capital output ratio, how much capital do you need for more production, has been on the rise even in businesses, but not dramatically so. The dramatic rises have come from infrastructure and housing. So if China were to do less in housing, but more in business investment, that can still continue to grow its GDP. They have to do so because here is one of the big threats and it's been widely discussed. Here's one of the big threats of China's growth. Previously, you saw how Thailand went off of this Chinese trajectory and how Indonesia went off the Chinese trajectory. Well, that was the age of financial crisis. The biggest risk to China's growth, and it's recognized by the authorities, is the accumulation of debt. Why is that so high? And it is actually very high in non-financial corporations. In all countries right now, it is high. In Japan, it's over 400%. 280% is something similar to the United States and the Eurozone. But in China, the non-financial corporations, part of that is really quite high. In part, it's because the infrastructure is done through state enterprises and they are financed through debt. They're financed through savings, though. And one of the reasons that China has such a high debt level is that a lot of the household savings are intermediated through the banking system. So yes, you see a big increase in debt, but you also see a lot of investment, a lot of assets, if you want, being created by that debt. The question, though, is is that still the case? And are the quality of the assets currently being created, infrastructure, housing, lots of empty apartments, lots of infrastructure with low marginal returns, whether that is still sufficient to pay back that debt. If not, there is an increasing threat of a debt crisis, even if everything is domestically financed. So that is something that China, again, would need to take care of. And in a reform scenario that I will talk about later, they would have to aim for a lower debt to GDP ratio, which basically means also a lower investment ratio, but better investment. Now let's talk about total factor productivity, and again, this the secret sauce. It's a little bit of everything. There's technology. There is sectoral reallocation. There is other factors. There's relocation of capital, relocation of labor from rural to urban, from state enterprises to private. A lot goes into that bucket of total factor productivity, but also technology and China bets very big on technology. They believe that technology is going to be the big driver for productivity and productivity-led growth in the next 15 years and they have a plan for that. It's no longer the Made in China 2025 that was one of the big controversial plans that represented in 2015. It has disappeared from the headlines, but the plan hasn't. If you look at the 14th Five-Year Plan, you see China aiming for a lot of investment in areas such as quantum information, such as space aviation. And of course, the semiconductors is always part of it in order to basically leapfrog in development to get ahead of some of the Western dominance in the technological sphere, and that is China's assumption will then result into faster growth. Well, China has been investing a lot in research and development. They have been catching up really quite rapidly from less than 1% of GDP investment in R&D in the '90s to 2.1% in 2018. By now, it's 2.4%. They've already overtaken the European Union. They're on their way to overtake the United States in terms of share of GDP. So that's all going in the right direction. Who can debate the efficiency? And it is debatable whether all of this is well-spent, and quite a bit of it is probably not, but you first have to spend before you can do something efficiently. So in that sense, China is on the right track. China spends far more than its comparators at the same income level. It's the Brazils and the Mexicos and the Malaysias here. China spends a lot more in terms of GDP and is on this upper trajectory, as I already mentioned. Its innovation capabilities, according to the Global Innovation Index of the World Intellectual Property Organization, is increasing quite rapidly. It was at the mid 30s in 2009. The latest ranking puts China at 12, pretty high in terms of the capabilities of innovation. Where China's probably lacking is still the experience and this is what I try to reflect in this chart. This is the annual spending in 2018, where China is really number two after the United States. But if you think of experience in R&D as sort of a cumulative effort over a long period of time, China is still relatively modest. Here as well, it says number five. After United States, Japan, Germany, you get China. And that sort of, I think, reflects the status. Yes, there's lots of effort and there's lots of people, lots of graduates in the STEM disciplines and the science technology and mathematics disciplines, but the experience is still lacking to some extent, and it shows. Well, it shows particularly in this field, in the semiconductor field, where China has been trying for more than 20 years with large industrial policy, with large spending to catch up with, if you want, other competitors to produce more sufficient chips. But if you look at the production, China is still not in the most productive in the most sophisticated chips, the 10 to five nanometers. And right now we're looking at the three nanometers and it's the Samsungs, but especially the TSMCs, the Taiwan company that can make those very sophisticated, very sophisticated chips. China cannot do that yet. And what China is really concerned about is this, the choke-hold technology. I took a Dutch firm as an example. My apologies for that, but ASML was the one that does this extreme ultraviolet lithography that prints the semiconductors on the silicon. The only company in the world that can do that is one of those choke-hold technologies and China does not have access to it. So they need to find either a different mousetrap or they're going to continue to lag behind in something as fundamental as this semiconductor technology, which has a lot of spillovers in other technologies as well. And finally, of course, we have the effects of decoupling and Trump started the trade war. It turned into a tech war and now there seems to be increasingly a move towards containing China, at least technologically, not giving them access to the most sophisticated technology that comes from the west. The IMF has done an assessment of that and what that would mean. I believe they're a little bit on the modest side, but according to their assessment, if everybody were to lock out China, so if all of the major suppliers of technology were to decouple from China, China would lose about almost 0.4 percentage point of growth in labor productivity per year. That's not trivial, but it's also not the end of the world. So decoupling will be painful for China and not just for China, because look at the United States. The United States, if they were to decouple from China, they would lose this part. But if China were to decouple or being decoupled from the United States and others, they would lose about 0.4

percentage point growth in labor productivity every year. Less emphasized in China, but as important in my view is the structural change. In the past, China's structural change from agriculture to industry, from rural to urban, from state to market has been very important in driving productivity. It's less emphasized now, but there's still a lot to be had. And this is the employment per sector. You see China's agriculture going down, but it's still at some 25 percentage point of the labor force. For high income countries, it's less than three. So if China were to only reduce this and bring it up to either industry or to services, China will become a lot more productive. That doesn't happen automatically and it requires a lot of reforms to get there, but there's still a lot of potential for reallocation of labor and similarly for capital. Where China, I believe, is underestimated is in the dynamism of its economy. Yes, there's a lot of talk about state dominance and the state takes over from the market. But if you look at where China is really quite dynamic is in the growth in the number of business entities, especially since 2014, where Li Ka Chung announced his mass entrepreneurship policies and including making it a lot more simple to register companies. So part of the growth comes from the fact that it's now much easier to register a company, but a lot of this growth is also genuine. So really quite a dynamic field, also in the corporations, a doubling of the number of corporations in the past 10 years that shows a dynamism in the economy. There's still lots of entrepreneurs that want to enter that want to set up a business and that's, in the end, good for productivity. Lauren Brand and colleagues that have once done an analysis and they really find that the bulk of China's TFP growth comes from the entry of new firms, not from the reallocation from inefficient firms to more efficient firms. No, it's the entry of new firms. Part of the reason is that China actually does quite poorly in terms of insolvencies, poorly in the sense that you would expect a lot more insolvencies in an economy with the size as China. And yes, it's increasing, but 12,000 insolvencies on 120 million companies, that's not a lot and it means that a lot of capital, a lot of labor, and some land is still tied up in inefficient companies that could be better allocated if the insolvency system or the bankruptcy system were more efficient. So that's, again, a potential source of growth if China wants to reform. Finally, the state is not advancing as the Gavekal Dragonomics numbers here show. Andrew Batson made these numbers. But it's also not retreating. It's actually surprising how stubbornly high the share of state enterprises is. It's not increasing since Xi Jinping came to power, but it's also not decreasing. And state enterprises, yes, it's no surprise that they're in the strategic industries, but state enterprises are still everywhere. They run hotels, they run transport companies, they run all types of companies where you would expect the private sector to have a comparative advantage, and they do, but nevertheless, because they're really, the state enterprises function as conglomerates, they can survive even by doing inefficient things. If that were to change, again, that would be a major source of productivity gains. So the bottom line is that there's actually still a lot of productivity gains to be had through technology, through structural change, through potential phasing out state enterprises from particular sectors and so on. So how does that translate into growth scenarios, all of this, the demographics, the human capital, and then the TFP? Well, I wish I had it all pinned down, but I don't. So in advance, I'll say that the growth scenarios that I'm going to present, they are going to be basically largely assumption-driven, but I think they are very plausible assumptions in light of where China is and what we have seen in the past 10 years and in my past 20 slides. So others do growth projections as well and some of them do it fantastically well. I already mentioned Xi Jinping, 4.75 over the next 15 years, and Barro in an earlier inclinations and Pritchett and Summers, they basically took the approach, saying, look, we're not gonna invent China. We're just going to look statistically what countries do and countries that have grown as fast as China in the past, they return to the mean, and that is something like 3% or 4% growth every year. They did it a bit earlier. So I guess the hypothesis was rejected. China did grow more rapidly, but one needs to keep in mind that China is really on a quite exceptional growth path and a return to the mean would be quite normal. There's others like Justin Lin who say, look, China's only at the point where Japan was in the early 1960s in terms of GDP per capita. Japan in the early 1960s grew another 8%, 9% a year for another 20 years. Similarly, Korea, I think China is quite different from Korea and Japan. I think the circumstances are quite different, but it's one approach to take. Most of the rest take basically the approach that we take, a growth accounting point of view, and then trying to project sort of these different factors in growth on how they would evolve. And I particularly like, it just came in, the Lowy Institute did a very interesting analysis, quite a wide-ranging analysis and I was also inspired by the Bloomberg analysis of Orlik and Zhu and some of the figures look quite quite similar that I'm gonna present. The analysis is different, though. So what I try to build is three scenarios. So basically a baseline scenario, which basically says, look, it's not gonna be major diversion from the past, maybe a little bit more reforms, but nothing much, nothing spectacular. Human capital does improve, but no dramatic improvement in the next 30 years, basically as expected for the human capital conversions to the average of high income countries, and then a gradual decline of investment to GDP ratio in line with savings. In contrast, a more optimistic scenario would say, no, China can actually do a lot of these reforms that I mentioned where there's a lot of productivity to be had. And as a result, China would end up with a much higher total factor productivity level and they could also accelerate human capital by investing more in rural education, by investing more in permanent education, basically keep the people, increase the educational level of people, and then a big reform that turns out to be quite important in the longer run, an increase in retirement age and I say gradually to 65 for men and women. In the simulations, it takes about 20 years to get there, but it's an important reform for the long term and I'll show the effects on the labor force in a moment. And then there could also be, of course, there could be disappointments in reforms and that would deliver a much lower TFP growth and a higher investment, but in less productive capital in the end, a lower accumulation of human capital. So the detail is here, I'm not gonna discuss it. Yasheng Huang has seen the detail, so he can comment on the detail, but I don't wanna spend time on it here. The only thing I wanna say is sort of how to go to the total factor productivity for China. And this is basically, this is based on Kim and Loyaza, two former colleagues of mine at the World Bank. What they did was look at a principle component analysis of what determines TFP and then they say, okay, with that and China, these principle component analysis give China a number and China was here in 2014. And then my assumption is that they go either to the 25th percentile of high income countries. That is the low reform scenario or the base scenario or the high reform scenario, the comprehensive reform scenario. So this is assumption-driven, but it is sort of reasonable assumptions in light of what we've seen. The low scenario is basically what we've seen in the past, in the past decade in terms of TFP growth. On labor, and that is quite a spectacular chart, if I may say so, the labor force depends very much on how retirement is being handled. Currently, there is a voluntary increase in retirement age, but frankly, nobody's taken that up yet. If they make it compulsory, but increase the retirement age of 65 over 20 years, you see a big difference emerging in the total size of the labor force. So basically, by 2050, the labor force could be even, either 780 million people under the comprehensive reforms or less than 600 million people if no reforms are implemented. This here shows that actually, if you start reforming and you start building human capital, you need to keep people longer in school. So this is actually, you lose some at the beginning of people's careers because the average age of entry into the labor force goes from 15 to 20 in this scenario. So having said that, here is the outcome. This is how China would look under the scenarios that I described. And in the baseline, China would go from 70 trillion RMB in 2017 prices in 2020 to something like 180 in 2050. With comprehensive reform, there would be a 50% bonus for comprehensive reform, so a significant bonus if reforms are far wider and deeper, and with limited reforms, of course, growth is slower. I can discuss the detail in the discussion. The slower basically brings a doubling, a bit more than doubling of GDP by 2050, far less than the baseline or the comprehensive reforms. The composition of growth is quite different across these scenarios. In the comprehensive reform scenarios, you get a lot more from human capital. You get a lot more from total factor productivity. And in the baseline, the assumptions on labor force are the same, but in the baseline, you get more from human capital and a little bit more from total factor productivity compared to the limited reform scenario. The differences in growth rate don't seem to be that big and that's in part because irrespective of what you do, China still will have a high savings rate that would still need to be invested. So even if you do it inefficiently, you're still gonna get growth out of capital accumulation. China's not yet done and you can do it better by doing more capital to businesses than, say, housing. But nevertheless, even in a limited reform scenario, you still get a lot of growth out of capital accumulation. 2021 to 50, that's a longer-term perspective. Of course, the growth rates are lower, but the patents are quite similar. I can come back to that if you want. Now, we talked about debt and debt is an issue in China, and that is an issue in many countries around the world. And Reinhardt and Rogoff did an analysis in 2009 and they said that average debt crisis cost the country about 10, well, nine percentage point of GDP, and they won't recover. And this is exactly what I project here. So I tag on the debt crisis to the limited reform scenario. It's very plausible within a limited reform scenario where there's a lot of growth coming from investment, from credit-based, credit-financed investment, but you have more risk of a debt crisis. So you get, over two years, you get a reduction in growth by 4.5 percentage point. It basically drops and then you never recover. That's the debt crisis scenario according to Reinhardt and Rogoff and I just take it into these figures. So what does that mean? Well, of course, what does it mean to catch up? We first need to know what the USA is going to do. And here in this, I literally take the OECD long-term projections. So actual growth for the US in 2021, 2.4%, 2022, 2030, and 1.4% thereafter, straight out of the OECD long-term projections. And I index that so that the United States is 100 across the timeline and then I look at how far the reform scenarios are, how close they are to the 100% line. Well, comprehensive reforms, China will catch up. China will catch up early. As a matter of fact, they will catch up a little bit after 2030. In the baseline, unfortunately, they will just miss the first half of the new era. China would catch up by 2036, 2037, but in limited reforms, or if you want, in sort of the type of TFP improvement that we've seen over the past decade, China may not catch up at all. I mean, in a debt crisis, China would not catch up even with relatively low growth for the United States. So that's still in 2020. In this case, it's 2020 dollars. So how is it in current dollars? When will China make the headlines and will China make the headlines? Well, for that, you need to have a view on the exchange rate and my view on the exchange here is really that countries that get richer, their exchange rate appreciates. The reason for that is really, technically, it's the Baumol effect, but it basically means that prices for nontradables, they adjust gradually to prices of tradables and that means that the price levels compared to international price levels are rising for those countries that grow. I take a very modest. China's real exchange rate over the past decade has increased by about three percentage point a year. And according to discharge, which is an indicator of relative prices, China's real exchange rate has indeed quite rapidly appreciated. I only take a one percentage point appreciation into the projections and then half a percentage point after 2035. Well, with that, of course, logically, with comprehensive reforms and real exchange with appreciation, you catch up faster than before. It's simply you add another percentage point in growth. It's nominal growth, but it's still growth. So in dollar terms, if China were to do comprehensive reforms, according to this scenario, China would catch up by 2030. With comprehensive reforms alone, it's the same as in the previous chart, but that's not the end of it. I mean, China can grow fast with the comprehensive reforms. The United States could grow faster. So what if there were to be a US growth acceleration? And this is simply a US growth rate action for 2021 and 2.4 percentage point thereafter. So it's about a percentage point more. That's not outrageous. That's how the United States grew in the past and they could achieve it by investing in infrastructure, by investing in people, by investing in R&D. Well, say the Biden program, so they could lift their own structural growth rate to hire. If that were to happen, well then with baseline reforms, China will not catch up. If comprehensive reforms, yes, China will still catch up, but it will be later. And with comprehensive reform or real appreciation, of course, China would still catch up, but a growth was for the United States, which is entirely feasible, would at least delay or even avert China taking over from the United States in current dollars. So this is my bottom line, but let me stop here. I've talked enough. Thank you so much.

- Great. Thank you so much, Bert. You have really given such a detail analysis of the different scenario of whether China will be its own go into the next century, new era, whether China and you will overtake the US. And as you say, it depends. So there are already a number of questions, but let me turn to Yasheng to give a few commentary first and perhaps have a little conversation with you as well before we turn to the question from the audience. So, Yasheng, over to you.

- Thank you, Winnie. Thank you, Bert. This is really a fantastic, comprehensive presentation. So I'm not going to cover everything. I'm just going to cover some things that are really interesting and pertinent. One is this is not a comment on your presentation, but a quote that you quoted from Xi Jinping at the beginning of the presentation, which is that China hopes to achieve, and these are not original words, but something to the effect that China would want to achieve high income standard country in 2035. I think when he uses the word standard, that's at least by the common linguistic understanding of that word, he is referring to something closer to a per capita concept as opposed to a aggregate concept. And I don't know any economic forecasting scenario would predict that China would reach per capita income level of high income countries by 2035. I mean, that's just a minor, minor cripple and the standard is a very different term, but this is not what Bert is talking about. Bert is talking about aggregate GDP. And so I just want to make that editorial comment. The other is that I think to the extent there is debate among people outside of China, academics analysts outside of China, the debate is usually not about economics and Bert laid out very clear economic logic and I think most people would agree with the logic. The accounting for GDP growth in the past and using that to project the

GDP growth in the future, productivity, TFP, labor contribution, physical capital, I think that's a very clear, straightforward framework on economics. The thing about China, inside China, though, there is some debate about economics, right? About the model. The China model is very, very different from the way that Bert laid out, right? There's more emphasis on state, on government, on spending. And I appreciate the fact that Bert laid out a table showing that there is no retreat of the private sector. First of all, let me note that the dataset stops in 2018 and secondly, it is a wrong measure and it's an output measure. If you look at the input measure, if you look at capital that goes to the private sector, if you look at the fixed asset investments by the private sector in a way that is appropriately defined, right? So let me just add that. The evidence on state advancing private sector retrieving is quite abundant. So the output measure, the reason why the output measure is not the right measure is because the private sector is so much more efficient than the state sector. So essentially it can uses less input to produce a bigger footprint on the output. In fact, you can even endogenize that because you don't receive lot of capital, you have to squeeze from efficiency to reach the same level of the output. So that share is usually a stable share, but that's not really the right indicator of the right policy. On TFP, Bert is absolutely right. TFP is a function of many, many things rather than on technology. But if you kind of follow the policy discussions in China, it is mostly about technology and the China 2025 and manufacturing, right? So semiconductor, biotech, this is actually quite worrisome, I would argue. If you look at Lauren Brand's research, which Bert reproduced in one of the slides, the highest TFP growth happened in the 1980s, when China didn't have these kind of ambitious technological programs. It's the 3.2 annual growth as compared with 2.9. And then in 2000s, 2009, that's kind of the WTO effect, right? 3.1. There are some programs, but it's not nearly as ambitious as of today. It is actually precisely when there was this massive investment in technology that TFP growth slowed down substantially to 1.1, which for some reason is natural because there's a lag effect and you invest today and then you get the benefits in the future. But I would argue that that's not the whole story. And so if you look at the TFP, I also think the TFP story also shows this kind of retreating of the private sector, that narrative is consistent with the TFP performance. Right? So Bert is absolutely right. Everything, it depends, right? So maybe I'm more willing to say a little bit more on what the factors it depends on and I will say it depends on policy and policy depends on politics. So making projections about growth, strictly speaking, is making projections about policy and indirectly about politics. And to the extent that we can predict the future policy on the basis of the current policy, I'm not very optimistic about the future policy and the partner on the private sector across the board. And if you look at Nick Lardy's research on capital allocation, the bias toward the state sector and the expense of the private sector is actually quite sharp. And so one scenario that Bert didn't lay out, he has the comprehensive reform, limited reform, the debt scenario, the debt crisis scenario, one scenario that is not laid out is the reform reversal scenario. So just to be analytically complete, I do believe that we need to think about that and whether or not it is a dominant prospect or not, I don't think we could totally drop that scenario. Maybe it's equivalent to the debt crisis scenario. Maybe it is not, but I think that's something we have to think about. On technology, the technology has lag time, right? So if you could look at my own university, MIT is a technological powerhouse, but if you look at the patents that are being licensed to the companies, it is not lot of them every year, to be honest. So the production of the knowledge leads the effect of the knowledge. And so I would say that the quick way to jumpstart TFP ought to be emphasizing reforms, right? Private sector initiatives, capital allocation efficiency, rather than hoping technology to get you the same, that effect the semiconductor industry is. And also this is an area where arguably, China is more vulnerable to the global shocks than privatization, than financial reforms, right? So if you look at the semiconductor, for example, Bert is absolutely right that there are choke points, right? So that Dutch firm, that's the only firm in the world that produces the precision, litho- I forgot how to pronounce the English word, the lithography equipment, right? And so there are choke points in the supply chain and those are very, very vulnerable to the policies of the United States, policies of other countries, whereas reforms, right, are not vulnerable, right? You can unleash these reforms and make up for the laws that you would have with the technological embargo. The last thing I want to say is that, again, coming back to the technology point, there's a lot of emphasis on sort of advanced cutting edge technology. But in terms of the economic effect of technology, even legacy technology can promote economic growth, right? Management knowledge can promote economic growth. Business model innovations can promote economic growth. China has a very impressive capacity to produce legacy semiconductors, right? 14 nanometers, seven nanometers. The rest of the world depends on China on legacy semiconductors. Why spend so much capital to recreate the global supply chain on three nanometer semiconductor, where you can actually get the enormous economic benefits, the technologies that you are the master? So again, so this is coming back to policy choices, policy preferences, and political preferences. And there, I just have to make a forecast on the basis of what we have seen in the past 10 years. I would say it will be more or less a continuation of the last 10 years rather than a sharp departure from the last 10 years and that will have implication in spoke growth. Yeah. Thank you very much.

- Great. Thank you. Thank you for your very sharp comments. And I think I'd like to invite Bert to respond to some of them.

- So thanks. Thanks so much. Really great comments and I agree with most of them, and yes, so on the input side, you clearly do see a shift to the public sector, even though unfortunately, the National Bureau of Statistics stopped publishing the input data, which is really quite something where if things become controversial, somehow they seem to disappear from the statistics, which is not helpful, not helpful for policy makers, not helpful for analysts such as us, but it does seem to be at least a bigger state influence over the whole economy. And that some of it is good. We didn't talk much about common prosperity that did some damage to very rich people, but also in parts, you can see that it regulates the market maybe for a better future so that we don't end up in a US situation with very large technological behemoths that basically dominate the market. So I think the jury is still out, but that's one way where you see China intervening in the market, but you could think about it as preparing for a longer term, healthier development of that type of market. In the short term, though, there is a clear risk that the entrepreneurial spirit is a bit discouraged and as I showed, there is lots of entrepreneurial spirit there, but in the end, you grow by, as somebody said, you grow by millionaires wanting to become billionaires. That drives growth. And if you take away those incentives, then it becomes much harder to grow. And you see the productivity that the Tencents of the world, the JDs of the world, the Alibabas of the world has brought to China. It's absolutely tremendous. So without that, how would the past decade, decade and a half, how it would've looked, I think a lot less productive than what you currently see. And yes, in the end, it is politics. I mean, economists or analysts like me, in the end, you paint scenarios that sort of illustrate of what is possible. I was struck by the effects and that is simply by doing some numbers on what you actually can still get out of that labor force. The idea has become, oh, no, but the labor force going down, and there's not much demographic dividends. Well, actually, if you hold onto the reforms of increasing the pension age for a long time, you actually don't see a decline in the labor force. And if you continue your structural reforms, you still have 25% in the countryside. Don't make a beautiful countryside. Let these people move to the city so that you have not a 60% or actually it's really a 50% urbanization rate if you deduct the migrants, but you end up with an 80% urbanization rate. So lots of opportunities for reforms, but yes, they all depend on policies and politics, and that is not easy. Look, my experience with China is that it's almost like the United States over the reform period. In the end, they do the right thing. And so I believe that, and sometimes a bit of a tense moment such as the one that China is experiencing now may actually open up some minds for other opportunities for the longer run, because without it, you're right. The low reform scenario in a way looks like the past 10 years with fairly low TFP reforms, nothing much in structural change and that would then be the future. And with that, China would not catch up. That's not the end of the world and 'cause GDP is only a number, but I think it would be, politically would be quite difficult to digest. Normally with good policies, China would probably catch up, and yes, it's a different kind of policy than we would see in the west. It's not a marketization. It is a state-led development model. But if the state makes the right decisions, I think China can indeed still grow quite rapidly for another 15 to 20 years.

- Great. Thank you. And I agree that what you have provided are different scenarios. And as we observe in the next 10, 15 years, we can land any point in between those two boundaries that you have drawn. We have limited time left and so I'm gonna ask if Bill, you have any question and Bill Overholt and I will also just read out a few of the question in the question box. So Bert can respond to them together. Bill, do you have any question for Bert? We have lost session.

- First of all, thanks for your usual very incisive talk and for Yasheng's incisive comments. Let me just try to get at some of the same issues through a different kind of reasoning. First question, how vulnerable is China to the Japan scenario? In the late '70s, colleagues of mine studied Japan's industrial policy and Japan had some successes, but they were very expensive and they had more failures which were very expensive and China in some ways seems to be following that model. It's had success in space. It's failed so far, and as you said, in semiconductors, also in things like aircraft. It seems to be making a much bigger bet on industrial policy than Japan. What's the risk of a really vast waste of capital here? And the related question is what is the cost, if any, of the new level of political controls? Party secretary is supposed to have a veto over every strategic business decision. It's hard as an outsider to understand what the effect of this is. My Beijing friends say that in Beijing enterprises, there's a tremendously different agenda between the CEO and the party secretary. I kind of assume that down in Guangdong, the CEO will buy out the party secretary because of this kind of diversity. It's very difficult to assess the net effect, but the net effect could be very important. Do you have any preliminary views on that?

- First, the Japan question, 'cause I think that is a different question, but the Japan question, Japan, in the end, they lost a decade of growth because of the major blow to the corporate balance sheets that were on all kinds of stuff and there were all kinds of cross molding of assets, of stocks, of land, and the bursting of the bubble blew a big hole into the corporate balance sheet. Something like that could happen in China. I think that the state will intervene because it will also be a banking problem and therefore it would have to be resolved. They did to some extent for a smaller scale in the early 2000s. That's what happened. There was a major bail up and a cleanup of balance sheets of both banks and corporates, something like that. If things were to go wrong, that could still happen. State debt in China is still very low. It's 45% of GDP. I mean, that's nothing in today's world. So if you're really thinking about a very major banking crisis, they add 40, 50% of GDP to government debt. Okay, so then China would have 90% of GDP debt. So I don't think that would be the end of the success. I think the second part of your story is more important and that is if indeed there was too much political meddling with business decisions, it was always a problem. It was always a problem. And Yasheng, he mentioned the management problem. It's not that China has necessarily bad managers, but part of the economy is managed by politicians. It's by people that rotate in and become a CEO of the state enterprises and the next time, they're going to be the deputy in the CPCCP. And so they're not professional managers and then you have a lot more political decisions that trickle into the enterprise management. So I think that, in the end, undermines China's growth and it could set China's growth in more difficult circumstances.

- We are almost at time. However, if, Bert, you're willing, would you be willing to stay for another five, 10 minutes or so so we can take some of the questions? And I think that Yasheng, I would invite you to also respond to some of these question if you like it. One question is from Bill Shao, a co-organizer of this series as well. Again, thank you for such a wonderful and comprehensive presentation on a very complex problem. His question is, can you comment on what China has to do to overcome the middle income trap and also reform its financial market to achieve the growth? Another question, I'll just read out all of them. Another question is from Nara Dillon, who is also a co-organizer of the series. Her question is, besides the debt crisis, what China should focus on to avert major economic reduction in growth? A third question is what, Bert, you started your talk is about long-term growth, but obviously many people's mind is with COVID with what we are seeing. Can you comment a bit on the more shorter-term economic perspective? And I think a final set of question is all related to inequality. Where do you see it? So take whichever one you want, whichever order, and Yasheng also, if you feel interested to respond to any of them, please do so.

- Okay. Wonderful questions 'cause up until now, I've been sort of very vague about reforms, like more comprehensive, less comprehensive reforms. Well, the labor market reform is actually an obvious one, in a way to my surprise on how much music there still is or how much more labor can you squeeze out of a declining population? It's quite a bit in the case of China and they should move forward and they should, and yes, the older generation has less education. So the gain is not as much, but it's going to be increasingly better educated. And if you look at the, I don't have the slide, but if you look at the pyramid, you have this big bulge coming, and if you let these people retire, you lose a lot of people that are already educated, if you want, after the 1980s. So they're in the '90s and the early 2000s. If you let them retire by the mid '30s, then you start losing real human capital. So I think it is actually for the long-term profit that is really quite a central connect. The better education, we discussed as well, but there's a whole range of reforms. The hukou system is one of the key. I mean, I've been arguing against it throughout my career and will continue maybe throughout the rest of my career, but the hukou system of course remains a big barrier to growth, remains a big barrier to mobility. It increasingly, so not just from rural to urban, but from urban to other urbans. And yes, there are complications attached to it of land policies. They're not too difficult. Other countries have solved them in the past. China can solve them. So that hukou system, the fiscal problems that are attached to that are really quite minuscule. But of course, there is a resistance in urban areas to get more competition, to get more competition from people from rural areas for jobs, for places in school and for hospitals, all of that, but China needs to overcome them because it would be a major boost. It would be a major boost for productivity. The services sector is still one that the OECD always talks about, but it still has one of the highest barriers in the world and not just the strategic one. It's the financial sector, but also transport, also logistics, distribution, that you say, well, why keep competition out there? So a lot of competition still to be had in the services sector. Same with the negative list. Overall, the reduction in the negative list of private enterprise and foreign enterprises, reducing that would be good. You do need to change the intergovernmental fiscal system. The reason is that part of the reason why we still have all these tremendous investments in real estate is because local governments depend on it. They're a real estate company and that incentive must disappear. There's for the next 10 years is probably enough apartments in China, but even if not, you want to have that built on a much more rational basis. So the whole intergovernmental fiscal system has to change for that. I'm not sure whether a real estate tax would actually solve that, but simply to have very different rules about land management, urban land management, and the revenues from that. And clearly central government would have to give up more money to local government, maybe even run some higher deficits, which is perfectly fine in the process, and then find some additional tax resources because China will need more taxes over time. A private pillar in the pension system. Again, why? Because right now, everybody saves for an apartment because they can sell an apartment. It's the only long-term saving vehicle. And you want good pension insurance, not the public, because the public, that will take a long time to clean it up, but the private, the private pillar have good pension vehicles offered by the, we'll call it the non-state sector would be a big increase in efficiency. And finally, I hinted at it, the bankruptcy system, improving the bankruptcy system, the efficiency of the bankruptcy system. I know China's working on it, but there needs to be a lot more churning. So China gets a lot of productivity from entrance. They don't get any productivity from exits and you do need that. And so improving that, it takes quite a long time, given the efficiency of establishing a firm, which you can do in three days. For insolvency of a firm, it takes almost two years. So reducing the burden there that you have a lot more release of inefficiently-used capital and labor into the market and thereby increase efficiency. So I can go on, but those are some of the big, chunky ones that would increase. And then yes, there is the financial sector, but frankly, it will remain a strategic sector for the bulk of it. I think there are some markets that can have more private investors and so there will be more investment banking. There will be more private equity vehicles that would be there to target the most efficient, the most innovative companies, but let them. And they are the same with FinTech. China was way ahead of everybody in FinTech now. And one of the reasons why now all the smaller, medium enterprise complained that they can't get credit is because FinTech has not. It disappeared. And then we're back to telling the state banks to give more to small and medium enterprises. I've heard that all before. FinTech was a revolution. China risks losing that, risks losing that, the most dynamic, interesting part of the economy. And yes, there was some things wrong in FinTech. Don't get me wrong. And I think some of the regulatory clampdown was absolutely right, but now nobody wants to touch it and it's a big, big loss. So again, that what I would change in the financial sector, and yes, there's a risk of bad loans and all that, that I think China actually knows how to handle that, that it'll end up, some of it will end up a state debt and that's okay because it was state-directed credit. And so it was basically a policy. It's policy debt that is currently still on the books of banks. Some of it will end up in the government. All right. On the short term, or frankly, I mean, I've been writing about it that already, before anything, that 5.5% was too big. I thought that sort of around five was good before the war in the Ukraine started and before COVID, the Omicron variant popped up. Now you're looking at probably something well between four and five, in the lower fours without much additional stimulus. China can decide, so let's aim for 5.5. I don't think it will be very efficient growth, but China can still decide that, but they would need to decide fast because it actually takes quite a bit of time to get it into place because the mechanisms for getting a stimulus in China, China doesn't like handing out lots of money to people. So they like handing out money to either set enterprise to build infrastructure or to private enterprises to stay in business, but those mechanisms are more difficult. The local government mechanisms for building infrastructure are more difficult. They didn't function last year. They fell short in part because of inefficiencies in the intergovernment, the fiscal system, in part because local governments were told not to over indebt themselves and so they said, well, we're not gonna pick up on this bond offer. So lots of issues there, but China, if they want to stimulate and achieve 5.5%, they can do it. I think it would be quite wasteful growth, but they would need to do it fast because otherwise it will take too long to get it into place. Then the stimulus will land somewhere early next year, just like last year's stimulus landed in the first two months. That's why the first two months looked so good. Okay, so I think, or China could say, well, let's be a bit more modest about growth. Let's save our ammunition for bigger things, in part for this inequality agenda. So on inequality, and that is really where the common prosperity kicks in, I have a bit of a peculiar view, that China is not as unequal as people think. The MBS numbers on that are not as good because they don't compensate for prices in a very efficient way. So if you wanna talk about inequality, you'd actually need to find, between people, you need to find out where they live, and poorer people live in cheaper places. So in other words, their income goes further. The World Bank compensates for that, my previous employer, and you find a lot lower inequality in World Bank numbers and a much more decline since the late 2000s. So that's a bit of a difference on income inequality. On wealth inequality, there's lots of numbers around. Some say China's about average. Others say they're almost at United States level. I think it's an issue if you want, but the big driver there is housing. It's urban. The urban population, they got a big windfall at the end of the '90s and they all got rich by doing nothing, and so, but taxing it away is very hard to see. So the big divide is, again, urban, rural, and urban areas having house ownership. So I think in the medium term, China can combine a few things. First, they do need a more tax base. And what is more natural to do if you care about inequality to up your take through the income tax, and maybe even through some form of a wealth tax or an inheritance tax or a capital gains tax, which all of that doesn't exist except for housing, but it's never done. It's never implemented. So that's one. The property tax I said could be an option. It's a politically difficult option, but it would make sense. It won't raise that much money and it won't do that much for income inequality, but it will help a little bit on raising the money for the spending side because I think in the short term, the biggest equalizer would still be in government spending, first on safety net, on rural pensions, and then on rural education to basically enable people, the poorer people, the poor part of society to get rich too. And then I said the tax instruments are important because China's tax system is actually de-equalizing. It relies a lot on the value-added tax, which is a great tax, very efficient tax, but the burden on the poorer people is higher in terms of income because they consume more of their income. So it's a technicality that other countries compensate for by taxing through the personal income tax. China basically does not. China only has one percentage point of GDP in revenues from the personal income tax. That can be something like three or four that doesn't make them a welfare state, which China wants to avoid. That makes them like Korea, which is not a welfare state. So Korea gets 4.5 percentage point of GDP out of the personal income tax. That's a good target and that would equalize some of the inequalities that we've seen in China. I think it's important. I think it's important for society. I think if you think about the reforms that China needs in order to continue to grow, they're still quite dramatic and for that, you need to have a certain coherence in society and that, yes, the propaganda department has a role there, but actually also, the equal outcomes of the game are as important to continue to have support for those reforms. Thanks.

- Great. Excellent. Thank you. Yasheng, do you want to respond to any of these comments?

- Yeah, maybe just very short. I agree with everything that Bert just said about hukou reforms and I think the common prosperity, I think the goal is not the issue, right? So if I see the hukou reforms in combination with the policy measures that they have taken to advance common prosperity, then I believe that that common prosperity is more believable and more credible, right? So, but what we have seen is this kind of single-minded crackdown on rich people, and so tax, the wealth tax, that's fine, but that's not what they have done, right? So if you look at three big internet giants, Pinduoduo, Alibaba, and Tencent, all three founders stepped down, right? And it's not because of a tax. It's really something else. And Jack Ma disappeared from public view, like nowhere to be seen. So that's not really a tax issue. It is really something more. In my class yesterday, I just taught a case on Pinduoduo. This is one of the most remarkable companies that did well both economically and socially, right? So they link the rural producers with urban consumers. They solve the informational asymmetry problems between rural and urban areas. It is one of the best things that happened to China in terms of poverty alleviation. They got farmers to be connected with richer urban residents, yet the founder, Colin Huang, stepped down. So I think there's really something more than the wealth equalization. On finance, they went after FinTech. It's very interesting when you have conversations about where the risks are in Chinese economy, people will say, oh, real estate, right? Evergrande and all of that. And then in the next moment, they will say, oh, it is peer-to-peer lending. It is a FinTech. These two things cannot possibly be consistent with each other. Evergrande, look at the exposure to Evergrande. These are all traditional state-owned banking system. All right? And if you believe that's the biggest risk factor, then there is a problem with the traditional banking system. If you believe the FinTech to be the problem, I agree completely with Bert. FinTech's done wonders in terms of supplying credit to the SMEs, to the rural producer. Alibaba linked the rural export producers in the 1990s to the export market because the state-owned trading system would not include them in the export channel. And Alibaba broke the monopoly of the state-owned channel. FinTech is, by definition, precision finance. They actually have lower default rates as compared with the traditional banks. They have a counter-cyclical lending pattern as opposed to pro-cyclical lending patterns on part of the traditional banking system. So they're actually good for financial stability. They have a lower risk profile and I've yet to see the evidence that the FinTech poses severe financial instability risks to the Chinese economy. And if there's evidence, I'd like to see it, but I don't think that evidence exists. It is very important to get this fact right. The reason why the private sector has grown in China through such a tremendous level is not because of the advanced traditional financial system, but it is because they have been substitute financing instruments. In the 1980s, we are talking about informal finance, rural finance, underground finance. This is why Joe Yung emerged to be such a incredible economic powerhouse, right? And in the 1990s, there is similar things and FinTech is the 21st century substitute instrument. Right? So it's fine to talk about the risks. It's fine to talk about the exposure, but if I see simultaneous reforms of the traditional banking system, then I think the claim is more believable, but that's not what I'm seeing today.

- Great. Thank you very much. So let me thank Bert again for such a wonderful talk in every aspect and Yasheng for your very insightful comments. I think the issues that have been raised today is worth a two-day conference, at least two days. So maybe somewhere down below, someone will be organizing it so we can take each aspect into depth to discuss and what we have been discussing today for utmost importance for not just China, but for the world and for people's welfare. And again, thank you very much for attending the last of this academic year's CICC Series and until the fall, we hope to see you again. And again, thank you. Thank you for everyone, the speakers, Bill, and also the audience.

- Thanks, Bill, Winnie. Thanks for having me.

- So thank you, really.