Peterson Institute for International Economics

China's economic outlook: Challenges and opportunities

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[00:05:14.10] - Mary E. Lovely

Okay, I guess we're going to make the trains run on time today. So welcome to one of the first events here at PIIE as we look forward to the upcoming fall meetings of the World Bank and the IMF. I am Mary Lovely, the Anthony M. Solomon Senior Fellow here at the institute, and I'm very pleased today that we're going to be able to call upon our team of China experts to update us on what is happening in the Chinese economy. This great group of colleagues will enlighten us about current economic conditions in the property sector, China's performance in the AI race with the United States, as well as how the move away from property development toward AI fits into the bigger picture of China's emerging growth model. Let me briefly introduce our panelists. Their full bios are available on our website at piie.com, so I'll keep this brief. To my left is Tianlei Huang, research fellow and China program coordinator here at PIIE. Tianlei is finishing up a forthcoming book that I'm very excited about on China's property sector slump and its ramifications for some very important sectors of the economy, as well as the Government finances.

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In the middle is Yeling Tan, Professor of Public Policy at the Blavatnik School. How did I do?

[00:06:43.13] - Yeling Tan

Blavatnik.

[00:06:44.58] - Mary E. Lovely

There, she said it. School of Government at Oxford University and non-resident senior fellow here at PIAE. Yeling just came in from across the pond, so thank you, Yeling, especially for being with us today. Yeling is the author of Disaggregating China, which looks at how Chinese economic policy-making changed with its entry into the WTO. And at the end is Martin Trewsenfa, Senior Fellow at PIIE. Martin is the author of The Cashless Revolution: China's

Reinvention of Money. And he's going to be talking about AI today. So thank you all for joining me today to provide our audience with an overview of what's happening in key areas of the Chinese economy. And I'd like to turn first to Tianlei. Tianlei, you have spent many months now studying China's property sector and the ramifications of the sector's depression, if you want to call it, and how it has dragged down Chinese consumers and investors for almost 4 years. Where are we in the process of getting supply and demand back into balance in this sector?

[00:07:55.26] - Tianlei Huang

Well, thank you, Mary, and thank you all for being here. So that's exactly what I'm going to talk about today. I will give a quick update on the Chinese housing slump and where we are now. Well, as Mary said, the Chinese housing market peaked around mid-2021 and has been in decline since. As the left-hand side chart shows, compared to the 2021 peaks, Monthly housing starts have now fallen to less than 40%. Monthly residential housing sales dropped by more than half, and monthly real estate development investment declined by more than 40%. And in terms of prices, if we look at the official National Bureau of Statistics 70-city average housing price index, for new homes, prices are down by around 10%. For secondary homes, prices are down about 20%. The price declines, at least according to the official data, are quite modest. And if you have friends or family in China, if you ask them, "Well, what's the real situation?" they'll probably tell you that the prices of their places are down much more than what the official data suggests. And I think they're probably right. Just like how the official price data in the boom years underestimated, understated the magnitude of price appreciation, I think now the official data have also understated the magnitude of price declines.

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So here I'm comparing the secondary home price data from one of China's largest brokerages, Centeline, or Centline, property agency for the four tier 1 cities, which is based on the firm's actual transactions and also the official MBS secondary home price data. And the Centeline data, which are the blue curves here, show deeper declines. In all 4 cities than the official data. And well, the brokerages only sell secondary homes. Then what about new homes that developers sell directly to households? Well, we don't have very good quantitative evidence, but there is qualitative evidence suggesting that because many local governments, since the housing market peak, have imposed price floors to try to slow the pace of the housing market declines, And so even if those cash-strapped local property developers want to reduce price to try to sell more quickly to get the money to deal with their own financial crisis, they're only allowed to reduce prices to a very limited— within a very limited range. Now, developers have found creative ways to circumvent those price floors. There is media reporting suggesting that

developers are now offering cash back or even in-kind compensation like free parking spots or even gold bars to buyers.

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So the actual transaction prices are likely lower than the recorded contract prices, which is the basis for the official price index. So this is the first point I want to make, which is the actual magnitude of the housing slump is likely more severe than what the official data suggests. Now, how does the Chinese housing slump compare internationally? So here I'm showing the real housing price indexes in China, the US, Ireland, Spain, and Japan since their respective housing market peaks. Now, Japan is very much an outlier here. It took Japan nearly 20 years to bottom out from its housing crisis. If you look at US, Ireland, and Spain, It took them around 6, 7 years to bottom out. And in terms of prices, price from peak to trough declined by 40, 50%. Now, in terms of both duration and the magnitude of price declines, the Chinese housing slump still appears young. So now the question is, is the Chinese housing slump going to follow the path of a typical housing bust? If that's the case, then it will probably take another 2, 3 years to bottom out, or is it gonna follow the path of Japan?

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If that's the case, obviously no one hopes for that scenario, but if that's the case, then we are probably still only in an initial phase of a much longer and more painful adjustment, right? And I don't have a good answer, but when I look at some of the fundamental factors that drove the housing boom in earlier years, Those factors have really changed fundamentally, and that made me believe that this housing slump could drag on for quite some time. Now, why did I say that? I think housing has lost its status as the preferred investment class by Chinese households, primarily for two reasons. One is higher real interest rates. Now, while we have Nick Lardy here, who documented in his earlier work financial repression in China in the 2000s, at the time, throughout the 2000s, real interest rate in China were very low and often negative. So for depositors, holding bank deposits essentially carried an implicit tax. And that was a strong incentive for households to shift their savings into real estate, which offered much higher real returns. Now, if we look at what happened in the last couple of years, because prices in China are falling, so real interest rates and cuts to interest rates by the central bank are simply not enough to offset the impact of falling prices.

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So real interest rates have actually come up, not down. So that erodes attractiveness of housing as an investment class for households. Here on the left-hand side, I'm showing you the real

returns on household 1-year bank deposit, and also the real movement of housing prices across 70 major cities. And as you can see, when real interest rates go up— when real interest rates were low, housing prices tend to rise more rapidly. And when real interest rates go down, housing prices tend to rise less rapidly or even decline, which is where we are now. The second factor is the deteriorating household expectation of their future income and also housing price increase. That's what I'm showing on the right-hand side chart, the Housing Price Expectation Index and the Income Confidence Index, both are from the People's Bank of China's Quarterly Urban Depositors Survey. I made the Housing Price Expectation Index myself, but the raw materials is from the surveys. As you can see, both curves move broadly together, and in earlier years, when— by the way, the higher values here mean that more households expect housing prices or their income in the next quarter to go up or remain stable.

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In earlier years during the boom era, households broadly were very optimistic about their future income growth and also future housing price growth, which is totally understandable, right? In the previous 20— in the 20 years before COVID Chinese households saw their annual— saw their disposable income grow on an average around 8%, 9% in real terms every year. Now, in recent years, household disposable income growth has slowed down quite rapidly. Of course, expectations have deteriorated, and that also impacts households' expectations on housing prices in the future. And that translates into real declines in prices. And also, another factor I'm not showing here is that because of the fact that many pre-sold housing developments got stalled, the construction of those developments got stalled, and many home buyers who were already starting to pay their mortgages, they haven't got their homes. So that made a lot of households just lose faith in the entire presale model. That's why we see a collapse in the sales of presold new homes in China. So all those factors combined make me believe that housing has lost its status as the preferred investment class. By Chinese households, unless these factors can be reversed, which seem to be difficult anytime soon, the housing slump may continue for some time, and it will continue to inflict pains on the overall economy, which is obviously suffering from weak domestic demand now in the shadow of the housing bust.

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China's economic growth in recent quarters is increasingly reliant on exports, which, you know, in a sense, shows the resilience of Chinese exporters, who have obviously found new markets beyond the US despite the US tariffs. But also, I think China also understands this very well. This kind of export-driven growth is not sustainable, and it's already causing backlash and tensions with many trading partners. Lastly, I'm very much a middle way man, so I'm trying to look for some silver linings even in this, right? I do think there are probably some silver linings

here, right? On the left-hand side, I'm showing you the price-to-income ratios by city tier. And as you can see, in both tier 1 and tier 3 cities— tier 3 cities here include all the cities in China except tier 1 and tier 3, so that's the majority of China— in tier 3 and tier 1 cities, affordability is improving, has been improving in the last couple of years. Well, I think it's a good thing for many young people who couldn't afford in the past, and now they can afford to buy now. I see more and more posts on social media now. People are celebrating being first-time homeowners.

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And with the improvement in affordability, perhaps, maybe, just maybe, it could also help with fertility. China, that's what I'm showing on the right-hand side chart. I'm showing the provincial level total fertility rates. And the price-to-income ratio in provincial capitals in 2020. The fertility data is from China's 2020 population census. Now, on a national level in 2020, China's total fertility rate was something like 1.3. And last year, it was below 1. It was slightly below 1. And China is definitely one of the lowest fertility— one of the countries that have the lowest fertility rates globally. And it's declining very fast. And as we— what we observe in other countries, in the most metropolitan areas where housing prices tend to be the highest, fertility rate is the lowest. So with improvement in affordability, is this going to help with fertility? I don't know. But it seems to me that this is something worth watching. Another potential upside is that— In my view, the reason why many young people earlier in previous years have chosen to lie flat, if you know what that means, was one important factor is because of the unaffordability of housing. But with the improvement in affordability, many young people who have previously chosen to lie flat may decide to stand up again.

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If that happens, I think that would be a good thing for the dynamism of the society and economy. With that hopeful note, I will stop. Thank you.

[00:19:12.15] - Mary E. Lovely

Thanks so much, Tianlei, for the update. And, you know, the property sector has these enormous connections and tentacles into the rest of the economy, and I was particularly thinking about government balance sheets. I hadn't thought about fertility rates, so thank you for the hopeful note at the end. I was at the curtain raiser today for the IMF's upcoming annual meeting, and Managing Director Kristalina Georgieva—

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hope I said that right—

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she mentioned that China's development model was well past its expiration date, but she didn't talk about what has been replaced with. And fortunately, we're here with Yeling Tang, and she's a keen observer of Chinese policy shifts. Yeling, can you describe for us how China's old growth model, based on domestic investment and exports, has been replaced with a new model, something that you call China's economic security growth model?

[00:20:14.46] - Yeling Tan

Thank you, Mary, and a very good afternoon to everyone here and online. So what do I mean by this economic security growth model, and why do I think that it's no longer fit for purpose for us to think about China's economy as either export-driven or domestic economic investment or debt-driven. This is why the overarching political guidance shifted some years ago, right? The overarching political guidance for China's economy now is to, quote, "coordinate development and security." So in other words, security has been elevated to the same plank as development, and one should not be advancing at the expense of the other. What this means in practice is quite vague, but I think we can focus our minds on 3 major components. The first is dual circulation, which is broadly speaking the attempt to make China's domestic market the primary driver of growth and the external market the secondary, and additionally to diversify away from overreliance on American markets. The second is for that domestic economy to be restructured away from property and debt, right? The slump that Tianlei so eloquently described, and towards high-tech innovation and a high-tech innovation that is self-reliant and insured against geopolitical risk.

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The third is to build out this new regulatory and legal regime for export controls such that China can now respond in both offensive and defensive ways against what it perceives as acts of foreign economic coercion. So how are these three components playing out in practice? We start with dual circulation. In many ways, this is not a new idea in the sense that China has always had to calibrate against external shocks. What is new is that the source of vulnerability here is not so much global markets, such as in the global financial crisis or Asian financial crisis, but foreign governments. And this is why the underlying logic here of dual circulation is a security logic. If we look at just the trade statistics, right, we see some elements of this in motion. So trade statistics show that direct trade between China and the US and other advanced economies are plateauing. Trade with the rest of the world continues to increase. But what this is generating is a new set of trade frictions. This figure here shows that trade

investigations against China are at an all-time high. And they're being launched by a range of different governments from India to Brazil to Turkey and so on.

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Right? So this attempt to shift the basket of trading relationships is not cost-free. When it comes to trying to build out this domestic demand as the main driver, right, that, of course, is very difficult at the moment, right? The housing market is in a slump, as Tin Lei described. That impacts the asset wealth of households. Consumer confidence is chronically weak. The desire of households to borrow is very weak. So even monetary easing has very little marginal impact. Overall future expectations are low, right? So to actually put dual circulation into proper implementation, I think is quite difficult. What about this move towards self-reliant innovation? This is a very, high-level political imperative that has strong national security implications. So there's a call for the entire innovation system in China to move towards this whole-of-nation struggle, to build out domestic capital markets to fund science and technology, to tighten these linkages between labs and universities, to unleash these so-called new productive forces. And it's all being guided politically— politically by the Central Commission of the Communist Party through this new Science and Technology Commission that was set up in the spring of 2023, right? So moving away from property growth.

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This figure here shows you why it's a political campaign. This is an analysis of over half a million newspaper articles related to science and technology. Collected over the past 20 years. The red dashed line that you see shows the prevalence of language in these newspaper articles that's supportive of external liberalization and international cooperation. The black solid line that you see is the prevalence of language related to decoupling. And you see a clear shift from 2018 onwards, right? With a change in the propaganda system, shifting much more towards concerns about decoupling, language supportive of international cooperation plateaus. And by 2021, which is when the 14th 5-Year Plan was launched, you see for the first time language supportive of decoupling outstrip that of language supportive of international cooperation. So that's the political call. We see the central fiscal allocation system changing as well. In this figure, the blue bars show you the change in fiscal allocation from 2023 to 2024. The pink salmon bars are the shift from 2024 to projected fiscal allocation for this year. And what's clear across the 3 years is a consistent increase in government allocation towards national defense, towards education, and towards science and technology.

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And within education as well, we see rather dramatic changes. So this figure shows you amongst the approvals of new undergraduate programs that have been positively approved by the Ministry of Education, what share belong to science programs and what share belongs to engineering programs. In 2020, it was 10% of these new programs belong to science, 40% in engineering. By 2024, 20% in science, almost 54% in engineering. So close to 3/4 of the new undergraduate programs being approved by the new— by the Ministry of Education are related to science and engineering. And the industrial system is changing as well. So this figure shows you the rather astonishing rate of industrial robot adoption in China compared to the rest of the world. So what we see is the propaganda system out there, right, putting out this call for innovation that's self-reliant. The fiscal allocation system is shifting, the education system is shifting, the industrial system is shifting. However, this doesn't mean that China will necessarily succeed towards where it wants to go. Where it wants to go is clear, right? I do want to lay out some potential concerns. Concerns, right? Will this politically driven push for self-reliant innovation accelerate China's move towards a stage of jobless growth?

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And what will that mean for youth unemployment that's already high? And what will that mean for social stability? This effort to restructure away from debt-driven growth and property investment, if we think about the many, many tier 3, tier 4 cities whose growth over the past decade and a half have been reliant on this property and debt model, how can they actually shift towards advanced manufacturing and innovation? Can all of them do so? Of course not, right? So there will be distributional repercussions here that might lead to new patterns of regional inequality. And finally, how do firms actually make decisions? If on the one hand they have to stay competitive and gain that market share, and on the other hand they have to think about how to remain self-reliant and to guard against geopolitical risk. It's a very difficult set of decisions to make. So thirdly, this new regime for export controls, right? I won't go through all of the different laws here, but this is just to show you that over the past 4 years, a substantially new set of legislation and regulations have been put out that enables China now in a way that it wasn't able to do before in 2018, to respond in either offensive or defensive ways to export controls or other types of sanctions put forward by other countries.

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To use these new regulations is a tricky situation, however, right? And I think the Chinese government has been trying to strike a very delicate balance between, on the one hand, showing that it can't be bullied, and on the other hand, trying to maintain that China is a positive environment for investors. You see this, right? So you see this in policy language. So in April, this was in the midst of the tariff war, the liberation tariff war between the US and China. The

Chinese government on the one hand, while putting firms on the unreliable entity list, was also at pains to emphasize, and you see this text here, that the Chinese government continues to welcome enterprises from all countries to invest and to do business in China. China. Which of these is the credible assurance here, right? That China will be strong and very targeted and won't hold back in asserting its sovereignty when it comes to economic coercion, or will it maintain itself as a positive business environment? It's a very tricky balance to strike, and if we look at data on foreign direct investment so far, we see that the inflows remain quite weak compared to previous years.

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So where does that leave us, right? Looking at these three components, I think this call to coordinate between development and, and security is very difficult to pull off in practice. What is the coordination mechanism? It's very unclear. And there are many different agents and interests to coordinate across, right? Your firms, your universities, different, pieces of the bureaucracy, your scientists, your foreign investors, and so on. So coordination itself is extremely difficult. And you see this play out across the 3 components that I talked about, right? When it comes to dual circulation, there's a push to downgrade external trade, right? But trade frictions are up. There's a push to improve the role of the domestic demand. It's very challenging to get that going. There's a call and a push to drive China towards innovation-driven growth, but the very fact that there is a political campaign, I think, will generate its own sets of distortions and will raise the cost of doing so. There's a new toolkit, right, for export controls and to respond towards foreign economic coercion as seen by China, right? But to strike a balance between using that and maintaining investor confidence is very difficult.

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So I leave you with this question, right? What does a functioning economic security growth model actually look like, right? Can we actually generate both growth and security, or are there inherent tensions that need to be worked through? Thank you very much.

[00:32:05.21] - Mary E. Lovely

Thank you very much, Yeling. And you know, you really brought home this tension between the goals and possible hurdles or contradictions in achieving those goals. I'd like to turn now to Martin, who's been really been studying Chinese investment in the tech sector and the real progress that's being made there, all in the context of the US-China competition, especially in the area of AI. Martin, could you update us on what you're finding in your research? Sure.

[00:32:37.43] - Martin Chorzempa

So Yeling and I did not coordinate before this, but it's a perfect handoff from somewhat she was just describing and how it's manifesting in the way that US and China are dealing with each other on AI. So why does this matter? Well, I'll just begin that I think AI is one of the key drivers of US-China tensions at the moment. If you look at the way that both President Trump and Chinese authorities discuss AI, you can see— I'm not going to read these long quotes, but there are commonalities between the two. One of them is that the leadership in AI is seen as crucial to national security and also to international economic competitiveness of each country. And you can see that the two visions are mutual— are very similar, but they're mutually incompatible. The US cannot have, as Trump says, unquestioned and unchallenged global technological dominance and also have a world in which China is, as it says, taking advantage of new opportunities to be competitive. Just to begin on some basics of AI before we compare the two countries, This is probably too small to see, but on the right, you see what's very common in the AI data space is that a lot of charts go up and to the right with a pretty steep slope.

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And in this case, it's— the different lines show different types of tasks that AI can do. And we're just seeing rapid increase in the capability of AI, everything from video and text to robotics and chatting and also potentially agents going forward. You see this enormous rise in capabilities overall. And the chart on the left shows what it has cost to get that. And that is the frontier models today, uh, each year, take about more than 4 times more computing power to be trained as the models in previous years. So you need a lot of computing power if you want to have powerful AI. And that is exactly the way that the US has tried to hold China back in developing AI. So in October of 2022, to me, October 7th is export controls in October of that year, not something else, that it reserved the best AI chips effectively for US firms. That's not exactly what it did, but it effectively said Chinese companies cannot buy the best AI chips from NVIDIA or AMD or anyone else. And it was right before ChatGPT was released., and then led to this surge in demand for computing power.

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This chart shows the geographical distribution of computing power. And you can see that as ChatGPT was released, the US and China have almost the same quantity of AI computing in 2022. But then as time has gone on, both the countries have added significantly to their computing power. But the US is now, instead of being about parity, is something like 7 times more AI computing than China because the best chips are being mainly bought by US firms, in part because there's really no one else with the scale globally to be able to buy the kind of chips

that the largest hyperscalers in the US are able to buy. So that would suggest that China must be way behind the United States if they can't get the computing power they need to train AI, right? The answer is no, unfortunately. You can see that the export controls were very effective at constraining Chinese compute.. But restraining Chinese compute has not done as much as the US would have hoped. Now, the US is still comfortably in the lead in terms of most capable models. This is an analysis done by a firm called Artificial Analysis. They put together a lot of different benchmarks.

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There are many different ways to measure the capabilities of AI in different tasks. But they tend to be pretty consistent across each other in terms of which model is overall the most capable. And you see that 8 out of the top— sorry, the top 8 models and 13 of the top 20 are US. China has 6 of the top 20, and nobody else matters, which is pretty wild. This is really important technology, and effectively, the entire world has to rely on US models or Chinese models because no one else's are any good. Europeans, their best bet is in 13th place and falling. But one thing you notice about this chart is the color. So the black models are closed-weight models, and the blue are open-weight models. And this is where— China is actually completely dominating the most capable models that are open. And an open model means you can— you or anyone else can just download it on your computer and run the model. I mean, you probably need more than your laptop to run most of these models. You might need your own graphics processing unit to do so. But you don't need to pay anything to the developer.

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And you can build on top of it. And that gives China a unique advantage in terms of what will end up mattering a lot in who wins. It's not who has the most capable model, it's whose model is used not just in their country, but around the world. And the gap in capability between the best US models and the best Chinese models has narrowed significantly. Generally, the consensus now is we're talking 3 to 6 months behind US leaders, despite the enormous investment in computing power, which raises this interesting question. Will they be able to raise enough revenue to pay back the cost of training and running these models? And then the chart on the right shows the number of downloads of open-weight models between the US and China. And what we see there is that Meta, previously, you know, formerly Facebook, was by far the dominant leader in open source around the world. And they had the, the most downloads. But what's happening now is that so many good Chinese models have come out. DeepSeq was just the very beginning of a strong bench of Chinese companies, including Alibaba, and QIME, and ZAI. I could name about 4 or 5 that are really important.

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And those models are getting downloaded in enormous numbers. And even in Silicon Valley, companies in— that are American are building on top of Chinese AI models. And because they don't necessarily trust the big AI developers to continue to grant them access under whatever terms they want. And in other cases, for example, in healthcare, You might not want your private data to be sent to a cloud computing, uh, server somewhere else. You don't know if that data is gonna get used in training AI or something, so you might want that to be much more secure. That's something that's gonna be very interesting to watch. Now, expanding a little bit into how does this affect other countries. One reason that Chinese companies are doing this open source, I don't think it's because they're benevolent and nice and just wanna create this thing for the world and give it to them for free.

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The—

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one of the challenges that Chinese firms in AI face is that they're heavily compute constrained. And that means any compute that you use for inference or running the models is taking away from the computing power that you have to train the models. And if you fall behind in training, then nobody will use you, and you will fall into irrelevance and disappear. So one of the reasons that they're putting these out in open source is they're essentially saying, we want our standard to catch on. And you can use your own computing power to run our models. What downstream effect that has then is that it puts pressure on US firms. And OpenAI put out its first open model quite recently, OSS. It had been years since they'd had an open model, in part because there were all these concerns. We're going to spend all this money to train this model, put it out for free. One, we can't get the money back that we invested to train the model. And two, you can't control it anymore. Someone can download the weights, and then adjust them, and strip out all the security. Provisions. And that starts to look pretty scary from a security perspective.

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But if Chinese models are already super capable and open, then that cat is out. You can't control it, uh, anymore. So that's led to more open models from the US. And I think one of the interesting things about this in terms of the competition is if US firms are trying to raise their prices to be able to pay back the model costs, that's gonna be hard as long as there's a free option that's very capable from a Chinese company that's just only a few months behind. So that will limit the ability of US firms to raise the cost. And that's actually really good for the rest of the

world, because the rest of the world then will be able to play the two off of each other and make sure that they have access to highly capable AI systems they can apply in their country. And much of the surplus of that application of AI, they'll be able to capture rather than necessarily the model developer who made that, uh, made that model. The losers in the US-China tensions in some ways are— you don't have to be super sympathetic because they're making gigantic amounts of money off of the, uh, the AI boom, uh, but they are facing these really difficult geopolitical challenges where, uh, the producers of these controlled goods that are going into the development of AI, so that's chip-making equipment, it's chips, uh, and also the chip makers, they are facing severe pressure from both sides.

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And as Yeling mentioned, I think really importantly, now China has serious threats that it's willing to back up with real economic impact of if you comply with the US export controls and don't ship to China, then we'll hit you back. And these firms are in a kind of lose-lose situation where you can't violate US law, but then also the Chinese might hit you. And that makes it very challenging for them to navigate. Thank you.

[00:41:57.16] - Mary E. Lovely

So, Martin, let me just follow up with a question. I think we're all struck by how close this race really is. I mean, we've been, you know, we've heard for 5, 6 years now that, you know, we want to do export controls, we'll hold back compute from the Chinese, and that this is really going to be effective in slowing down their development. So beyond the hype, numbers about compute and all this eye-glazing stuff, does it really matter who is biggest and best, or might smaller and more agile actually be better if it's deployed more adroitly, either to allow other countries to adopt your standards, but also in terms of bringing the productivity potential of AI to the domestic market?

[00:42:48.08] - Martin Chorzempa

Yeah, in, in this case, a lot of the US policymaking and lab activity is based on an idea that I find very hard to evaluate, which is that in the very short term, we'll reach some sort of artificial superintelligence or artificial general intelligence that will recursively train itself and improve itself. And the idea is if you get that first, it will create this exponential increase in capabilities, and then you win forever. I tend to think that, uh, I, I look at that pretty skeptically. And if you do, then I think you come to the view of scholars like Jeff Ding, who's looked at general-purpose technologies in the past, and finds that the real winners from those technologies are not who develops it first, or who has the most capable technology at the very beginning, it's who actually

diffuses and uses that throughout the economy. So the agile bit, I think, is very, very important. And one of the things you see is that US models are also coming up with ways to become more efficient and not just spend huge amounts of computing power. And so one of the charts I have for longer versions of this presentation show this dramatically decreasing cost of inference, any— to actually run AI models over time.

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This is a massive investment in efficiency that's helping there. But I really do think that the Chinese are putting this useful pressure through the, their investment in efficiency. And DeepSeek had some really interesting things. I mean, that in January they were pointing out how, for example, it's a mixture of, called a mixture of experts model, where you might only activate part of it. And we are having some interesting discussions lately that indicate maybe some more of the computing power can be used on your device, on your phone, in the future, or might need to be. If we don't have enough computing power or in AI data centers. So I think we'll continue to see this is just moving so fast. And it's diffusing faster than any technology that we've ever seen in history.

[00:44:52.23] - Mary E. Lovely

Martin. Yeling, so national security, we'll come back to that. National security and comparative advantage guided growth often seem in conflict. Governments want the private sector to produce goods and services that are deemed necessary to security, even if the cost advantage is elsewhere, perhaps overseas. State enterprises can fill that gap, as can the government-directed production. And we're even— something that we're seeing in the US is the federal government, in the US federal government, has taken an equity stake in critical minerals and in semiconductor firms. So how is China doing this? How is it getting its private sector to align with its security goals? And what are the key tensions that you're seeing in this pressure by the central government to do this? What distributional concerns of trying to foster this economic security model are likely to arise?

[00:45:59.24] - Yeling Tan

So I think from the perspective of the private sector, you can see ways in which the alignment of their interests and that of the Chinese government has become closer since these geoeconomic tensions with the US have emerged. But you can also see ways in which they remain in conflict, right? So let me talk about the first, right? In the past, If you were just a firm in China and you wanted to stay ahead of the competition, you would basically look for the best and cheapest input out there. And if that meant sourcing from overseas, even though the Chinese government

is trying to encourage indigenous innovation, you would source from overseas. Now their incentives are different because some of that geopolitical risk is directly on the firm themselves. They don't want to risk having their critical inputs cutoff, right, when tensions rise. So they are in a sense more willing to heed the call from the central government to give greater weight to indigenous inputs. On the other hand, they are still in vicious competition with each other, right? So if we think about the reports recently of the Chinese government putting out guidances to firms to say, don't buy the NVIDIA chip, right?

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If you put yourself in the position of one of these firms, what is the right decision to do? What is the right decision? On the one hand, if you listen to the Chinese government, you don't buy that chip, right? Have you bought yourself a little bit more insurance against any geopolitical risk? Maybe, but that might be tomorrow. Today, what happens is that if your competitor is secretly buying the chip, and you fall behind, then today you lose market share. And so I think the tensions in some ways are resolved, but in other ways remain unresolved for the private sector. And then if we think distributionally what that means for the Chinese political economy, I think one concerning trend, which isn't restricted to China at all, right? Many governments are trying to balance between the economy and national security interests. The problem is that traditional cost-benefit analysis falls apart, right, when you try to bring in both comparative advantage and national security. In a normal state of affairs, right, if it is possible to calculate the social risk of a 1% chance of one of your components failing, If this is a national security risk and it's a 1% chance of that vulnerability leading to national security being compromised, what does that mean for your cost-benefit analysis, right?

[00:48:55.55]

It's very hard to jointly maximize two objectives. So something has to give and the decision oftentimes I think will be made based on either risk preferences or values or just, political pressure. So that creates huge distortions in the economy. In terms of who calls the shots, when we're trying to balance between comparative advantage and national security, there's a range of voices in the decision-making apparatus. The scientists are there. The economists are there. The national security bureaucrats are also there. Who wins out in the decision-making room? And I think again, there will be a bit of a deference towards national security, and that's where I think the distortion and the risk aversion will play out. And then finally, across sectors, right, I think there will be winners and losers as well, right? I think the military-industrial complex will get a lot of very generous funding and support. What does that mean for China's services sector, right, for small businesses?

[00:50:01.22] - Mary E. Lovely

Raised a lot of interesting issues there. One of them, Tianli, I'm going to toss over to you, which is she mentioned— Yeling mentioned at the end about the costs of these policies, securitization or industrial policy, whatever you want to call it. But your work is showing that local governments are under a lot of fiscal distress with the property slump. Not all of them, some of them. Are we going to see kind of a landscape where some local areas are under enormous pressure and just will not be able to play this game while others are able to take advantage of this new growth model?

[00:50:39.15] - Tianlei Huang

Well, yeah, I think that's already happening. I mean, we all know that local governments in China rely heavily on land revenue. Relative to the peak in 2021, land sale revenue last year has seen drop by more than half. And with less revenue, local governments spend less. That's— and for China, which is suffering from greater deflationary pressures, this is worsening the situation. And with deflation, governments are also collecting less fiscal revenue. And for now, you see that— I think there are two interesting developments happening on the fiscal front in China. One is you see the central government is now embarking on a path of fiscal expansion. It started to do it roughly 2 years ago. Given local governments are in deep trouble, they cannot expand very rapidly to raise domestic demand. And the central government does have, I believe, a sizable fiscal room to expand even more. And the second interesting development is happening on the local level. You see, in recent years, with the damage that the housing slump has done to government finance, China has been emphasizing increasingly the role of state assets in fiscal management. You may have heard this in the news.

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Many local governments have now launched the so-called Smash the Pot and Sell the Iron campaign. It's a colloquial expression to describe the kind of very desperate efforts to sell whatever assets you have, regardless of cost, to deal with some very dire situation. For some older generations, this may evoke the memories of the Great Leap Forward. But anyway, that's, you see a lot of local governments are selling many underperforming and idle assets, and I did some rough back-of-the-envelope calculations which show that the scale of the revenue that local governments are collecting from utilizing state assets is now at least 2 trillion RMB per year. Well, that's still low relative to At the peak, land sale revenue was something like 8-9 trillion per year. That's still low, but the thing is the revenue from state assets is increasing rapidly. But the problem is a lot of those revenue comes from rather ad hoc asset disposal. There's really not yet a stable and sustainable revenue stream model for financing local government spending with state assets. Now, down the road, I think China will eventually need

a major revamp in its central-local fiscal relationship. It's long overdue, but it will be very difficult because it will be political.

[00:53:44.16]

It will be very difficult for many reasons. I think a major challenge is politics. I mean, there is a reason why China has its current intergovernmental fiscal system. Setup, I think the revamp that China will eventually need will inevitably involve some kind of giving local authorities more autonomy. And I'm not sure if the central government will find that acceptable. So I think an interesting thing is that, as I said, this crisis the fiscal local crisis happening to local government is forcing it to do something that we wouldn't think would be possible in the past, like selling some of their equities in SOEs, which may turn out to be a good thing in terms of improving resource misallocation and raising the productivity of the economy.

[00:54:39.17] - Mary E. Lovely

Oh, so we've raised so many issues. I want to give people here a chance to ask a question. Please come to the mic and just identify yourself. We'd love to hear your questions.

[00:54:51.19] - Audience

Thank you very much. Uh, Jim Malonis, QIG Macro. Um, great presentations. Thank you very much. I just go back to the Japan comparison, given the similarities on major macro factors like demographics, debt. It's very clear China's in a balance sheet recession. I think we saw what tepid monetary policy does for two decades in the Japanese case. You need spending from the central government. The difference, however, and I'd like to ask, is the political system. The political regime type is different in China. It's not a democracy. How does that potentially impact the response of the government? Then the question for the second speaker, the geopolitical environment is also different in that now you're in a competition with the hegemon rather than an ally of the hegemon. So how does that potentially impact the outlook?

[00:55:47.37] - Mary E. Lovely

Hey, we've got complicated questions. Let me turn first to Tianlei and then to Yeling. Tianlei, do you agree with Jim that we're in a— that they're in a balance sheet recession?

[00:55:56.22] - Tianlei Huang

Well, that's a great question. I remember we talked about the same issue 2 years ago when we did our last PIIE China event, there are certainly symptoms of a balance sheet recession. I think

the most obvious symptom is households rushing to repay, prepay their residential mortgages. But I think households did that for two reasons. One is households are— well, at the time, they were stuck with their older, higher mortgage rates. Mortgage rates in China, at least in the past, they only adjust once a year. So even if central bank was cutting rates, households were not able to benefit immediately from the rate cuts. And plus, there are increasingly limited investment alternatives out there. Everything else, the yields are also going down. So for households, prepaying their mortgages was a rational response to those changing factors. Now, I think what's interesting is that since late last year, the Chinese financial regulator allowed borrowers and lenders to negotiate bilaterally to lower their mortgage rates, and now mortgage rates can be adjusted as often as 3 months. And you see what happened afterwards is that households do respond. Households decided to keep their loans rather than rushing to repay them.

[00:57:13.10]

You see the pace of— I think there is a very clear slowdown in the pace of mortgage prepayments since late last year. And actually, that shows to me, at least, shows to me something contrary to the balance sheet. Balance sheet recession idea. Remember Richard Koo's— one of his major arguments under the balance sheet recession framework is that monetary easing, as you said, doesn't work during a balance sheet recession because households and corporates prioritize repaying their debt instead of taking out new loans and making new investment. In this case, I think the latest developments with the household's behavior shows that monetary easing does work. The key is to make sure that the transmission is smooth. So the private sector can actually benefit from monetary easing. Well, you also mentioned the institutional difference between China and Japan. I think there are some key differences between those two countries that will probably make China never— China will probably never become like Japan because of those key differences. One is, well, remember after the bubble bust in Japan in 1990, corporates were not borrowing or not investing, and because they have huge, on their balance sheet, have huge exposure to land and real estate assets.

[00:58:32.55]

In comparison, Chinese corporates don't have that big an exposure to real estate and land. I think that's because the Chinese housing boom, or bubble, was largely led by residential real estate. If you look at the investment real estate on corporate's balance sheet, it's relatively small. And also, the boom in commercial and industrial real estate during the boom era was modest, and the declines now are quite modest. So the shock to them is not as big as what it was like in Japan. And second, the key difference is the presence of the huge SOEs that are in

China. Well, SOEs have brought so many distortions to the Chinese economy, but one good thing about them is that they don't care. I mean, they will continue to borrow and invest. Well, profit maximization has never been their sole objective, right? They also have political and developmental objectives. So I guess a good thing with the huge SOE, the presence of the huge SOE sector is that they will always be there to make sure that domestic demand does not collapse, at least.

[00:59:36.35] - Yeling Tan

So on the geopolitical comparison, I think you're exactly right that there are severe limitations to thinking to the 1980s and tensions with Japan as a parallel, precisely because the security alliances and the underlying security interests are completely different here. And so I think the way in which the current tensions play out are different in several ways. The first is that the likelihood for escalation is much higher. Compared to US-Japan tensions, right? And the way in which US-Japan tensions were resolved ultimately, right, was a set of agreements where a lot of the adjustment burden was borne by the Japanese economy and the Japanese regulatory system. Here you see, as I described earlier, right, China beefing up its ability to hit back,, right, and beefing up its ability to look for ways to also weaponize supply chains. And so the likelihood of this tit-for-tat retaliation that we're seeing today happening is much higher, right? And so the talks that are happening between the US and China today is much more of a bargaining situation, right? TikTok for something else and chips and so on. That's very different from their situation with Japan. And I think in terms of the spillover effects on the rest of the world, there was never a pressure for multinationals to adopt a Japan Plus One strategy, for example, right?

[01:01:15.15]

Whereas now many, many multinationals are adopting a China Plus One strategy. Many third countries caught between the US and China are struggling to figure out what their optimal strategy is to advance their own national interests. And so, yeah, I think trying to learn from previous tensions with Japan, we can do a little bit of it, but it's very limited.

[01:01:44.28] - Audience

Thank you.

[01:01:53.01]

Hi, thank you so much for the presentation. Cheryl here from the World Bank. I have a question for Martin. On the AI competition between the two powers. I was wondering, do you think it's inevitable that, you know, the rest of the world has to make a choice between either one model,

or is there a possibility that there could be a neutral third-party good competitor that actually does not counteract the security concerns of either country and still be a decent choice, you know, for the rest of the world? Just curious. Thank you. Yeah.

[01:02:26.59] - Martin Chorzempa

The scale of investment that's required in terms of the computing power, talent, uh, and the corporate organizations to make it work are just— I don't see that being replicated anywhere else in the world. So, uh, if you could imagine a world in which AI progress slows down, say, you know, we— our pre-training has already begun to hit, uh, scale sort of walls, and it's, it's just making a bigger model doesn't help you necessarily make a better model. So GPT-5, for example, it seems to have been trained on less. But if that begins to hit diminishing returns and the algorithmic improvements continue to, uh, improve so that you can then train models maybe with a lot less computing power, then maybe other powers will be able to have models that are pretty similar that they'll be able to use. But otherwise, they want their own sovereign model, they're going to have to either download an open-source US or Chinese model and then fine-tune it themself and run it on their own, um, healthcare or national security or something. Being significantly behind is not going to be good. But I also really accept the initial premise of your question, which is that countries are not going to choose.

[01:03:53.58]

All the attempts to say, you have to completely decouple from China to work with the US, that hasn't really worked in any case. And actually, the US, watching how the tariffs, when they got so high, it was kind of like a voluntary, self-imposed decoupling. That didn't work very well for the US. And they rushed back to the bargaining table to kind of reengage. So I think anyone looking at that saying, listening to the US say, decouple yourself from China, they're not going to buy it. And therefore, and we see that even again in the US, companies are building on Chinese AI models, let alone looking at countries in the Global South or in Europe. So I suspect we'll see a coexistence of these type of models plus then fine-tuned ones. But probably not for a while any frontier models from anyone else.

[01:04:45.25] - Mary E. Lovely

I'm going to give folks a little chance to think of a question. Oh, we have one.

[01:04:48.28] - Yeling Tan

OK.

[01:04:50.04] - Audience

Thanks for sharing. And my name is Xingyu, and I'm from World Bank. So one school of thought about legality of the ruling administration is that they— have this promise that they will create shared prosperity for Chinese, and they delivered, at least in the past decades. So, and as you point out correctly, how the economy is slowing down, if not in a recession, and the dynamism is kind of waning out. So my question is that, do you say that legality is being challenged? And as you mentioned about these new development models or the reactions done by the administration, do you see them on the right track to strengthen the legality?

[01:05:49.50]

Thank you.

[01:05:50.15] - Mary E. Lovely

Thank you for the question. Yiling, I think you are the best place to address this one.

[01:05:55.08] - Yeling Tan

Sure. The way I understand the question is that essentially you're asking about performance legitimacy. Legitimacy, right? If overall public higher quality of life for the next generation compared to this generation, right? And that is the source of its legitimacy for governing the country. Right, that's the overall performance legitimacy thesis. Testing whether or not that actually is the case is actually very tricky for researchers because there's a tendency to conflate your satisfaction with the current state of affairs with this idea of legitimacy to rule, and the two concepts are slightly tricky. So I would first put out there that it's not taken for granted that this overall thesis about performance legitimacy works the way we think it works, right? When researchers do survey the Chinese public about their levels of satisfaction with the government, it's always very high. For the central government and then declines as you get lower down to lower levels of government. And the Chinese government has tried over the years to calibrate and recalibrate the nature of what it says it is delivering to its people, right? So in the first few decades, it was all about revolution under Mao, right, to create a more socialist future.

[01:07:42.16]

Then under Deng, it was much more about development, right, as the hard truth. And then some decades on, it shifts to a higher quality of life, right? And a higher quality of life that includes things like clean air and a non-polluted environment and so on, right? And now I think security is now part of the delivery of public services as well, right? We're delivering for you a

more secure, environment, right? What I think we need to think about is to what degree nationalism starts to replace this idea of performance legitimacy, right? If the overall messaging within the domestic Chinese environment convinces enough people that, right, China is in this very important geopolitical struggle against an imperialistic US that's out to in the Chinese terminology, sort of suppress and contain China's rise, then the support for the overall regime rests on nationalism rather than on performance. And the two can be combined, they can be separated. It's very hard to tease it out. So I would say that I hear where you're coming from, but we should be cautious about the idea that if the public service delivery declines, that therefore functionally something else should happen when it comes to citizen support for the government.

[01:09:11.19]

I think we need to think about the broader range of ways in which citizens think about whether or not they support the regime and whether or not they support the current government.

[01:09:28.50] - Mary E. Lovely

Jim, second question?

[01:09:30.10] - Audience

Just outlook for productivity, and then also outlook for corporate balance sheets. Corporate debt historically is a big problem in China. And then any expectations for the 15th 5-Year Plan?

[01:09:42.59] - Mary E. Lovely

Start with the outlook for productivity and corporate debt. I think Jim wants us to do his work for him now.

[01:09:48.25] - Audience

No.

[01:09:48.44] - Mary E. Lovely

Thank you.

[01:09:52.23]

Tianlei, can you help him out?

[01:09:53.47] - Tianlei Huang

Oh, those are very— Broad questions. Perhaps let's link it to the balance sheet recession idea. Perhaps we can look at the corporate's behavior now. You see, if you look at on the aggregate, Chinese corporates are still taking on more debt. They're not reducing their debt. I think what Martin said earlier actually illustrates that at least in the AI arena, we're seeing By the way, I think all the companies that Martin had on his slides are private companies, and they use private capital. And that's also a vivid illustration of the dynamism of the Chinese private sector. With that said, you do see some sectors are deleveraging. Real estate development, that's very clear. Developers are trying to— they're in a sense in a balance sheet recession. They're reducing their debt, trying to survive in the bursting of the housing bubble. Housing bubble. And you see also financial services are deleveraging as well. They're not making that much investment. I guess that has something to do with regulatory campaigns that started a couple years ago. But if you look at the rest of the corporate sector, most companies are actually still borrowing and investing, although the pace has slowed down quite a bit, as Yiling showed in one of her slides.

[01:11:17.40]

Earlier, and it's amazing that in a lot of services sectors, companies are seeing double-digit growth in their fixed asset investments in the last couple of years. Think about all the challenges that Chinese economy is facing. They're still investing so much. That probably also has something to do with the strong demand coming from consumers. This, we often talk about underconsumption in China, but I have said on multiple occasions that Chinese consumers have proved that they're actually quite resilient in the past couple of years. And there is a clear shift of interest of consumers from consuming more goods to consuming more services after COVID, I guess, probably because people realize after COVID that you only live once. So life is about experiencing different things than consuming just goods, right? So that was about Coupredat and— What other things did he ask, Aye Dhor Man?

[01:12:12.11] - Mary E. Lovely

Thank you. I'm going to turn to Yelang for this, which is, what are you looking for as we head toward the next 5-year plan?

[01:12:20.20] - Yeling Tan

I think the overall direction has been set by the Third Plenum, which is the overarching political guidance. So if we look at the Third Plenum documents from last year, it's still, to me, an economic security direction, right? The emphasis on security as part and parcel of the

development calculation, I think for the foreseeable future, it's here to stay. And my expectation is that we'll see a continuation of the 15th 5-Year Plan and moving in that direction. I'm happy to—

[01:13:06.07] - Martin Chorzempa

I would agree with that and say there are already so many other plans like the AI, recent AI plan, which gives you a bit of an idea of where they're going to go, which is really focusing on applying AI throughout their whole economy and in every sector. And they've already set targets in that way. And so I suspect we'll see many state-backed continuation and intensification of state-backed state efforts to concentrate and then make computing power available to Chinese companies. That includes the leading labs, but also people who are trying, organizations that are trying to apply AI, and I suspect will have a lot of success in terms of application in manufacturing, for example, where, you know, as Yiling's chart showed, if you have a lot more industrial robots than anyone else, then you have a lot of unique data that you could use to train further automation that could continue to improve the competitiveness of, uh, of China's manufacturing industries. And so the US might again have the most capable model, but Chinese firms might have the ability to use, uh, general purpose models and, and tailor them in ways that really help it, uh, economically.

[01:14:12.42] - Mary E. Lovely

Let me come back to you again, Martin. So if we were having this discussion 2 years ago, we might be talking about Jake Sullivan and export controls and how long a lead the US could continue. But we've just seen a real change in the US administration. Obviously, everybody in this town certainly knows it. But the US has embarked on this radical, what I think of as a radical shift to boost domestic manufacturing through the use of unprecedentedly high and broad tariffs. But despite this turn for its own US self-sufficiency, electronics and computing equipment and communications devices have been exempt from the tariffs. Given the intense competition in AI and the fact that this competition may move to our devices, something you alluded to earlier, do you see the current US China hardware relationship where these are exempt and we're still getting enormous amounts of these goods from China. Do you see that relationship as sustainable?

[01:15:30.50] - Martin Chorzempa

We're probably going to see just more decrease in interreliance in the chip sector. You can see that China has now gone in a completely different direction as before. For saying, we, you know, whatever NVIDIA chips that are legal to sell to China, we're not going to let our firms buy them.

And that's a dramatic escalation in saying, we want to have our own indigenous sector. And in the US, the challenge is going to be the chips that are not controlled. So the more lagging edge chips that China is able to produce in enough quantities to be able to export to the rest of the world. This might actually be an unintended consequence of the initial export controls. Because when the US put export controls on Chinese chipmaking equipment, they only controlled some parts of US equipment and only to certain Chinese entities. And then Japan and the Netherlands had not controlled yet, and they waited a little while. And so what did China do? China stockpiled— and when I say China, I mean Chinese companies— stockpiled huge amounts of this equipment, which is extremely expensive to buy. Because they said, you know, if I wait 3 months, I might not be able to buy this.

[01:16:41.30]

And then naturally, if you have that equipment, you want to use it. So it's hard, it's really challenging to construct counterfactuals in this space because there's been, you know, this AI boom, which has lifted the entire thing and kind of swamped any negative effects on revenue of export controls on the firms that are in this space. But that is gonna be an area where the US is very afraid relying on China. The CHIPS Act in the US was extremely successful at attracting investment. But since Trump has taken office, the investments in that sector have declined pretty precipitously. And so you see investment in the economy is still standing up really well. And it's pretty much all AI. And everything outside of AI, which as Mary said, there are exemptions to the tariffs, for bringing in the GPUs and some of this equipment. But there's also some areas that are not exempt. And there, all it's doing is making it more expensive to make AI in the US. And every single firm I've talked to over the last few months says there's only a negative impact of tariffs on their ability to manufacture in the United States, in part because you might think that having a tariff on your foreign competitors benefits you.

[01:18:00.05]

But if you have this immense uncertainty about what the cost of your inputs are going to be, and pretty much everybody uses some sort of imported inputs, then you really just don't know what to do with your supply chain. You don't know if you should invest. You don't know if the increase in your input costs is going to swamp the increase in your competitiveness because your competitor got hit with a tariff. So it's just a mess. And my worry is that if there's some big negative shock in the AI space, so Deepseek uh, nearly a year ago now, I guess 9 months ago, was a pretty big negative shock, but that so far has been overwhelmed by the rise in computing demand from reasoning models. But if something else happens that, uh, disappoints in AI, uh, then we could be in for a serious reckoning in this country.

[01:18:48.19] - Mary E. Lovely

Thank you so much, Martin. Um, I think you can see that, um, my colleagues are drawing upon a deep well of knowledge.. And I welcome you to keep track of their writing. It will all be posted on piie.com. And I want to thank Martin, Yeling, Tianlei for an absolutely fascinating discussion today. Thank you so much for sharing your expertise with us. And thank you to our guests here in the room and online. Thank you for being with us. Thank you.

[01:19:19.17] - Tianlei Huang

Thank you.