

THE BROOKINGS INSTITUTION
FALK AUDITORIUM
TAIWAN'S ECONOMY DURING
A TIME OF GLOBAL UNCERTAINTY

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Panel 1: Taiwan's Economy in the Shadow of Cross-Strait Tensions:

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Panel 2: Doing Business in Taiwan's Globalized Economy:

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P R O C E E D I N G S

MR. HASS: Good morning and thank you for being with us this morning at Brookings. We are delighted to have you here for a hybrid event with a live audience, as well as an audience tuning in from around world for our discussion on Taiwan's economy during a period of global uncertainty. Today's event is cohosted between the Brookings Institution and the U.S. Taiwan Business Council. Special thanks to Council President Rupert Hammond-Chambers and his team for helping to conceptualize and organize today's discussion.

This event is an opportunity to take stock of how global shocks are affecting Taiwan's economy and how they affect Taiwan's economic competitiveness in the future. From COVID-19 to supply chain disruptions, rising energy prices, rising food prices, inflationary pressure, shocks from Ukraine, there's a lot going on in the world today and there's also a lot of concern about Taiwan's own security. So, from analysts to investors, policymakers, how do they evaluate risk associated with Taiwan?

At the same time there's also growing awareness of Taiwan's central importance to both regional and global economy and security. This has led to increased expressions of support from leaders around the world for Taiwan, but it has also attracted a new wave of overnight experts who have parachuted into offer their analysis and best ideas on Taiwan. So, we wanted to get a group of experts together today to help right-size risks and identify opportunities relating to Taiwan.

Our event will be divided into two portions. In our first panel I will have an opportunity to moderate a discussion among three leading experts on Taiwan's economy in the shadow of cross-Strait tensions. In our second panel Rupert will invite three representatives of leading firms to the stage for discussion on doing business in Taiwan's globalized economy. I'm delighted to be joined on stage this morning by my friend, Matthew Goodman, senior vice president and Simon chair in political economy at CSIS. In the capacity Matthew directs CSIS's economic program which focuses on international

economic policy and global governance. Prior to CSIS, Matthew had a distinguished career in government where he served at the White House several times, as well as the State Department and Treasury. He also worked in the private sector in banking and consulting.

We're also very fortunate to be joined this morning from -- by Shirley Lin who is participating virtually from Taipei. It's good to see you, Shirley. Thank you for spending your evening with us. Shirley is a nonresident senior fellow of Brookings. She's also the Compton visiting professor in world politics at the University of Virginia, and she is also chair of the Age-Specific Hub of the Commission on Reform for Resilience which is reviewing responses to COVID-19. She has other responsibilities and titles as well, but her research and teaching focus is on cross-Strait relations, international political economy and challenges facing high-income societies in East Asia. She previously was the youngest woman partner at Goldman-Sachs where she led the firm's investment efforts in Asia managing private equity and venture capital investments in 12 countries.

We're also very fortunate to be joined this morning by Yun Sun who is joining us virtually. She is a nonresident fellow at Brookings and the director of the China Program at the Stimson Center. She's one of the most well-informed and widely quoted, expert in media on China's foreign policy, U.S.-China relations, and China's relations with neighboring countries among other things. She's worked and studied both in Washington and Beijing including previously proudly to us here at Brookings, as well as the International Crisis Group.

So, with those introductions out of the way, I want to dive right into our discussion. I plan first to ask our panelists to share their thoughts on the current fluidity in the international system and how it impacts Taiwan. From there, we will discuss regional issues and then we will drill down to Taiwan specific issues. So, in other words to go from a broader lens to a narrower focus over the course of our hour together. Yun, I'd like to start with you and then we'll ask Shirley and Matthew to jump in behind you.

What do you see as the top global challenges right now, and how do you

see them impacting Taiwan economic competitiveness?

MS. SUN: Thank you, Ryan. Thank you for the invitation. It's a great pleasure and honor to be on this panel with Matthew and Shirley, and you yourself as one of the best-informed China experts in Washington and in the United States. So, thank you for the offer and the compliment. I would say the most important challenge currently is the uncertainty associated with the international power equilibrium, which is still morphing, and we don't know to where, and what is the end state here, -- that it was a war in Ukraine still ongoing, as the Chinese are allowed to quite uncertain about what will be the outcome of the war and what will be the outcome for Russia? And does Russia still qualify as a credible and more importantly, a powerful partner for China in terms of this counterbalancing of the United States and U.S. lacking international order. So, without these questions being answered, I think the current world order is being -- is being answered and we don't know whether we're looking at a bipolar world or we're looking at a somewhat still amount of power world, or this back already is going to accelerate and leading to the acceleration of the competition between the United States and China, which had already been well under the way. So, with this uncertainty associated with the international system and what's going to happen to the power equilibrium is going to be the most important question, and also the most important question for the future of Taiwan security. Thank you, Ryan.

MR. HASS: Shirley. I think we have you on mute right now.

MS. LIN: Thanks, Ryan. And it's great to be here with my -- with two great panelists. And so, it's my first program in 2022 and it's a somewhat -- I have more pessimistic message but perhaps a mixed message for Taiwan. I think the world since February 24th has been quite different and Yun has pointed out that geopolitical risks facing all economies. And this has, of course raised raw material prices. On top of that since then we've seen increasing of inflationary pressure, and third but not least, and most importantly for Taiwan, the supply chain disruption has been accelerated by China's COVID-19 lockdown in several cities. All of these are global challenges, but Taiwan is at the tip -- at

the really -- at the most important juncture of these risks and so it is both very global and very local how these threats are different for Taiwan. Last year when I was here with you, Ryan, we talked about decoupling, and this is of course very important as the world decouples. Taiwan sees both benefits and costs and I look forward to our hour to discuss this.

MR. HASS: Thank you, Shirley. Matt.

MR. GOODMAN: Well, thank you, Ryan. I'm really honored to be here and I think that we have just a terrific group here including you, so as Yun said, I think you should be player-manager here and give your own views as well in that the audience would benefit. But look, I'm generally an American optimist, but it's been hard to be optimistic especially in the last couple of months since, not just February 24th but February 4th; remember when Xi Jinping and Vladimir Putin promised, you know, friendship without limits, and, you know, I do think that there have been a lot of strains in the global system for a long time not all of them through policy led. I mean, there've been strains in globalization that I think have been around for a number of years but I do think that, you know, prior to February I was sort of my more optimistic sense was still prevailing that in the end there -- globalization needed to be modified and we're were going to have new patterns of production and supply chains but broadly speaking the logic of having a world in which I -- I'm an economist so I'm looking at it through that lens of the efficiency of global production patterns, maybe a little shortened supply chains and so forth would be overwhelming. I think you do now have to think more in terms of a world in which -- in which you know, bifurcations that go a little further than we thought. I think for Taiwan that is both a challenge and an opportunity. It's an opportunity as others have said, because Taiwan is such a critical part of the global system economically and particularly obviously, in particular components of the global economy but the -- a term on the notion of how critical semiconductors are to global production of pretty much everything. So, Taiwan's really important and there's an opportunity here and although I'm not a geopolitical analyst it feels like there's also an opportunity for Taiwan to

be seen as a critical part of a group of countries that are committed to, you know, to free markets to democracy and that, you know, are uniting against the forces that aren't that. And so, Taiwan's got I think an opportunity but on the same time, you know, obviously the geopolitics cuts against the notion of, you know, of a Taiwan that can feel secure and confident about its position both in the global economy and the global politics, and again I'm sure we're going to talk more about that but it's a worrisome time.

MR. HASS: Yeah. Well, I appreciate, Matt you're starting with a note of optimism, and I do want to pick up on the possibilities that await Taiwan. But before we talk about the future I do want to focus on the present. And one of the items of news that came in overnight was that China's economic numbers in April plummeted pretty significantly. This is a reflection and I think a reaction to these Euro -- or dynamic zero COVID policy and the sweeping lockdowns that have locked down somewhere in the ballpark of 300 million Chinese people. How do you expect the ripple effects, Matt of these lockdowns to hit Taiwan?

MR. GOODMAN: Yeah, I'm glad you mentioned that, and I should have mentioned it in my opening remarks because I think that may be the biggest economic development of recent times, trying to slow down. It's clear that it's happening these latest retail sales and industrial production numbers. Just underscore that and, you know, China is such an important part of the global system, global economy just in pure size but also obviously is the center of the supply chain story, and so disruption of that -- of China's growth and position as a supplier of, you know, much of the world's -- pretty much everything that you're looking at, wherever you're sitting, has Chinese components or parts or was assembled in China. And so, if it slows down and cannot be that sort of centerpiece of the global system its' got huge ramifications for us. I mean, no doubt internally and again here's where your expertise will be helpful in terms of the political economy inside China, but just globally it means that we can expect I think slower growth globally. We can expect more inflation globally with the supply chain disruptions, and I think that that's going to have

implications for Taiwan, just as it will for the rest of us but even more because it's so interdependent with the mainland economically. So, it's a huge source of concern I think just as an economic proposition but, you know, politically as well.

MR. HASS: Right. Shirley, you're on the ground in Taipei right now.

Taiwan has moved away from a dynamic zero COVID policy and has a new Taiwan policy for dealing with COVID. I wanted to draw you into ask both how is that working? How does it feel for you experiencing it? But also, to the previous question, how do you see the ripple effects of China's economic slowdown reverberating in Taiwan?

MS. LIN: So, Ryan it's a tough spot to be. You said there is nice news overnight. I thought you were going to say the news overnight is that Taiwan has changed its COVID policy overnight, and is today now practicing zero plus 7, which means if you come into contact with somebody with COVID, you do not have to be quarantined, and you need to test on a periodic basis. So, it's really a very dynamic move I would say away from the way that COVID zero has been practiced in China and in Hong Kong. I think it's quite important economically, quite pessimistic are the forecasts that have already been scaled back from 4 percent to just over 3 percent, so I think the Bank uses while China's experiencing this slowdown because of its public health policy. Of all of its neighbors actually Taiwan is hurt the most. So, that is the bad news and because of course as I wrote in last year's piece for Brookings, it is -- continues to be very interdependent with China and in 2021 it was at an all-time high in terms of the interdependence. It dropped slightly last year but basically what hurts China also hurts Taiwan, and the fact that TSMC and Foxconn are able to operate somewhat in a better situation is that they practice what they call the close boot system to avoid the workers, you know, coming into contact with other people. But in Taiwan the situation has been dire since I landed. And I went through 14 days of quarantine. I came out into tens of thousands of people at the height it was 65,000 people infected per day, and the good news is that those who are vaccinated the rate is as of December last year has already caught up with the rest of the world, even though in the first stage Taiwan had a very

good public health system on tracking pre-vaccine. And then when vaccines became available, Taiwan was behind the curve. It didn't have enough vaccines and last year was behind. But as of this year it was just catching its' breath when of course omicron hit and right now what it is experiencing is a challenge to public policy to really meet the new demand, and I think that today's change is very meaningful to show how it's going to be able to uphold its' public health system so that it's able to take care of those who are in serious need. The vaccination rate among older people is the big problem, as you know in Hong Kong and South Korea. The lower the vaccination rate for senior citizens, the more deaths. Deaths weighed a story very, very good compared to Hong Kong and Korea and even Singapore, this just last month but things were changing quite rapidly. I would say that without public health Taiwan is not going to be able to export and continue its dynamic economic to take advantage of the opportunity that Matt just talked about. The opportunity is there because there is trust in Taiwan supply chain, but if Taiwan cannot be agile in terms of changing its public policy on health and the economy, and this goes to whether if you're in contact with somebody, are you still able to go to the factory or go to your office. So, these things I think just as we speak today are changing fast. I'm comforted actually Taiwan is developing a Taiwan way but whether it's able to do it quickly enough to -- and also to weather the slowdown in China, I think that the next panel that you've invited will be excellent on discussion of that.

MR. HASS: Right. Thank you. Yun, we want to focus mostly on Taiwan this morning but as are conversation thus far has indicated, what's happening in China will have an effect on Taiwan's economy. One of the questions is often asked is how long can China stick with its zero COVID policy given the impacts that it is having? And I was wondering if you could perhaps share any perspective you have on that question. I also wanted to just tack on one additional question for your consideration. I noticed in People's Daily overnight that there was a lot of talk about the fact that the United States is now approaching one million deaths. Regional team from COVID and it shows the callous

disregard that Americans have for human life and their prioritization on other issues. Do you expect that as the stresses from the zero COVID policy in China continues to intensify that the focus on America's own performance as it relates to COVID also will gain prominence?

MS. SUN: Thank you, Ryan. It seems like a good question that we have been asking for almost two years now, that is when is China going to reopen, and when can we go to China again? And I'm afraid that for people in the China community we have been repeatedly disappointed and now the prospect for opening even in 2023 seems to be uncertain as well. And remember all of here the Chinese are sorry and did come out to say that by early next year we're going to gradually and incrementally open up. But now we're looking at the lockdown in Shanghai and the enhanced, increasingly strict procedure and policies in Beijing, let alone other smaller cities that are happy and their quarantined for prolonged period of time since last year. What we're looking at is that China is having second thoughts and one significant sign is over the past week we've seen China basically cancelling or postponing six international and regional sports events that was originally scheduled to happen in China in 2023. So, if that serves an indicator I'm not terribly -- I'm not terribly confident and optimistic. And then remember this Chinese media and the Chinese propaganda narratives that United States has turned into the inferno of COVID. People are completely lying flat without any procedures to defend against COVID anymore. I think that's also an indicator to the Chinese general population that look, this is what happens when you open up, right. I think that's part of the psychological -- I wouldn't say warfare but at least a psychological campaign to convince the Chinese people that opening up will be a bad policy and China will have a very dark future waiting for it if that's the decision. But last but not least I would say that this is a political call. We know that the Party Congress is happening this fall where all (inaudible) wings is that no opening up is going to -- is going to happen before the 20th Party Congress is over. So, I think these are all laying the foundation to a -- I would say manage the expectation about China opening up in the next -- let's say, 6 to 12 months. Thank you.

MR. HASS: Thank you. Matt, one of the major trends in Asia right now is regional economic integration. And we've seen it with the Regional Comprehensive Economic Partnership, the Comprehensive and Progressive Transpacific Partnership, as well as the Indo-Pacific Economic Framework which the Biden Administration at some point in the coming days or weeks will announce. That's a lot of acronyms to deal with, so I thought maybe we could just take them one at a time. The Regional Comprehensive Economic Partnership (RCEP) -- how is it working out and how is it impacting Taiwan?

MR. GOODMAN: Well, yes that is -- thank you for spelling out the acronyms because I've forgotten what they stand for now. But, look RCEP is -- it only took effect on January 1st of this year as a -- you know, in terms of the implementation by most of the members that had signed on, you know, most of ASEAN plus, you know, the big economies in the rest of Asia, and so it's a bit early to assess exactly -- excuse me -- what its impact has been on regional trade investment patterns, but it will have an impact. It's a -- - you know, as people here in Washington have been sort of dismissive of RCEP for a long time because it wasn't a deep agreement with substantial liberalization -- liberalization of even tariffs not complete and it's phased in over long periods of time. But -- and there aren't a lot of, you know, hard rules on some of things that we've included -- used to include in trade agreements when we used to do that kind of thing. And -- but it is going to affect regional trade investment patterns if only because it has this new more efficient, sort of, you know, single rule of origin, technical term in trade but it allows companies to make decisions that are now, you know, more efficient or they're going to choose other things being equal to put the next dollar of investment in this region -- this broad region which accounts for about, what 30 percent of the global economy. So, it's a big economic region. And so that's going to affect Taiwan because Taiwan does have, you know, largely free trade arrangements with most of this region in practice. I mean it can trade quite freely and invest in much of this region but, you know, again that marginal dollar is going to go into some other place rather than into Taiwan. The trade pattern of choice may go to other partners within this region if

Taiwan's not part of it, and so -- and by the way the United States is going to suffer the same thing. We're not going to be party to this -- to this agreement ever and so I think, you know, this is something we have to take seriously and there will be liberalization built probably slowly on top of this if you follow the pattern of how ASEAN Plus arrangements have worked in the past. So, I think this is going to change supply chain patterns in the region in a marginal but significant way.

MR. HASS: Interesting. And for CPTP?

MR. GOODMAN: Right.

MR. HASS: So, in the World Trade organization and assessment process both China and Taiwan entered it roughly, approximately the same time. Does that tell us anything about how China and Taiwan may pursue CPTP? What's the path forward that you see for this?

MR. GOODMAN: Possibly but I think neither economy is going to be joining CPTPP soon. Obviously from the -- China has applied for CPTPP membership. I think the existing membership particularly if you have the larger economies in the group are going to slow-walk that application for some time before they really engage in actual negotiations. So, they're going to ask a lot of questions and do surveys and make sure that the country is really ready to commit to the high standards of the agreement, and that's going to take a couple of years at least. At some point I do think, you know, the members of the group are going to have to look at this seriously, and I think, you know, Japan will be the last holdout probably but, you know, Singapore, Australia, others that are sort of skeptical about Chinese membership are going to eventually I think say, we have to look at this. And once China's in the room even as, you know, negotiating terms or as an observer it's going to change the dynamics of that agreement pretty significantly. You know, Taiwan I think and it's the same problem with IPEF. I think no country -- existing country in the group is a CPTPP member is going to be comfortable taking Taiwan in until China's ready to, you know, at least have a serious chance of joining. I think that's the problem. On the economic merits, Taiwan

probably would be in the group sooner -- would be in CPTPP sooner but I think that's going to be very difficult for the other members of the group to accept, you know. And Japan might make the case for that but I -- so I think it's going to be a few years and then probably if it happens, yes Taiwan and China will probably end up coming in at roughly the same time, but I'm not actually predicting that's going to happen because a lot could happen between now and then.

MR. HASS: Right. Indo-Pacific Economic Framework. First of all, what is this. The Biden Administration is going to roll it out to I think in the coming week or so.

MR. GOODMAN: Right.

MR. HASS: What is it and how do you envision Taiwan relating to it.

MR. GOODMAN: Well, in a way it is a recognition to be again constructive about this. It's a recognition by the Biden Administration that the United States has to have a credible and durable economic strategy in this critical region, the Indo-Pacific. And it's not willing to go down the road, the Biden Administration of negotiating a formal trade agreement whether its TPP or something else. Yet, -- I put yet in this sentence because I think at some point the Biden Administration, it might be sooner than some people think. I might revisit that question but for now they've made clear they're not going to negotiate a formal trade agreement, but they have to offer something. So, they've offered this Indo-Pacific Economic Framework with four pillars of work all of which are good topics, you know, trade, supply chains, clean energy, and anti-corruption -- all good topics for the United States to be engaging with the region on. The region actually is willing to engage on those issues but the big question about this agreement is -- well, there's really two big questions. One is, you know, what's in it for me. So, for the regional partners I think they're all asking, you know, if you're not going to give us greater market access to the United States, you know, what are you going to give us. A little bit more money. A lot of people complained that the ASEAN Summit last week the President or the White House only announced another \$150 million. Personally, I think that's a bit of a bum rap in the sense that if you

apply the money strategically it can have a lot of power. We're not going to win the game of putting a trillion dollars of money if China's going to do that in the region. If that's the competition, we're going to lose that competition, but we can be strategic about how we apply money. But anyway, the point is if we're not going to provide money or market access, what we are actually offering in this thing. That's the big question. The other question is who's in charge because you have many different parts, the U.S. Government, many different agencies involved, many different issues and so people are confused about who's in charge. I hear there may be some moves afoot to address that problem by having a senior White House coordinator whose sole job is to coordinate this. That will help a lot.

MR. HASS: Right. Shirley, how do you see these issues playing out. I know you spent a lot of time; you've led investments across the region, you're sitting in Taiwan right now. Is the regional economic story -- the regional integration story prominent? Is IPEF something that people are thinking are about a lot in Taipei right now? Oh, I think that we have you on mute again.

MS. LIN: I think having some kind of regional and global role for Taiwan formally is the most important issue for Taiwan today. If you look forward, there is no doubt. Where is the next TSMC for Taiwan? It is not going to be able to rely on the ICT Acceptor forever, and there was an excellent interview might recommend to the audience that you did with Morris Strong last month, I think. And basically, he said, you know, the United States basically went towards financialization. So, there are no manufacturing talent. And I would say the same now. Taiwan -- I've written about this needs to diversify. All of its talent goes into hardware manufacturing and if it goes on like this for the next few decades when the cycle changes, of course 5 nanometer chips will be made in Taiwan for a very long time. But the 20 nanometer chips that are made for the automobile industry will eventually go to lower cost foundries and where will we go after that. I think that's having a free trade agreement and being in a regional partnership is very important but there is very pessimistic on this. I think that with China's importance today I think very few people realistically believe

Taiwan is going to join any of these organizations -- these framework agreements or multi-lateral agreements anytime soon. Therefore, I think it's very important for Taiwan to look for bilateral opportunities. Some opportunities seem to be prominent but even with the U.S. is taking far longer to move to the next step, and I think without doing so Taiwan is not going to be able to sustain its leadership economically in terms of cultivating talent, having innovation, and having economic flexibility so that if you look at the decoupling what it really means is the Taiwanese foundries and the manufacturing sites are going to have to spend more as they move to trusted sites outside of China. And will they be able to pass on that cost to the consumers, to also fight inflation. All of these things are huge challenges for Taiwan in the medium and long-term.

MR. HASS: Thank you. So, what I'm hearing from you and Matt that standing still for Taiwan is in essence moving backwards because the regional economic integration story is lowering costs of production and other competitive economies such as South Korea that compete with Taiwan, and the opportunities may exist in a bilateral context, but they will be tougher to realize in a multilateral context. So given that, where do you see opportunities for progress on a bilateral basis with Taiwan.

MR. GOODMAN: Yeah, well I think that's the -- that's the obvious alternative for U.S. and Taiwan to consider which is a -- because the problem for Taiwan joining IPEF -- we didn't -- I didn't say this explicitly but, you know, again all the other countries in the region are going to feel uncomfortable pulling Taiwan into that if the U.S. invites Taiwan and because it will be seen as an anti-China block and so I think in practice the U.S. is not going to invite Taiwan. So, they need to do something else. I think we could now really seriously look at a bilateral trade agreement in a way that wasn't true in the past, and that's partly because Taiwan has made some difficult decisions, you know, the agricultural market access questions like Topamine if you want to look that up. On Google you can see the whole sordid history of that issue over many years. That may have been put on the side and that gives a new opportunity for us to really engage between the U.S.

and Taiwan to try to negotiate an agreement that I think would be, you know, would be doable on the merits and would also I think get -- pass muster if you look at, you know the 200 members of the House of Representatives signed a letter saying Taiwan should be in IPEF and others who have written about, you know, we should do a bilateral trade agreement. So, I think that that time may be coming. Our friend and a colleague Kurt Tong just wrote a piece that I recommend to people in the Hill Magazine in the last couple of days advocating for that and saying Congress should mandate that if the Administration doesn't jump on that.

MR. HASS: All right. We there does seem to be a mismatch between the strategic focus on Taiwan and the economic malaise as it relates to our policy orientation towards Taiwan. So, I certainly commend the idea of aligning both the strategic economic concerns because at the end of the day economic competitiveness is the foundation upon which security is built. Shirley, did you want to come in on this at all?

MS. LIN: Yes. So, I was going to -- you can see my head moving on the screen. Yeh, I think that it's really important to note the credibility of the United States as I'm sitting in Taipei today. So, talent seems to be more and more important in terms of both a strategic importance after Ukraine, as well as its economic importance since the semiconductor cycle has been in his favor for the last few years. But several things have to be changed and I think that it's really important for the United States to think as Ryan has just said about really putting in money where your mouth is, and to fortify this relationship to strengthen its ability to reduce any risks, and of any kind of conflict. I think first is that since Ukraine happened young people want to fight and defend Taiwan more than ever surveys have shown. But that doesn't really mean they can do so even if they have the resolve, and this is the younger generation. But second is the U.S. since Ukraine and Afghanistan has less credibility in Taiwan that has also been shown in a very recent survey. So, people feel less and less safe about U.S. coming to help if there is going to be conflict. And what that means is clearly Taiwan is even more polarized than ever, and this is all to get back to the

treaty agreement part. I think it's very important to strengthen the relationship with real action and opening doors so that talent can be part of the global economy which it really formally has not been, and the town was being more polarized means any time somebody talks about, for example, joining last week's COVID summit, you know, is this another political sort of ploy. What is it going to do for Taiwan realistically? And so any kind of opening, for example, that Matt talked about of pork and beef to allow Taiwanese to move closer to some kind of trade deal, obviously has its detractors here in Taiwan, and I think that to make Taiwan more resilient requires both will as well as the ability and that's economic competitiveness.

MR. HASS: Right. Thank you. When Matt was talking about rat Topamine there were a lot of people in our audience here who were nodding and understanding. I think that as a collective group we've learned a lot more about rat Topamine than we ever thought we would. Yun, security issues were brought up a moment ago and I wanted to see if I could get you to help us unpack some of the stories that we've all been reading in the media. There's been a narrative about Ukraine today, Taiwan tomorrow. What do you see as some of the impacts of the situation in Ukraine for Taiwan's security situation?

MS. SUN: Well, that's a great question, Ryan. So, with what you just described Ukraine today power tomorrow I think as a part of the Chinese psychological campaign or like the psychological warfare campaign there's actually another part of which is Afghanistan yesterday. So, it seems they're pretty much pointing to a dark direction where Taiwan will be abandoned which is in line with the Chinese desired approach to unification actually lies. But from the war in Ukraine, it seems the Chinese are learning a lot of lessons. The war is not over, so the assessment is still ongoing, but I would say the first lesson the Chinese has learned in fact is peaceful unification should still be the preferred approach. Because having witnessed economic strategic, -- what they call an internal action or cause of the war in Ukraine, Russia. The Chinese are forced to reexamine the pros and cons and costs and benefits of military invasion of Taiwan, and the consequences

of the war with the U.S. and its allies. But there is a war a lot of Chinese draws, computers especially from the POS strategists draws a conclusion from the Russian war in Ukraine which is about priority should we strike a swift and decisive military victory in the event of the military takeover of Taiwan, and not let the war to protract. So, basically have a swift and decisive military victory you will even means massive mobilization of the Chinese forces including strategist forces has become a desired priority from the Chinese perspective basically do not let itself get dragged into a quagmire and bleed out like Russia is today. So, in the takeaway is that overwhelming military force must be mobilized and deployed from the very beginning and invitations and distractions — material distractions and casualties could be significant. So, these are on the strategic level, I think. On the tactical level there are also a lot of lessons the Chinese are discussing internally, for example, the need for better mobilization of troops and better mobilization of logistical supplies with the -- from the Russian experience, the Russian failure to decapitate from the very beginning. So, basically leaving the Ukraine leaders to operate throughout the war that's another lesson learned. There's also a lesson learned about the Russian failure to destroy infrastructure including water, power, gas, communications, and transportation infrastructure. Again, when the world basically had followed the war on the computer because Ukrainians were posting photos of Russian equipment and Russian troop positions on social media that does not really help the Russian campaign as seen the -- the Chinese saw that very clearly. And last but not least I would say on technical level the Chinese also observed that the failure of Russia to fight a model war based on high technology such as AI, facial recognition, drones, satellite imagery, (inaudible) strikes including cyber warfare. So, the Russian traditional military doctrine focused on territorial occupation by tanks is incredibly outdated. Two more lessons that the Chinese have learned. The first one is about ancillary intervention. Not direct or military intervention that is through military and land military means that basically is international sanctions post Russia which the Chinese in the past didn't think would amount to this significant of a factor but now I think they're trying to grapple that what is — grapple

with the fact that the act internal sanctions especially by a coalition of block coalition of States could induce significant loss and damages that the Chinese cannot just ignore. Last but not least, the Chinese conclusion, China needs more nuclear deterrents to prevent the U.S. and Japan from intervening militarily in a (inaudible) agency. And this thing is particularly worth mentioning that the concept of Japan -- Japan's potential military intervention in the case of Taiwan would invoke tremendous Chinese reactions. So, the fact that Chinese are building more nuclear warheads and it has its nuclear arsenals and the numbers that had been circulated back with Sinjin is assault nuclear warheads. I think that's the Chinese way of building up its nuclear deterrents against potential intervention. So that the Chinese lessons learned. I think for the Taiwanese, I think the lessons are two of two aspects. The first one is to Yun Hing's security corporation. There's absolutely the need of enhanced security corporation with United States and its allies. And on the other hand, Taiwan also needs to strengthen its territorial defense by itself. So, for the -- there had been some wavering or some doubts about the confidence in the U.S. determination to -- was the U.S. aware to defend Taiwan just looking from Ukraine, and I think the Washington has taken a number of moves to review and mitigate that local confidence including the allegation by the former national -- senior national security officials to Taiwan beginning of March and also the most recently revised fact sheet about a U.S.-Taiwan relations just from the framing and the wording you could -- you could see that the U.S. is trying to gain -- trying to -- or, he has a copy that's not Taiwanese -- about the U.S. commitment. And honestly from what we are observing here in Washington and Ryan you know this much better than I do, I think in today's circumstances there is indeed a military contingency that mainland in west Taiwan is unlikely -- it's highly unlikely, it's almost unthinkable that U.S. will sit aside and not intervene. But how to intervene, how the intervention will cut out whether its direct or indirect, whether its U.S. sending troops or mobilization of U.S. allies to -- or to militarily intervene, or this is military intervention or that military intervention I think all those are still being deliberated. Then secondly, the aspect of the self-defense since Taiwan also

has a lot of lessons that they learned from Ukraine especially in terms of local resistance, and in terms of the asymmetrical capability. So, those are all lessons that should be -- to be examined down the road. Thank you.

MR. HASS: Thank you, Yun. So, we've talked about COVID, we've talked about war, but I want to talk about risks as it relates to Taiwan's economy. How do we evaluate risks properly because its corporations, investors and talented individuals make choices about where to deploy their capital and their talent? They must evaluate risk. So what advice, first Matt, then Shirley and Yun. Do you have for those trying to right-size risk in the Taiwan Strait right now?

MR. GOODMAN: Oh boy. If I really could answer that question I'd be back working at Goldman-Sachs with Shirley and making more money but I -- look, I mean Taiwan is a big economy, a strong economy. It has incredible capabilities, you know, in semiconductors and beyond and increasingly, you know, in other things and new types of machinery and other capabilities. So, I think -- I think Taiwan is an -- such an important economy that you have to be -- you have to be considering opportunities economically if you're broadly engaged in any of those sectors or in an economy -- just a large economy in the Pacific region. But it obviously there are these economic risks that are out there slowing Chinese economy, supply chain disruptions, inflation, and. So, that's one thing that I think you have to bear in mind because that's going to have a serious impact on Taiwan, and the geopolitical risks certainly, you know, I'm leery of kind of getting into sort of, you know, projecting sort of what's going to happen in the Taiwan Strait over the next, you know, five to ten years but, you know, smart people like you who I occasionally talk to or read, you know, seemed to say that there is a, you know, a real risk that there is going to be some sort of disruptive, you know, political security event in that part of the world and I think that has to be factored in, and I think that all suggests that, you know, you want to engage with Taiwan, you want to be there but you want to hedge as well and have other options. But that's probably the best I can do without getting paid more.

MR. HASS: Shirley.

MS. LIN: Well, Matt on that note I would say that I -- I'm a little bit more positive about my recommendation and that is buy and that's because the fact is as Morris Cheng said to Ryan in the interview, if there's war in the Taiwan Strait, we have a lot more to worry about than just chips. So, I think that's right. Basically, I think the risk of Taiwan becoming involved in a conflict as Yun has just said is quite low, but the bigger risk as you see in China today it's self-inflicted which is basically poor governance. And so, without being a forest into the situation, China has become economically so weak, weakening this year, and I think that's where Taiwan is -- is really a highlight. First of all, there's a large part of the supply chain that instead of trying to move away from Taiwan, that would just mean increased costs to American consumers and corporations. And I think if you think about sort of onshoring in these manufacturing jobs that's one thing but to -- for the risk in Taiwan is that it could score on goal. If it doesn't govern properly in terms of the new pandemic variant, and I think that what you see is a stable democracy with very, very robust institutions that have been quite agile in terms of public policy, and while the world has now been really hurt by rising raw material costs. Taiwan actually has managed quite well. If you look into the details of raw materials sort of sources the supply chain is really most effective by China, not by actually the other factors that re affecting all the other countries since February 24th. So, I think Taiwan in terms of being able to protect his people in promoting public health and also promoting economic vitality and most importantly in the long term it's also trying to change its energy source. I think actually that's a bigger threat to try to achieve net zero and to move into a new 60 percent from 45 percent coal, and 36 percent gas. This is a huge challenge. Talent has these long-term challenges that I would say to investors, if you're going to put a plant there and be long on Taiwan you want to make sure that it can govern properly -- these three sorts of pillars, the environment, the economy and public health, and I think so far Talent has done really well and that in needs of course more, it needs to be sustained. And so actually as Ryan says, I've been volunteering my

time to start a think tank. It just got formed today. It's called a Center for Asia-Pacific Resilience and Innovation, and I think resilience is the key that under the pandemic no one is spared and hopefully talent can come through it and actually provide the world continues to be a strong manufacturing center for the rest of the world.

MR. HASS: Good. Thank you.

MS. SUN: Thank you, Ryan. I think from the political and security aspect that seems first of all we need to define the risk of what. Is it a risk of Chinese invasion or is it the Chinese demonstration of force in the direction of coercion? So, are we talking about the real invasion of Taiwan or something else? So, I think that is I would say the foremost question that we're trying to deliberate because as a result of the war in Ukraine by Russia I think the Chinese schedule even if that there was a plan to use force on Taiwan in the immediate future, which I don't believe there was, this plan will have already been postponed for another -- I would say another five years at the minimum. So, that's -- I think that's the most important takeaway that when we assess a risk associated to Taiwan, I think mostly people talk about why Mainland is going to unite Taiwan tomorrow morning. Well, we need to look at the details and look at the indicators as for whether that is really true, because one, I think people do -- if you think about it the mobilization of troops by China is all observable suicidal act. So, for China to have a surprise attack on Taiwan is almost impossible. And I think for the Chinese if they want to invade Taiwan the weather conditions especially with the monsoon season and also the tide of the Taiwan Strait is that they also have to collaborate which means there are very limited windows for the Chinese to actually invade Taiwan if you think about how, you know, (speaking foreign language) east Taiwan was using the tide to basically launch its attack. So, there's a timing question and there is a mobilization question. The stealth factor, the secrecy is almost a not possible in this case. So, looking at the risk of the Chinese military use of force on Taiwan, I think there's a couple of things that we should -- we could follow in terms of the signals. Then, I would say that two factors I would also watch is internal politics in China of course and also internal politics

in Taiwan. In terms of the internal politics in China, I think contrary to people's belief that an unstable of -- China at its internally unstable will be more prone to aggressive behaviors towards Taiwan. Actually, they'll believe that it's true. For the Chinese leaders if you follow the Chinese political philosophy when China is unstable internally, they will seek stability externally because they want to avoid the situation where the leader is faced with like the two-front war both internal and external. So, in terms of Taiwan's domestic politics, Taiwan is going to have an election in 2024. Who will be the candidates? Before the election I think also means a lot for the future trajectory of the cross-Strait relations. Thank you, Ryan.

MR. HASS: Well, thank you. I have many more questions, but I promised our audience I wouldn't monopolize the conversation with my own questions. I want to offer then an opportunity to ask their questions as well. I have a question that came in virtually that I will ask first, and while I do so I will give our live audience an opportunity to prepare any questions that they have. One word that has not come up in our conversation is decoupling. Lawrence Chevalier, the Taiwan representative for Total Energies asked, how is Taiwan exposed to U.S. decoupling from China? Matt, do you want to answer first.

MR. GOODMAN: Well, it is exposed and, you know, decoupling I think is as I said, I think until a few months ago I would have said decoupling was going to be a pretty narrow targeted specific issue in certain, you know technology related or financial related interactions between the U.S. and China. I mean, I'd say maybe that space for decoupling has widened a little bit post Ukraine, and, you know, because in a way I think it's reinforced mood in Capital Hill about the risks of China specifically and more broadly authoritarian regimes disrupting the global order and the desire to, you know, be less interdependent with China I think is the mood on the Hill and I think that suggests a little bit more action to broaden the decoupling story. But -- and that's going to, you know, that's going to present challenges for Taiwan because of its integration with the mainland and its, you know, the U.S. being ultimately one of the big sources of demand for a lot of the things that Taiwan makes that run through China. So, I think if we decouple from China it's going to have

implications and I do think that's something Taiwan needs to worry about. I also think there's going to be, you know, some desired -- back to my sort of hedging point -- I think as U.S. policymakers look at the, you know, our tremendous dependency in certain areas for certain things, I think Taiwan's control of, you know, 90 percent of the market for high-end semiconductors is definitely going to be something people are going to look at and they're going to be looking at sort of trying to diversify supply and I think that indirectly is part of the sort of decoupling story broadly defined. So, it's something that Taiwan I think got to worry about.

MS. LIN: I'll follow on that, Matt. I think it's a very director story, not at all indirect, and I would say I did mention decoupling was the first thing I said. So, it's very much as I said in the first part of the decoupling, there were some opportunities. I think overall now that it's gone on for a few years, it's clear that the costs are very, very heavy and outweigh the opportunities. But overall, the decoupling costs for these imposed on U.S. taxpayers first and foremost. And I think that this is something quite important. Of course, it hurts talents to private section which does not even have control of where this is going. So, the semiconductor companies for example, they also to China and the fact that, you know, the United States decides who we can sell to in China, who we cannot, and what content. These are important as in many other industries which are -- you know, many other industries are squeezed because the Chinese of course have their counter-policy so domestic content requirement. So, I think the private sector is very much squeezed here but for Taiwan the longer-term trend, of course while there are costs in terms of the longer-term trend, Taiwan is a trusted partner with protection of intellectual property rights. So, of course there are opportunities in the long term, but the short-term pain is for going to bear including the increased costs of moving away from China which, by the way, we must remember the Taiwanese went there 30 years ago to cost down, and so moving away of course, is in its costs and the question is whose paying for this cost?

MR. HASS: Thank you. We have time for questions from our audience

that'd like to take two or three if we can in order and then we will give our panelists and opportunity for final thoughts. Jason.

MR. SHUE: Thank you Ryan and thank you Shirley, Yun, and Matt for the wonderful panel. Jason Shue (phonetic) here former legislator from Taiwan and now a senior Fellow at Harvard Kennedy School, looking at semiconductor and supply chain issues quite deeply. My question is regarding to self-resiliency and the flip side of resiliency is dependence. If you look at today's Taiwan economy as our panelist noted, it's actually quite dependent upon China. So, in 2021 it was 136 billion, its 43 percent of total trade volume with China. And so, I was wondering if panelists can elaborate on the details of self-resiliency on the parts. I think you've all indicated the issues which are quite obvious but if you were to draw or to devise a plan for self-resiliency what would that look like? On the issues of the tech supply chain, the energy, and the trade? Thank you.

MR. HASS: Thank you. If you can I will remind you of the questions colleagues in a moment, but I want to give June and Michael a chance to offer their questions and then we'll do one round of responses.

MS. PARK: Thank you, Ryan for the opportunity. Thanks Brookings and all the panelists who are working on this panel. My name is June Park and I'm a political economist currently at Princeton University. My question is basically on semiconductors and TSMC regarding decoupling and moving to other countries for fabrication. I am wondering whether the move to Germany and Japan, although they may not be state of the arts, were intended basically by TSMC or with some strong arming from the United States, this is very important to understand where this direction is going and to what extent it will expand beyond Germany and Japan. And additionally I would just like to ask Matt what he thinks of South Korea's move towards CPTPP. Thanks.

MR. HASS: Okay. Michael Fontaine.

MR. FONTE: Thanks very much, Ryan and thanks to the panelists. Great to see everybody in person here. My name's Mike Fonte, I work for the DPP here in

Washington as the Director of their mission. Wanted to ask Shirley if she would spin out a little bit more what she meant by the increased polarization in Taiwan, how that manifests itself and what the impact might be?

MR. HASS: Thank you. So, I propose that we start with Shirley, then Yun, then Matt for the final words. You can pick up any of these questions as you like. The first question from Jason Shue was about self-reliance in technology, how would this play out. June asked about semiconductor supply chain diversification, moving production to Germany and Japan, where is it all going with the add on question for Matt about create a CPTPP membership. And then the third question was about polarization, domestic politics in Taiwan. Shirley, over to you.

MS. LIN: Oh, Ryan. Okay, sorry. The voice is coming sort of getting cut off. I heard parts of it, but I heard Michael Fonte very clearly so I'm going to address that first, and its domestic politics issue. I think the polarization in Taiwan is very much generationally divided, and so it is a very -- very worrying and trying. And among the older generation there is a real fear of course of being abandoned by the United States or that they are on the wrong side of China especially those whose livelihood depend on actually -- on China. And there is a large segment of that while the rhetoric of course is that Taiwan stands with the United States on many issues, and this is where I think that the younger generation who are not as involved with China also who have been raised in a very different environment are very, very supportive but whenever, for example, the Ukraine situation has of course really provoked a very robust debate here. But at the same time I would say that the support from the DPP is going to continue and if I would -- could touch on what Yun said about election next year I think that the trend is that there is the opposition to the DPP currently is not very strong, and this is of course also a very big issue in terms of governance in that there are no real clear challenges except one more thing is of course the leading cities in Taiwan are run by mayors of three different parties. So, this makes the political competition very, very severe, -- very interesting to watch but I would say the younger

generations are leaning brutally very much to one side and I think that there are different layers of the older generation being divided. On the other two questions on semiconductor, I'm going to leave time for my two panelists, but I was just saying that everybody now in the world wants a foundry. There is no country that doesn't want its own foundry. And I think it's a myth to think that you can just move, you know, invest in a foundry, and move the entire cluster of upstream and downstream to, let me now pick a country. That would be terrible for me to raise an example, places that could not be for example, Arizona, but we — I think that, you know, everybody's very clear about the tremendous from talent all the way to sort of downstream including testing and packaging and I think China wanting to go self-reliance not just in semiconductor but in other industries will, of course create a dilemma for a multi-national corporation, not just for Taiwan.

MR. HASS: Thank you. Yun, and I should mention — I'm sorry — let's try to be brief and courtesy to the next panel.

MS. SUN: Okay. Just very quickly. If we use China as an example and it could be a terrible example. You look at China's reactions to the decoupling and China's reaction which is a perception that decoupling and the U.S. strategic competition is creating this tremendous national security threat to China, I would say that maybe in the end it's not an option, that Taiwan will have to strive for more self-reliance and independence on itself. That there has to be treat between security and economic benefits. Sometimes you have to — well, it's not a black or white choice — not one over the other but the percentage or the extent that you will still rely on for -- that rely on the United States for high type products that has to be curtailed. And remember mainland China's policy towards Taiwan especially in terms of the economic benefits that it gives Taiwan is predicated — it's pre-conditioned upon the final scenario that there will be unification. That's a part of the mainland's strategy to strike — to send that this much economic benefits to Taiwan in order to make unification an appealing scenario to the Taiwanese people. The Taiwanese people don't find it appealing to reunite with Chinese Communist Party dominant in China. But it also means that if we

remove that precondition, I think mainland China's policy is possible and will change significantly. So, for Taiwan it may not be a matter of choice in the end. Thank you.

MR. HASS: Thank you.

MR. GOODMAN: Just very briefly on Korea. I think the new Yun administration will aggressively pursue membership in CPCTPP and other arrangements including IPEF. They're going to want to be part of maybe DEPA the digital economy partnership agreement. I think that's going to be a mark of this new administration. They're going to want to be more involved in regional economic arrangements as well as probably political and security affairs. So, I do expect then so Taiwan should be because every time I talk to anybody in Taiwan, they always ask me about Korea, so I assume that that's a real issue that people should be I think, planning for. And then on the other -- I think we can defer maybe to the next panel a little bit more about the specifics of self-reliance and semiconductors, but just to say to echo something or to foot-stomp something that Shirley said about costs. I mean, you know, this move to decouple or deglobalize or to shift foundries from Taiwan to other places is going to be expensive, and I think we, you know, we've seen with Ukraine that the cost of trying to disengage on one or two commodities is a cost that, you know, if you're paying \$5 a -- a lot of reasons you're paying \$5 a gallon for gas but the pain that that's causing or look at what's happening in Germany or other places, you know, is a sign that I think we haven't fully analyzed or explained what -- how expensive this is going to all be. And so, you know, I think a little bit of insurance paying, you know, we pay insurance on our house or our car, or life as a cost to protect ourselves against, you know, unforeseen incidents. I think risks in the world has increased and we're going to all have to pay a little more insurance. Fair enough, but I think some of the things that are being talked about just reallocate production and supply chains around the world, you know it's going to be very expensive, and I wonder if ultimately as Shirley said, the U.S. taxpayer or consumer is going to -- how they're going to feel about that at the end of the day, and they don't know yet what's about to hit them. So, I think we need to think about that as we talk about any of

these issues.

MR. HASS: Well, this has been an incredibly rich conversation. Thank you to Matt, Shirley, and Yun for guiding us through and sharing a diversity of perspectives. We've heard a hedge call, a bicall given the resilience and innovation of Taiwan, as well as a call to interrogate assumptions about the imminence of conflict in the Taiwan Strait. So, thank you very much. Please standby as we transition to our next panel. (Applause)

MR. HAMMOND-CHAMBERS: Good morning. My name is Rupert Hammond-Chambers. I'm president of the U.S.-Taiwan Business Counsel. The Council is a nonprofit trade association funded by our members, and we have been in existence since 1976. It's an absolute pleasure this morning to co-host this event with Brookings Institute and Ryan and his excellent program that he runs. That was just an outstanding hour, Ryan with you and Matt, Shirley and Yun are really top-notch as to be expected.

I've never been one to say that some of the thunder was stolen because there's literally so much for us to talk about on this critical issue. No more so important today than in years gone by, Taiwan is an issue and America's national interest has just continued to rise. And for we are — relatively we are in with 24 million people on it. It is extraordinarily important at all levels of American national interest and one that we can and should pay a great deal of attention to intellectually but as a practical matter to engage in practical ways where American citizens are educated on — not just educated but where a discussion is formulated within our country on what is and isn't important and how we should deploy resources accordingly to ensure that our national interest is well-represented.

We've talked about a wee bit with Ryan on the military side of things. We touched on the econ side of things and of course on trade. Trade for us is a deeply frustrating area because it has been a lagging indicator not a leading indicator. I should say trade — not necessarily trade — that's — that's so old but trade liberalization is a mechanism for engagement has been a lagging indicator. And it's certainly not a bipartisan and that is a criticism by the way, not a bipartisan criticism. We have struggled under Republican and

Democratic administrations to place trade liberalization and engagement with Taiwan at the forefront of our relationship. Surely, there are many responsible for that -- institutions, individuals, so on, that's not today's discussion but nevertheless it certainly has been a massively missed opportunity. Getting Taiwan as involved economically in the global economy and raising the economic space for as many countries as is possible vest then in peace and security in the Taiwan Strait and the ongoing viability of Taiwan is a critical trading partner for the world.

I thought that Ryan's interview with Morris was superb, and I really do want to hammer a nail that came up twice in the last session that an attack on Taiwan isn't just a threat to the semiconductor industry, it's a global economic catastrophe, and I'm not being overly dramatic. It is. The domino effect is not isolated and I'm not saying the war in Ukraine is isolated. I don't wish to be cavalier on that front, but I am saying that the economic states with Taiwan are massively more significant and should -- God forbid -- should a conflict occur whatever that means in which Taiwan is cut off from the global economy not just necessarily a D-Day style attack, that the economic domino effect would be really significant. Taiwan, of course, is a multi-billion market -- a multi-billion-dollar market for American companies and Taiwan companies and both sides of the Pacific they represent partners for one another in servicing the global supply chain. As we noted in the invitation that we pushed out the supply chain is looking at pushing beyond cost and convenience as the primary drivers for engagements. That, of course, pushed us in my opinion, overly -- we became overly reliant on a single area, mostly China for manufacturing and now there's a moment but not in the minute, but over a period of time in which we've come to realize that adjustments need to be made. Well, what does that look like. What roles should the government play. What roles should leading companies like MediaTek, Qualcomm and others play in that adjustment to ensure that the equities are best represented for the -- all the important players. Disruption in the supply chain is an enormous public policy consideration as we have seen during COVID. It can have

significant health effects for us individually, for our families, for our communities and for our countries. It can also have the -- an impact on a more material level should you need a new car, and some other platform or device that improves the quality of your life and parts for that platform or device cannot be procured because there is disruption for whatever reason. So, these are ongoing, pressing concerns international level and at a practical and individual level. And one in which we're seeing in our newspaper and however we consume information on a daily basis. So, that's sort of a primer. I regret that Maryam sadly is not going to be able to join us this morning. She has COVID in her house and I think, you know, we've all probably been touched by COVID. It's in some way or form over the last several years so, we just -- I think have empathy for Maryam and hope that everything is fine for her. But that does not mean that we don't have an A-team to my left, we do. We have Julie Welch with Qualcomm and Patrick Wilson with MediaTek. Julie has been at Qualcomm for close to 20 years. She's a Vice-President of Government Affairs. She has done -- spent a good chunk of that period out in the region both with her family of course and working with Qualcomm out of Hong Kong, and recently returned or relatively recently return here to the States. A deeply experienced regional executive with a view around the region of Qualcomm's interest with all their primary markets in the Asia-Pacific region, and those partners. Julie attended Virginia Tech and the University of Maryland. And Patrick is Vice-President at MediaTek. MediaTek is one of Taiwan's most important technology companies. By any standard globally MediaTek is an important company but when I think about the top companies in Taiwan, MediaTek is immediately on that list. It's a leader in the global semiconductor world. It is important because Taiwan --also important because Taiwan has traditionally struggled to create a broader number of companies with a globally recognized brand, globally recognized IP that compete at a global level. We are seeing that now change and MediaTek is a big part of the sharp end of that spear. Patrick was previously at the Department of Commerce with several other companies and also did a stint in the U.S. Congress. He was also served in the National Guard for a number of years, and like my

youngest daughter, he attended the University of Denver which is excellent -- a very good school. Julie, I'd love it if you could share a few comments with us to get things going, and then Patrick and we'll get some Q and A going.

MS. WELCH: Sure. Thank you, Rupert. I -- well, would just -- thank you for the opportunity to be here today and talk about this very important topic. I fully agree with you the impact of -- on Taiwan is a global issue and it's given the great work Taiwan's done over the past 20 or so years to build and develop its semiconductor ecosystem, you know, it really should be praised and, you know, in many ways for how it has developed human capital and talent, welcomed foreign companies and investment, and created these incentives for R&D and innovation. And so, you know, it has worked very hard to get where it is. But I will say that I'm happy that the panel this morning did not focus entirely on manufacturing because I will say there is another very important piece of this discussion and that is around the design -- the design companies, like MTK and Qualcomm. Important parts of the security, as well as the functionality are set in the design phase, and so we need to keep that in mind, you know, in this discussion about the need for greater geographical diversification in manufacturing. So, and, you know, honestly it is -- it's been a win-win partnership amongst the design companies and the foundries. You need -- the foundries need companies with scale to be able to -- to be able to drive their production. They need companies with demands at the leading edge of technology and to be able to work together and partner to develop that expertise at the leading edge. And so, this has been a, you know, a great mark of success and we, the private industry, have been working with Taiwan and other countries in East Asia pretty successfully over the past 20 years and that's how the supply chains have evolved. There is great amount of global inter-dependents and they've evolved to maximize these efficiencies. Any large number of raw materials components final products traverse multiple borders -- country borders before, you know, the final product can be made. So, it is definitely a globally interlinked supply chain of which, you know, Taiwan retains a critical link. So, I'll stop there.

MR. HAMMOND-CHAMBERS: Patrick, perhaps you'd like to offer some opening thoughts.

MR. WILSON: Well, thank you very much, Rupert and Ryan. Thank you very much for convening this discussion today. I found the first hour incredibly beneficial as a public policy person ready to hear some wise advice. One thing I was really taken by was Shirley's very positive note about Taiwan and I think that being an American working for a Taiwanese company, investing in the U.S., the one thing I took away from that is that Taiwan is like the undisputed winner of an incredibly difficult time. The topic that you guys chose for our forum today about Taiwan and resiliency and coping with crisis, it's important I think to bring a little perspective to the period we're just coming out of. In the whole history of the semiconductor industry, roughly 50 or 60 years, growth in our industry are companies -- we're 25 years old this year so we're trying to catch up with Qualcomm, but the plan is right, we had to deal with an incredibly out of history moment over the last three years. The semiconductor industry basically has been a management challenge of irregular growth and expansion because while America sometimes was killing it and our consumer market was booming, Europe was in the doldrums and Africa was behind, and Asia was in contraction. And this irregular growth was an incredible management challenge for every semiconductor company, if you think about the real challenge of being a TSMC or any manufacturer during this irregular growth period which is so hard because the calls were so big, really huge billion-dollar decisions about where to do manufacturing, and oh by the way, as we would say as an artillery officer, you have to hit the target in flight. Build today for a market that you hope will be there in four years. I mean, it's a maddening little industry that we're getting more respect now, but that management challenge is incredible. So, here it is we just lived through this period where it was not irregular, right. Think about that. Every jurisdiction in the world at the same moment in history had a hundred percent increase in demand for connected devices of every kind, everywhere, everyone needed to be connected. So, you've got kids in school in India and Europe and America and Africa and everywhere, right,

all having to be connected, they all wanted a new device, they all needed to do Wi-Fi, they all wanted a Chromebook, they all -- you know, which was great for us. We've -- we've lost our bone to think with. What I wanted to not lose is that through all of that in the middle of a, you know, terrible pandemic that lots of countries were struggling to solve, Taiwan did that, right, with a hundred percent increase in production year over year, right. And it's just -- it's a remarkable story that we shouldn't lose sight of that they were able to do that and then tie it back again to something that was said in the previous panel is that there is a premium in the marketplace for good governance, and that's the thing that Taiwan has demonstrated and I would say the reason I'm bullish on Taiwan as a place to invest is that the stark contrast between creativity and good government and stability that Taiwan presents, right. The value of it just keeps going up, right. When you have better, more demonstrated examples of bad government whether that's dysfunctional Congress here or, you know, the problem and crisis in Ukraine or in China, as they look more problematic and risky, Taiwan being a stable successful democratic society, the benefit of that by comparison really goes up and I think that's the one thing for us as we look to grow and invest MediaTek is still continuing to grow at a really excellent clip and part of the reason for that right, is we're becoming a global company, right. We're less dependent on Taiwan, we're more globally focused and I think that is the real trick that as a company we're all trying to figure out, right, is how do we go from being a Taiwanese company operating globally, right, which is kind of the phase we have been in for a while, to being a global company that happens to be headquartered in Taiwan, right. So, that's a big philosophical change for us, right, where we see, you know, all opportunities wherever they are in the world, and while Taiwan will continue to remain a great headquarters, a great place to be invested, one of the best workforces in the work for a semiconductor. We look everywhere else too because this is a global company and we need to make those calls about where to deploy capital and for a fabless company is like us, you know, we don't get those cool big check moments, right, where you get to make a \$15 billion investment in a particular geography right, or you get to

be a hero. But for us it's just slow progress to tell our story, attract brilliant people to come and solve problems in our company, and that's where we're going to do it, right and hopefully, you know, for me, I tell this story to politicians here in Washington all the time that, you know, we want to grow here. We've got to make more engineers here and that's the same story everywhere whether it's Japan or Europe or anywhere, right, it's this race for talent and we'll talk more about that today, but I would say -- I would be remiss if I didn't say when Taiwan has been so successful it really is because they cultivated this wonderful talent that was able to put them at the very top of the market and to withstand this really historic out-of-history moment for the semiconductor industry.

MR. HAMMOND-CHAMBERS: You bring very own message, Patrick, and the time I've set and had the privilege of knowing you on this issue. I mean, I think talent of course, and it should remain at the forefront of all government policy and ensuring that we have the workforce necessary to meet the demands of our companies, whatever those might be, whether it's the cutting edge of technology or frankly whether it's producing welders who are competent and capable of doing work along those lines. We need technical skills and that can be broadly interpreted across the economy. About 20 years ago an Aussie bloke wrote a book called, Silicon Shield. For those of us who've dived in, some of you may have even read it. I know I have; I know my colleagues over there have. It's certainly a term now that we're seeing a wee bit more in public coverage on Taiwan that this notion that Taiwan's prowess in the semiconductor industry is so significant that it offers a shield because if you accept the premise that if there's a disruption in the chips space Taiwan's dominance in high-end chip manufacturing and the domino effect that that disruption would have, would have a catastrophic economic impact including on China but it would deter the Chinese from attacking. There are some who were chafing on that and some who fully embrace it. I would note that while the United States -- while we're seeing a surge in industrial policy, the United States has allocated I think in the -- it's not called chits from America anymore, it's moved through two or three iterations, but there's about \$52 or \$53 billion dollars in there for

semiconductor companies. The Capex commitment for TSMC over this three-year period is a hundred billion dollars. So even the largest economy in the world, the United States allocating money to a critical space still pales in comparison to the kind of resources that companies are bringing to bear to serve the interests of their partner companies in ensuring to Patrick's point that they have the capacity they need three, four years down the line. And that's, you know, -- that's the kind of commitment and leap of faith. But back to the two of you. How did the two of you think about this notion of Silicon Shield? Is Taiwan semiconductor industry a Silicon Shield, and how do you think Julie, of course in your prior, you know, when you were living in Hong Kong, and you were moving around the region on a weekly basis? Is divestment even regionally a reasonable solution here. So how do you think about Silicon Shield and how do you think about where it goes?

MS. WELCH: Well, if I can start with the second question --

MR. HAMMOND-CHAMBERS: Sure.

MS. WELCH: You know, I can just repeat some of the comments that were made in the earlier panel today. Yes, I -- there is going to be some adjustment and in the global supply chains. Yes, it is going to be expensive, and yes, it is going to take time. This isn't something that you can do overnight. It takes, you know, a long time to increase capacity and it takes a lot of expertise to manufacture these wafers. And, I think on the question of the Silicon Shield, I'm going to let Patrick go first on that one. (Laughter)

MR. WILSON: Well, you know, you've got some corporate folks up here, Rupert. We're not commentators that's why we have Ryan and his colleagues around to speculate on geopolitics and, you know what the strategy, of Taiwan is. But there's -- it's undeniable, right. Taiwan is essential to global consumer electronics in every way, right. It's an essential part of the global supply chain. If I were a senior leader in Taiwan, I would take great pride in that, right. That we are essential to the world's economy, and I think that goes to the point that we heard very strongly in the earlier panel, right, that every time you navigate a question about Taiwan's political future you have to factor that in, right. The rest

of the world cannot allow, right, you know, massive disruption. We're political people. We deal, you know, a Congressman grabbed me and asked me because, you know, the foreign factory in my home town of Kansas City was closed for 10 days and it was a huge political issue right, like semiconductors, Patrick what are you going to do about that, and I'm like, well, that's not really us, sorry we can't solve your problem but imagine, right, 6,000, roughly 6,000 consumer electronics factory is just on the east coast of China depend on chips daily delivered from Taiwan, right. So, that's millions of Chinese workers who go to work in factories assembling our consumer electronics that depend on the delivery of chips, right, from our companies and thousands of other electronics companies around the world. That integration, the economy that isn't likely to change and I think the leadership in Beijing which has very sensitive that they really care about their workforce. That vulnerability of those workers, you know, that makes them have pause and I think that's one of the messages we had. So is it a Silicon Shield? I think that's something that academics can deal with. Is Taiwan essential, you know, to the global supply chain. Yes. Is Taiwan essential to China's economy. Yes, it's essential to our economy, it's essential to China's economy and that relationship that Taiwan has built with everybody's consumer electronics industry is really to its credit and again it goes back to my central argument is that the success of the liberal democracy in Asia like Taiwan, right. What they've been able to accomplish is really just so remarkable in 20 years. You think about it, you know, when I entered the political scene, you know, Taiwan wasn't yet a democracy, right and to come so quickly and to show such success, it's something that I think all people should be proud of, right and the role that they have played in this most recent crisis is just an example of that maturity, right. To be able to deal with that and the role that they play.

MR. HAMMOND-CHAMBERS: I'll take a quick question from the audience if somebody's got one? Yes, Jason

MR. SHUE: Thanks Rupert, thanks Julie, and good to see you, Patrick. My questions are related to -- well, a couple of things. When is the talent? Obviously, there's

going to be a huge shortage in talent in the years to come in the semiconductor industry. How do you foresee -- well, how do you envision Taiwan and U.S. work closely in this part to cultivate talent to ensure sustainability in talent pipeline? That's my first question. My second question is regarding to the chips, as I think Rupert has brought up, but I don't know the name it is now after several iterations.

MR. WILSON: They all do that so, yeah., through the backdoor. Whatever it is its -- we (Laughter).

MR. SHUE: So, my point is it seems to me that chips access is very focused on manufacturing, and it focuses on giving money to manufacturers. What about design. I feel design integral of the entire, you know, IC ecosystem and MediaTek and Qualcomm play very, very important roles in this part. If you were as to ensure it leading position in the global semiconductor industry, design is everything. So, I wanted you to comment on those both. Thank you.

MR. WILSON: Do you want to go first?

MS. WELCH: What's the first question?

MR. WILSON: The role for -- the competition for talent and talent shortage and how we cope with that.

MS. WELCH: Well, let me just comment on the talent piece of this, and I think there is an important mechanism that was set up between public-private -- between the governments of Taiwan and the U.S. in November last year and I might get the acronym wrong as well. TTIC someone else might have to help me -- remind me what that stands for, but there are -- it is a new platform I think where there can be greater dialog on how the two countries, public and private sector can work together and enhance their human capital development upscaling some of the talent. So, I hope that we can look at that opportunity in that platform to, you know, expand some of the cooperation exchange, university exchange, you know, around that. You know, frankly Taiwan's done a really great job. There's very -- specialized programs at a lot of the universities around semiconductor engineering,

development, so there is some work that needs to be done of course always on that. It's a challenge. So, why don't you take the second one. You're -- more your area of expertise.

MR. WILSON: Well, obviously the chips act is important to the full industry, right.

MS. WELCH: Sorry.

MR. WILSON: Fabless companies care about capacity, right. And so, we look at the trend lines, right, for technology adoption globally, what 5G is doing, the proliferation of technology. That means the whole world is going to need a lot more capacity. So, we didn't talk about this, you know, but billions of dollar calls that are being made right now about where to bear or build new capacity whether that's in Germany or whether it's in Japan or here in Arizona or Texas or New York, that capacity is just good. It's good for us, we have to fight for it, you know, so more sellers, foundry capacity, great for chip designers. The other half of that though is, I mean contained in the chip sack, right, is amazing expansion of research and development in the United States at universities, on basic research around semiconductors, materials, and devices. It does, and for my taste, you know, representing a fabless company, it probably focuses less than it ought to on developing the talent programs that we need for chip design, particularly analog and artificial intelligence, and some other key areas of focus that we'd like to see, but that's for us, right. Companies are supposed to tug on the coats of these brilliant folks who run our engineering schools and say, hey we see where this is going, you need to and certainly MediaTek, one of the -- I've only been on the job for two years but one of the things I've really been doing is spending a lot of time with higher education, right, to talk to deans of engineering schools and to others about why we need to produce more design engineers here in the U.S., and I would be remiss by the way, Rupert if I didn't talk about this massive integration in the workforce in Taiwan. I mean, I think if you just look on LinkedIn and see how many of our graduates who live in Taiwan went to American schools. I mean it's remarkable -- my Chairman, my CEO, my senior leaders, like Financial Counsel, my -- I mean like our

leadership in engineering, a lot of them are graduates of the amazing American universities. And it's also true is that our American workforce, many of them are Taiwanese-Americans who went to school in Taiwan and now work here. So that relationship is already ongoing, right. And that's just deepening and broadening that, creating more places. I often tell senators when they ask about the subject, you know, Patrick, you know, we're going to give these billions of dollars to, you know, these foundry companies, the IDM companies. You know, what's in it for you and I have to tell the story that you just heard but I also don't want to miss -- there are things that we probably could do, right. If I wanted to create the perfect incentive, I would say, you know, why don't we just pay for the college of everybody who wants to get a double E, like sorry but if we're going to put the subsidy somewhere, my apologies to Wall Street but I'm like, I would rather give, you know, a lot of fellowships to create a lot more engineers in the United States. Again, I'm biased but I think that would be fabulous. We certainly also have a problem about prioritizing chip design over manufacturing. Our engineering schools in the U.S. and this is a friendly, loving criticism, right, they tend to be a little focused, maybe on a decade ago when manufacturing was more important and so a lot of the engineers who want to pursue careers in semiconductors, they are more focused on careers in manufacturing and I'm really excited to see a change in that, but we will fight. A family member of mine -- I don't want to out them on the web here, but a family member of mine got an engineering degree from an amazing, you know, one of the top, you know, 10 engineering schools in America and I was like this is so awesome. I'm going to do a recommendation, they should totally come work for MediaTek, and, you know, he was like, you know, thanks Uncle Patrick but I, you know, I want to go design video games. And talk about like, oh, crushing, you know, I was like, yes video games are cool and I'm glad you got your double E and I'm sure it will be really fun to make it work but we'd really love to have you in the semiconductor industry. And that's our challenge, right, is we have to tell our own story as an industry and persuade young people, men and women, many people of color, people who've been outside the engineering world. We have to

explain like how cool it is to build the technology that the whole rest of the global economy rides on, right. There's nothing else cooler than that, it's the foundational technology for our whole global economy so, you know, come in the water is fine, I guess that's my --

MS. WELCH: Can I just add to that?

MR. WILSON: Go ahead, but yeah.

MS. WELCH: You know, absolutely I think one thing that, you know, the past few years have really underscored is how critically important semiconductors are to, you know, all of consumers in society and governments but, you know, with this transition now to 5G technologies we're seeing, you know, a major paradigm shift where we are now, not only connect people and places but, you know, things, devices and machines. These semiconductors are in everything. They're in cars, they're in energy grids, health care, smart city devices. So, this demand is only going to further increase. We do need to look at ways to address capacity challenges, you know, we do need to look at ways to even further, you know, develop talent further, maximize efficiencies, further collaboration amongst allies on, you know, these -- how do we minimize disruption in the future from supply shortages. One of things that -- one of the reasons this problem -- the supply challenge has been such a problem is because of the exponentially increasing demand for semiconductors, and so that is really been driving a lot of the supply challenges, is around that incredible, incredible demand.

MR. HAMMOND-CHAMBERS: Yeah. Thank you both. I just, Jason on the Taiwan end I think their periphery you see sort of very important. They're also impacting what's happening here. In Taiwan I think it -- Taiwan's immigration policies are a problem because there's a finite number of workers. It's a politically sensitive issue but it's having a practical impact on the pool of people that can be drawn upon. And there are many significant and important companies in Taiwan that people should work for but it's hard to compete against TSMC but, you know, just to put them right to the top there because of the benefits that they offer. Here in the states, we have a much larger pool of people that I

accept implicitly, the passions and eloquence that Patrick applied to university levels but underneath universities in the high schools and middle schools, education can be very political, and the math and the sciences is getting sucked into the culture wars. And that's unfortunate because again at a practical level it might deprive as you move up really good, qualified students from rising up and going into all these schools that Patrick's talking about and excelling in areas that we're discussing today. Other questions. I think I saw several over here. Yes sir, please.

SPEAKER: Thank you. My name is Thomas. I'm a statistician/civil engineer so I'm not usually privy to these types of conversations but it's been so fascinating. So, thank you to all the panelists. My question today is, I'm surprised that climate change was not discussed as a source of risk given that the manufacturing sector is so uniquely exposed to drought, seismic risks. I'm curious about your opinions on the types of headwinds that may place on your individual companies, as well as the Taiwan economy more broadly. Thank you.

MR. HAMMOND-CHAMBERS: Do either of you have a like company positions on climate change that relate to these --

MR. WILSON: Certainly. Certainly, for sustainability. I mean, I think they, I think the interesting thing about semiconductor industry, right is that we're manipulating not literally us, because we're not a manufacturing company, but in design and in manufacturing we're literally, you know, manipulating atoms. The level of design and so the control of gases and our use of energy and the careful way that is required, right to manufacture semiconductors means that focus on resource conservation, right, maximizing -- I mean just the crushing competition alone means that you have to really, really focused on conservation and efficient use of materials and equipment, et cetera. Now the vulnerability is a different question, right. Whether its seismic or whether obviously we've seen some, you know, many instances of that, right. And I think the point is right, more capacity gives you more flexibility, right and I think as the cost of these semiconductor fabs continues to go up, right.

We're looking in five years, where it's going to be \$20 billion dollars, right to build a state of the art fab or more, right and I think what the challenge of that is, you do get more vulnerable, right whenever you get more capital concentrated in a really small area. And that's the geography problem, right. Where before in the U.S. we had maybe 75, 80 fabs in all different states. I used to keep a map in my office when I was running the SIA office here of all the states where we have fabs, and many of those are gone now, right. They got consolidated to other places, they were 30 years old, and they got closed, but that geographic diversity those little, small fabs, many of them were 8-inch or smaller fabs that allowed you to spread risk around, right, but because of the economies of scale we have to make fabs much bigger and that just means concentrating more risks in a smaller number of geographies. I, you know, I'm glad I don't have to have that job to choose where to put them because it's hard, right, because the place where the talent is maybe that doesn't have enough water and if it has a lot of water or maybe it's unstable and, I mean, I'll stick to my day job.

MR. HAMMOND-CHAMBERS: Julie, any thoughts on this concern?

MS. WELCH: Yeah. No, it's very — it's a great question. You know, we announced earlier this year, you know, a series of commitments, you know, in this area and they, as we don't do a lot of manufacturing ourselves, you know, they applied to our upstream and downstream suppliers and partners as well. I wish I could remember at the moment what the commitments are but they're very public and we announced them, you know, a few months ago. So, it's been a lot of focus and attention on those exact commitments, you know.

MR. WILSON: A lot of environmental challenges for our industry are about the cycle of replacement and obsolescence, right because consumer electronics is all a battle of wanting to have a new device in two years or five years or whatever, right. We're heavily invested in the consumer electronic space and so that's a challenge. And so, as a design principle, I know Qualcomm has been a leader in this area and MediaTek certainly

isn't. Taiwan, we have been focusing on how do you have longer lifecycles, right. So, maybe you can pay for an upgrade, Plug and Play to extend the life of electronics so you're not adding so much to landfill. And I think the good news is that I focus on that because of resource scarcity is going to increase. People are going to want to figure out like, how can you make these technologies last longer to make the investment we did in Mind Products, for instance, specialty metals and other things, how do we make the lifecycles of products to serve our environmental goals.

MR. HAMMOND-CHAMBERS: One of the things I think that can be hard to see in public reporting or, you know, access to public information about pressures on Taiwan from the States or from the supply chain, is the commitments that the largest companies are placing on the systems integrators. And, in fact below tier 1 the systems integrators tier 2, even deeper down the supply chain than that to, for example, at some point in time, let's say 2030 or some date in the near future to source all their energy from renewables. Well, that creates a huge demand within Taiwan for renewable energy. Now, that has a public policy and practical impact as it tries to roll out. The government wants to set ambitious targets. In fact, has done. But to get to that point and to meet the demand and requirements of the biggest global companies on that Taiwan partners is very significant. This -- when I say this tension in there, I don't mean disagreement, I'm not saying we think this, and you think that on the issue of climate change. Only tension and respect how to meet the ambition that is embedded there. And if you look at Taiwan, again the use the word cavalier. I don't wish to be cavalier but while -- I think we all accept the threat from the PLA is very significant. I think at a more practical level for companies. The greater challenge isn't the People Liberation Army, it's access to energy, water, land, and human capital in Taiwan. That, from a commercial economic standpoint is the more pressing issue in the moment when thinking about where to deploy capital and whether Taiwan remains a viable, ongoing place to do that. Does that make sense? Yeah. I think there's a young lady just behind you, yeah, please.

SPEAKER: Thank you all so much for speaking in this panel. It's incredible. My name is Zoe, I'm with the Global Taiwan Institute here in D.C. So, I heard a lot about China's own dependence on Taiwan semiconductor industry but a conversation that's being had a lot right now in the geoeconomics space is China's pursuit of dual circulation, right. It's pursuit of autonomy domestically while also fostering dependence on its own, you know, industries through other countries. So, I'd like to know at a corporate level, is this something you're considering when it comes to your relationships with China? Is its doable circulation driving actually a threat when it comes to its dependence on Taiwan's semiconductors and how you go about that at a corporate level?

MR. HAMMOND-CHAMBERS: Okay.

MS. WELCH: Well, I'm happy to start. You know, I think, you know, Qualcomm is the largest, fabless semiconductor company in the world, and we have partners and customers all over the globe, you know, including in Taiwan, in China, and you know, so for us it's critical to be able to continue doing business with our customers and our partners in, you know, in both of these countries. So, you know, that's really, you know, one of our priorities.

MR. WILSON: I would only say I guess about the core of your question, right, is a -- is, you know, is the China market incredibly important to us, yes, it is, absolutely. And this supply of semiconductors is incredibly important to China. If you would permit, a friendly observation right about this debate. It really is about attracting capital and I think the Chinese have found out, right. That's there's a price to pay from looking like a less good bet. And I think this is again, hearkening back to the conversation this morning, right about there is a premium in the marketplace for being a more stable, reliable, welcoming government. And if you're a functioning government, right you're going to attract more investment and I think that tension for China their desire to be independent of global supply chain or be more self-reliant that's important but as a part of that you really have to attract capital. You have to be a good bet, and I think those two goals -- and by the way China's

goal is no different than anyone else. You talk to -- I mean, as I do parliamentarian, and the European Union are in Japan or here in Washington. They all want chip independence because they suddenly, and I mean it suddenly, you know, I worked for the industry for a long time, and this is a very new phenomenon where members suddenly have passionate views about why we should be making more chips in Japan or in the United States or depending on who you're talking to. So, in that respect China's just like everyone else, right. They want, you know, greater autonomy. The difference is, of course is that they dominate the assembly of consumer electronics so, like 75, 80 percent of all electronics in the world are assembled in China and so again I sympathize. They are like why are we just doing assembly. We want to do the highest order part of this, you know, market. I just think that the deal is, you know, China everyday looks like a less good bet for global companies to make an investment, right. Because things -- regulatory environment seems unstable I think the challenges of dealing with COVID has uncovered some risks, geopolitical risks notwithstanding the Strait relation issues. And I think, you know, those things will play themselves out because I think governments, all of them, are very responsive, right, to get investment. I think the real hope is right that that will encourage better government everywhere, you know. The idea that this global competition to be an attractive place to invest. I, for us as a fabless company, right, it also is about again, the talent because it's where brilliant engineers and scientists where do they want to live, right, and that quality of life just like Arizona, has to sell themselves or California, or Texas or whomever has to sell themselves as a great place to live. Every political jurisdiction has to play that game of saying this is a great place to be an entrepreneur. This is a great place to bring your technology to market, right. You have to tell that story and the tension right, over wanting to get the regulatory state the way the political people want it to be but also play the sales game of saying do your innovation here. That tension is lived out every day right, in political capitals all across the world, and so China is no different in that respect.

MR. HAMMOND-CHAMBERS: I'm enjoying such a super question. Thank

you for it. You know, I make the observation that the membership of the U.S. China Business Council and the membership of the U.S. Time and Business Council, you can always match them up, except defense companies of course, because they -- there's no business for them in China, right. But my point simply being is that our companies want to be able to do business in both. Now, we live in the real world here. There are practical policy implications involved particularly in heightened tensions for the Chinese and I would certainly argue those tensions are not going to dissipate any time soon. We just simply have too many challenges. But I loved Shirley's point in the first panel about Taiwan being a buy option. I absolutely agree, not just because I've been doing this all my life but for one, I think there's one word that captures wide terminal continue to be such a critical partner for global companies whether Taiwan out or global companies in and that's trust. They're trusted to take IP and to consider it and to protect it. They are trusted to manufacture it at the highest levels to deliver it to their customers when they say they're going to deliver and that when it's delivered and integrated that it will work, and that's not something that you can just stand up and walk with. That takes decades to build. So, trust is a really, really, key word I think here when we talk about Taiwan's own ongoing viability as a critical player in the global economy. I think it was not you, sir. Right here, yeah.

SPEAKER: Thank you guys. John Seine from the U.S. China Economic Security Review Commission. I was wondering if we could maybe get into a little bit more of the specifics about China's development of its fables ecosystem. It seems to me as you mentioned they are trying to move up people call the smile curve, add more value, so make this run into problems but it seems like fables design is maybe actually something where they do have a bit of -- they are moving somewhere in the right direction. Are you guys seeing that what is the competitive -- do you guys view that as a competitive challenge. Would love to just hear any insight you guys have.

MR. HAMMOND-CHAMBERS: That sounds like a good question to --
(Laughter)

MS. WELCH: Well, there has definitely been a lot of capital that has been pledged to that effort and so, you know, when you have deep pockets, it is possible to get there at some point, you know. I don't think it's going to be any time soon. And, you know, particularly in the leading-edge technology, leading edge nodes, but, you know, certainly there will be -- they will be able to make head-roads in, you know, other sectors of the global supply chain.

MR. WILSON: Yeah, and there's just a lot of advantages to having really strong state support and that's not controversial, right. Every country in the world that has really good state support for a really capital intensive, very high-end industry like the semiconductor industry, is going to do well, and I think China has developed a lot of really great success. We look at our, you know, competitors in China. We have, you know, a play but not as big as Qualcomm's but we have a big play in China and, you know, we have to be better. The good news again, just to circle back, not to sound like a broken record, right but the good news if you're a brilliant engineer and you can live anywhere, right, you want to live in a free and open, dynamic economy where you have great quality of life, right and I think that's what it's about, right. It's that talent race to give brilliant men and women who design technologies to give them the environment that they need to succeed, right. A place where they can be with their family, they can achieve, you know, a lot of success and I think Taiwan has proved to be very successful at that because their engineers do very, very well. I think the U.S. is still the most attractive place in the world to found and to build a company, right. This is just a great -- you get a great market, it's a great quality of life, it's a -- you got great support for academics, there's a lot of wins right but other companies -- I mean, excuse me, other countries are coming on all the time on that same competition, right, as how do we provide this awesome place to innovate and create things. And, you know, we're going to be there. That's our commitment, you know, from our company is wherever the brilliant people want to work that's where we're going to go, right because that's what we have to do, you know, and it's funny I tell members of Congress if we're here in the U.S., if

we don't get our immigration policy right, don't worry, the market will fix this for you I know immigration's hard like you're right, it is hard but don't worry. The market will fix this, you just won't like the answer, right. Because we're going to hire graduates of American universities, some of them Taiwanese. But they want to live in Europe, so we'll get a VISA for them to live where they want to live, because they get to call the shots. We are living in an era, right, where it's money-ball for these brilliant engineers and you'll want these players to play for you and you're going to do whatever it takes to attract them to come work for your team. And that's just the reality of if you want to be a global leader you have to be -- you have to act like one, and you have to, you know, compete for this talent, and I think that is China's challenge frankly in trying to compete is that, you know, you have to present all the picture, right, not just great investments and university research that the Chinese have made big commitments or even free capital or have their support. It's not enough. You've got to be a great place to live, and engineers can command that.

MR. HAMMOND-CHAMBERS: The time for a couple more questions. This lady right here, please. Thank you.

SPEAKER: Thank you for this incredible discussion. My name is Janelle and I'm with Formosan Associates for Public Affairs. So, my question today is that -- it's my big brawl actually. Now you see the increasing nationally oil, counter-seeking for in independence. So, at the company value wrong globally, how you adapt to this changed mind set, as well as how would you like the government to play especially with the touch immigration policy and education policy. So, how would you like government to assist the private sectors that you guys choose after this change, and to rescind time to return other advantages failed so far.

MR. HAMMOND-CHAMBERS: Did you get the question?

MR. WILSON: Yeah. I mean I would say, you know, the things that we want, the companies we want, you know, Qualcomm and MediaTek were both members of AIA, right a semiconductor industry association where we're respective members of our

trade associations, and the one thing that we always advocate for, right, is the ability to hire great people, right. Whatever the flexibility so produced them please whatever congress we happen to be sitting in, please support university research, right. Do the basic research that's going to design the technologies, the materials, the problems of the future. Invest in that because we also get those brilliant men and women right who are solving those problems and they're going to come work for us. So, that's important and then what you are speaking about is also mobility, right. We want the ability to move talent to where the problems are, right and we have to go sit next to our customers. So, if that's, you know, Verizon one day, and Amazon the next, right, we want our talent to be able to go where the customer is, and that requires a great deal of flexibility and so the political, I think nativism is a word that came up right, whatever. That's just competition. People feel the urgency of semiconductors and they want to like, politicians of all size and every country. They want to respond to that pressure, but I think the answer is, right, you can't grasp too strongly about it because it's important you actually have to create that mobility, right, that -- it's a kind of a counter-intuitive thing for politics to realize that you need to make talent movement easier. So, then you'll win and those countries that do a better job of attracting talent will do better.

MR. HAMMOND-CHAMBERS: Did you want to say anything>

MS. WELCH: I just want to add I think Patrick, you know, hit that the nail on the head on that one, for sure. There are, you know we have seen a change in trend in recent years and more nationalistic policies. That's understandable, you know. If every country wants the national treasurers and national champions but and, you know, I think it's going to be -- there will be some adjustments but there's always going to remain a very critical global interdependence, you know, within this industry, you know, that's unavoidable, you know, you still have raw materials that can only come from certain countries and certain places and, you know, certain countries have developed their niche and it really comes down to where the talent lies. That's all.

MR. HAMMOND-CHAMBERS: I think I might just add quickly. I'll get right

to you sir. The — on industrial policy in this area, as has been mentioned, most every country that wants this is going to get it. The capital costs in and of themselves is just too prohibitive. But I'm not asking Patrick and Julie to comment on this because they deal with companies up and down the manufacturing line on this. But I would suggest to all of you that what we're heading to in all likelihood is a sort of two-tier manufacturing system where the TSMC and Samsung at the forefront. And then there's a mid-tier. I'm sorry to intel but I think that TSMC and Samsung are going to be very hard to catch. And that they will continue to dominate high-end. And that will almost certainly suggest continued concentration of high-end manufacturing in a very small number of areas as well. Korea and Taiwan of course and in the southwestern part of the United States it looks like. Beyond then its, you know maybe somewhere in Europe, but I don't think we're going to see much more than that at the high-end, and the more commoditized then, yes. But perhaps a spread of more manufacturing around the world. Yes, the gentleman in the baseball cap.

SPEAKER: Hello. I want to thank the panel for a very good — a very interesting contribution. My name Elliott Horowitz. I'm a retired person. Julie mentioned 5G technology and of course we all know about Huawei and its activities in the PRC. Anybody would like to answer the question on, what is the current (phonetic) and the prospects of 5G technology in the United States?

MR. WILSON: You're talking to the two most important 5G companies in the world. (Laughter) Yes, 5G incredibly important and, you know, there's at the top I would say there's a big disconnect between what American consumers think about 5G because they look at their phone and that's like my number one, like conversation at Thanksgiving or whatever, is like, oh, Patrick we already have 5G, it says that right on my phone, and I'm like actually, no, that not what we're talking about. It's an exponential change, right. I think that the, you know, we're going to live through a period over the next decade right, a huge global experiment, right, about the adoption of a new cutting-edge technology if 5G and what it will transform more connectivity, the richness of life, and how data and information can either

enrich or, you know, other implications. The real challenge is building that infrastructure, and I think that's the thing that I think certainly in America we don't understand enough is that to build a parallel system, right. You can imagine the challenge we had from 1925 to 1945 building rural electrification, right. Running power lines all across America to every single household. That was a huge transformational infrastructure decision that the United States made to electrify every household in America. We were literally saying we going to have to do that again, right. Like, not with our existing cellular networks right, it's a parallel system. It's not the same. And we haven't done that in a very, very long time and so that's a big political and societal change right to build this whole new infrastructure. So, some people, and this goes back to the experiment thing, this is just Patrick Wilson's view, it's not MediaTek's view. I should say as a caveat, but the deal is what we're going to do in experiment about whether huge government capital investment in some countries where it's all going to come from the government and they're going to try to erect this network or whether using a private centered customer-focused solution, right. Having a network that's built out when customers demand it which model is better, right. And so, we as chipmakers we have to navigate every country in the world having a different choice. Some of them will be hybrids, right of loss of private section lead, but then the support from the government and vice versa on some dial and we have to figure out how to navigate that. So, that's a really big challenge for every company and the whole space. So, it's going to be a really fascinating time. I mean, the good news is it's a great time for consumers because, you know, the things that your technology can do and the way we make things, you know I come from the industrial segment myself having worked for BMW and Cummins. You know, it's just going to revolutionize the way we measure everything because you can measure everything, therefore you will and that's what 5G in that setting is going to do, and it's very exciting. But anyway.

MS. WELCH: Yeah, so the digital transformation is happening and it's happening now. And 5G technology is what is going to help, not just the U.S. economy and

society, but countries all over the world get to that digital transformation. We've got automobiles are now, you know, smart phones on wheels, laptops now have 5G cellular connectivity so that, you know, students can access learning anytime, anywhere inside, outside the classroom, accelerated by, you know, the remote learning requirements over the past few years, unfortunately. Transformation of the laptop as well. It's become more of a communications device than ever before. Camera is important. The 5G is alive and well in the U.S. and many other countries are catching up, but, you know, part of this transformation also has to do with the connectivity to everything being on the cloud, and that has a very, you know, significant change on the design of the devices, and how you no longer need memory on, you know, these devices. So, it's everything, everyone and everything needs to be able to seamlessly connect to the cloud. So, you know, 5G is going to be very, very important for the U.S.

MR. WILSON: Where data is a big -- that's the big change, right. Is data used every 10 minutes, right. That's going to be stored on your device. Data you use every 10 years that's silly to put that right on your local device and so that triaging of data where it needs to be in the cloud or on your device or connected, that's just going to get better and better. That's one of the real challenges for using machine learning and artificial intelligence to learn about you, the user to make the data you use all the time rational, so that it's working really, really well, and that is a huge chip design challenge for us as to use that incredible compute power that we're developing to solve that problem for everybody, for each individual user. So, you're not picking up the blue pill or the red pill right, based on what kind of user you are. Your software is going to learn your habits and be like, oh actually this is a power user for photos so we're going to store your photos right on your phone, so you can get them all the time. But if you never look at photos that are older than 30 days, your software will know that, like Patrick never looks at photos older than 50 days, so I don't have to store those locally, and we already do that but you're going to see more applications like that all across consumer electronics.

MR. HAMMOND-CHAMBERS: I know there're more questions. We've already run over, and I recognize that you all have other thing to do in your day. I want to thank our speakers, Julie and Patrick, very much for your time this morning. Just fascinating. (Applause) And I also wish to thank Brookings and Ryan. I'm sure all of you are well acquainted with his publications, with the efforts of his colleagues on Taiwan-related matters. I cannot recommend them more highly to you. Brookings is a leader in thinking about America's relationship with Taiwan, what that should look like in the future and the U.S.-Taiwan business cancelled obviously will continue to serve the interests of its membership and also to act as a resource for our country on commercial matters with Taiwan. Thank you all so very much for joining us today and we look forward to seeing you at future events. Cheers

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