HOUSE OF COMMONS

Foreign Affairs Committee

Oral evidence: The FCDO's role in blocking foreign asset stripping in the UK, HC 296

Tuesday 3 November 2020

Ordered by the House of Commons to be published on 3 November 2020.

Watch the meeting

Members present: Chris Bryant (Chair); Alicia Kearns; Royston Smith; Bob Seely; Henry Smith

Questions 189 - 226

Witnesses

I: Professor Nick Jennings, former UK Chief Scientific Adviser for National Security, current Vice-Provost for Research and Enterprise, Imperial College London; and Grace Cassy, Founder and Chief Executive Officer of CyLon.

II: Shaowei He, Associate Professor in International Business, University of Northampton; and Azeem Azhar, Founder, Exponential View.

Written evidence from witnesses:

– Dr Shaowei He,

https://committees.parliament.uk/writtenevidence/13151/html/.

Examination of witnesses

Witnesses: Professor Jennings and Grace Cassy.

Q189 **Chair:** Welcome to our witnesses this afternoon in our ongoing inquiry. This is the fourth session that we have had on foreign asset stripping, which is an important aspect of the way we interact with the rest of the world and how we protect our own national security.

It is a great delight to have Grace Cassy and Professor Nick Jennings with us. If it is all right with you, I won't ask you to do introductions. We do not really need them; we all know who you are. That is why we wanted to have you along here today. Thank you enormously, especially this year, as it is not all that simple just to drop things and turn up for a Foreign Affairs Select Committee inquiry.

How do you think national security should be defined when it comes to foreign investments in UK companies? It would be awfully easy for us all to claim that everything is national security or not national security. How do you think it should be defined? Are there forms of transactions that are unambiguously a matter of national security concerns as opposed to anything else?

Grace Cassy: Thank you very much for having me today. This is an important question. It is certainly very hard to pin down in the context of foreign investment, where broader national interest issues can very easily become lumped together with national security. To try to pin it down to national security in the context of foreign investment, it is important to focus on control both of IP and of the commercial direction of a company; for example, decisions on to whom a company might sell its product.

One might also look at it from the other end of the telescope. Is our FDI regime enabling an environment in the UK where talented people can build high-quality, deep tech start-ups in areas of relevance to national security and, importantly, can those companies go on to reach meaningful scale while maintaining UK access to their products? For me, in part, it is about ensuring that the UK has a deployable sovereign capability in strategic areas.

As to your question on specific kinds of transactions, I might look at it rather as specific areas—specific fields of technology, perhaps around encryption and certain types of quantum technology where I think there is a low threshold. It is very important that those areas are considered through a national security prism, but it is important to maintain a balance so that we are not, in my view, bringing too many national interest concerns into something that is more properly a national security concern.

Q190 **Chair:** I am sorry to be stupid, but I am really bad on acronyms. What is FDI?

Grace Cassy: Foreign direct investment.

Q191 **Chair:** Perhaps we could try to avoid them. You said, "deployable sovereign capability". What does that look like when it bites you on the ankle?

Grace Cassy: I am trying to draw a distinction between a sovereign capability that may be a British chip or a British encryption technology, but, by calling it deployable, I am trying to make a distinction between a technology that may work and that has been developed here, and a technology that can be meaningfully deployed at scale and perhaps be integrated with some of our key allies. It is more than a project being run in a university but is absolutely a commercially usable capability.

Q192 **Chair:** Thanks. Professor Jennings, what is your take on it?

Professor Jennings: In some cases, it is quite easy to tell what is in the area of national security and relevance. You can do that by the technology, as Grace said. If you are looking at quantum-resistant cryptography or offensive cyber tools, it is pretty obvious that you are in the realms of national security. However, as you get further out, it becomes a much harder thing to do. If you look at the national security investment fund and the list of technologies that it thinks about, it includes very broad areas: artificial intelligence, the internet of things and quantum computing. Those are broad areas of technology.

You can put those technologies to national security purposes, and companies are doing so, but you can also put them to many other purposes and many other uses as well. There, it gets increasingly grey and difficult to figure out exactly what you could, and should, be putting in, when it is a general technology.

As I said, my broad area of expertise—I am a professor of artificial intelligence—has been around for a long time. It is only starting to be good enough where it is even relevant to look at international security concerns. People are using it and will use it in the realms of national security, but people will also use it for medical applications and for helping to keep a country's individuals well and helping us with climate change. It is very difficult to work at a general level.

Q193 **Chair:** Does that mean that it is also difficult to predict where any particular company or asset is going to play in terms of national security in five, 10, 15 or 20 years' time?

Professor Jennings: Yes, absolutely. I will give examples from my own field, but the same applies. If you look at machine learning now, you can use machine learning and artificial intelligence for almost any application you choose to think of. Twenty or 30 years ago, when we were developing the algorithms that are used today, we had no real idea what people would use them for. People have used them for many different purposes. You can use them for almost any application you can think of if you go far enough back into the general technologies.

Q194 **Royston Smith:** We are talking about asset stripping and what the

Foreign and Commonwealth Office would do to improve our situation, particularly going forward with the Bill. In your opinion, how could the FCDO increase its engagement with companies in the technology sector? How could it, or how should it?

Professor Jennings: From my time in Government—I was the chief scientific adviser for national security for six years—you discover that there is quite an elaborate ecosystem around science in Government. It is not all in one place; it is spread out. Most Departments have a chief scientific adviser, someone like me. There is a Government chief scientific adviser. Those networks work really well in bringing together the science and the understanding. There is a lot of foresight work, trying to understand what the next generation of technologies might be in five years, 10 years and 20 years. The Government have quite an evolved and elaborate system for working with science, seeing where it can be used and what its potential is.

My urging on that would be to make sure that that is captured and plugged into, rather than coming from a greenfield site thinking that there is nothing there that can be worked with. I think it is plugging in to existing infrastructures and building on those relationships, and speaking with the relevant tech firms you are interested in engaging with. In my Government experience, such companies were invariably very happy to talk with me as a Government official at that time.

Q195 **Royston Smith:** Ms Cassy, would you like to add anything?

Grace Cassy: I agree that, as Nick described, the Government have quite a well-developed mechanism for engaging with and understanding the cutting edge of science. We are probably less well set up to engage with the cutting edge of technology. The last couple of years have seen some important steps forward in that regard. The establishment of the national security strategic investment fund has been important. Additional capital flowing to start-ups from that fund is really important, particularly in cases where a company may otherwise have been tempted to take investment from a problematic source. Of course, it is important for funds to flow into sectors where it is important for us to develop the sovereign capability that we talked about earlier.

In my view, capital deployment is not the only lever for better engagement, either by the FCDO or broader Government, with technology companies. I think the Government could do more to play up their power as a user of technology. We will see government, both local and national, becoming more technology led in the coming decade. For me, that represents an excellent opportunity for Government to use buying power to support developing relevant technologies.

If the public sector, including the FCDO, could become a more active early adopter of technology, through frameworks for trials and proofs of concept and so forth, and through more flexible procurement approaches, it would have the direct benefit of supporting British technology. It would

help to credentialise new technologies for sale in the private sector and it would encourage those companies in turn to remain focused on friendly markets.

The FCDO specifically has not traditionally had engagement with science and technology as a key area of focus. That is perhaps not surprising, in that there is a lack of competence therefore in deep understanding of technological and related commercial issues. That is the case, as some of your previous witnesses have said, across Government. It is not an issue particularly for the FCDO. HMG's ability to spot and assess emerging technology is quite concentrated. As Nick said, it is very good in the network of chief scientific advisers and perhaps in one or two other technically focused areas of the public sector, but beyond that there is a pretty significant lack of competence and understanding of the issues.

Q196 **Royston Smith:** You mentioned foreign direct investment earlier. Of course, that is really important, but so is protecting IP to prevent asset stripping from foreign businesses or Governments even, depending on who we are talking about. What role do you think the FCDO should play in future investment screening of foreign direct investment, takeovers and mergers, and that sort of thing?

Grace Cassy: The FCDO certainly has a role in any future screening regime. It would be advantageous to include a range of expertise in any such new screening regime, particularly in order to avoid specific short-term political or economic motives from skewing decisions. To my mind, it is self-evident that a range of Government Departments should be involved, in addition to the FCDO, HM Treasury and the Business and Enterprise Department, for example. Each of those has expertise to bring. The FCDO specifically can bring an important understanding of the intentions and strategies of other Governments, and a better understanding perhaps of how the strategies of either peer Governments or hostile Governments are evolving in terms of their attitude to acquiring either minority or majority stakes in British technology.

To my mind, this needs to go beyond Government. Insight into the possible direction of new technologies and the future use cases that evolve over time would best require input from the private sector and the academic sector alongside that of Government experts. I favour perhaps a complementary mechanism that allows Government to draw on some of that external expertise, although I accept that that is not without its own challenges. For example, who appoints the external experts? Who determines that they are experts, and how do those people avoid their own commercial conflicts when they may be involved in some of these technologies directly themselves?

Professor Jennings: I agree about the broad base that we want to be able to bring together for the different decisions. The challenge in this space is one of capacity, primarily. In a great university like Imperial or many of the others that we have in this country, the amount of IP that we generate is phenomenal. We have discussions with bits of

Government already around some of that IP where we know it might be sensitive or where there might be a sensitive end customer from a particular country of concern. That is quite difficult to scale up and for the relevant Departments to put together enough capacity to deal quickly with those sorts of calls. As I say, some of the cases are easy and it is obvious that you need to speak with Government about them. Others are more tenuous, as there are more generic technologies. The ability to phone up and get some advice about what should be done around IP and particular forms of projects is really important to make it work in a viable way. The trouble is that there is so much that could be relevant. It is figuring out what should be relevant and how to engage quickly, in my view.

Q197 **Royston Smith:** While talking about the FCDO as a Committee, we have talked about academics, the private sector and the public sector working collaboratively and in partnership on these things. Does the FCDO have any particular knowledge or experience that it can offer other Departments? Is there any expertise they have that other Departments do not?

Professor Jennings: In my experience, the science and innovation network is an important part of the piece. It gives you in-country presence that helps you to understand the foreign context, when we are talking about foreign direct investment. The FCDO has expertise that is unique and distinctive, which it can bring to those sorts of discussions to understand what companies based in other countries bring to bear, in a way that I do not think anyone else can do with that level of detail.

Grace Cassy: As Nick says, the embassy network is a unique asset of the FCDO. The ability of FCDO staff in foreign countries is to develop knowledge and understanding of acquirer risk and assessing the ambitions of their host countries in technological development and their regulatory environments. I think over time it will become more important too for the FCDO to play a stronger role in benchmarking our own screening regime against others. Is any regime that we bring in here in the UK likely to put us at an advantage or a disadvantage versus our peers? Is our regime perhaps more onerous or more wide-ranging? Does it create inefficiencies that would put our technology sector at a disadvantage? The FCDO is well placed through its embassy network to report on that on an ongoing basis.

Q198 **Chair:** What do you mean by benchmarking our own screening regime?

Grace Cassy: Yes. By benchmarking I mean that, as and when the UK develops a new screening regime, which I understand will emerge as part of the National Security and Investment Bill, are we taking a broader approach or a narrower approach than some of our peer countries? Are we taking a broader definition of national security? Are we bridging what we described earlier as more national interest considerations? Are we taking a sectoral approach or a country-based approach? Do we have a white list? Do we not have a white list? Where does that place us against

other countries that may also be seeking investment for the benefit of their domestic technology sector?

Q199 **Alicia Kearns:** Thank you both for giving evidence today. What challenges and issues do you think that UK tech companies need to think about when considering inward foreign investment? Do you feel that the commercial interests of UK tech companies are currently sufficiently in line with national security interests, or do you think that is potentially a naive wish that some of us working in national security wish to see?

Grace Cassy: From the perspective of the start-up founders with whom we work every day, it is important to say first that foreign investment can be a hugely valuable addition to the lifecycle of an early-stage technology company. It can particularly help to open new markets and, increasingly, it can help with access to internationally mobile talent. An openness to foreign investors is a critical part of the recent success of the UK technology sector, but the current climate is undoubtedly becoming less hospitable for companies with investment from a subset of countries. I think we know that we are talking about perhaps China, Russia and a few others.

I already see that the market is providing some degree of correction. Founders of early-stage companies already know that accepting investment from individuals or funds that might be linked to some of those countries could preclude them from operating or selling freely, particularly in the US. Some of those considerations are already in the minds of founders contemplating taking foreign investment. I have seen several examples in the last year where a start-up founder has chosen to turn down some foreign investment on a risk-avoidance basis.

As to whether that is driven by a national security concern or by a more commercial concern, for now I would say that it is a commercial decision. If you take money from a country with which there is a poor alignment in national security terms, commercially that is probably going to make your future development more difficult and therefore it becomes a commercial, market-based decision to avoid that investment.

I do not think that the early-stage technology sector is particularly optimising for national security yet. That is not necessarily because of lack of will. It is partly that there is lack of understanding among technology founders as to what constitutes national security, or how the work they are developing might affect national security. As Nick was saying earlier, you will find considerable openness on the part of the start-up community to hear more from Government as to what they consider to be national security, and where they consider trigger points to be for national security concern. Right now, that process does not really exist. If you are a founder building an encryption company in cyber-security, it is not necessarily easy to know to whom you go in Government to have a conversation about whether your product, and whether taking investment from certain quarters, would cause concern to the Government.

Professor Jennings: I would echo a number of those points and perhaps add a couple more. When I was in Government—I was the chief scientific adviser from 2010 to 2016—it was sometimes very challenging to go and speak with tech companies about how we might like them to slightly limit some of their engagement. At the time, they would say, "Well, actually, another bit of Government was in here last week saying, 'Please go and export. Please go and engage with all these sorts of countries that are sometimes more difficult to engage with from a national security perspective.'" I do not think Government used to speak with a united voice.

I think there is now greater coherence in what is coming out of Government, but from a tech founder end of the business, is that a short-term proposition? Is it something that is going to stay in place? As Grace said, the choices you make about where you get investment from and where you choose to market will often play out over a much longer time than you can have political insight about. The American position has hardened a lot in recent years, and it may change again depending on what happens in the next couple of days. It is very difficult to know what the political context is.

From a tech point of view, there will absolutely be cases—I have seen several—where the only viable or the best source of investment was from a country that, from a national security point of view or from a blocking future partnership point of view, is difficult to take funding from. Then it is really difficult. What do you do as a founder? Do you take that money knowing that it might limit you and some of your future options, or do you turn it down and say, "No, I am not able to do that"?

The point I made earlier about having a phone number and someone you can speak to in order to get quick advice—the quick is important in these sorts of things—is key and central. You need to be able to get clear advice.

Q200 **Alicia Kearns:** Having worked in Government, I understand the lack of coherence often between Government Departments. How can the UK Government do better—putting to one side the clearance point for one second—at forecasting how technology might be used in the future, and how to balance national security and commercial interests? One of the big issues is that, unlike a lot of tech companies or investor companies, the Government do not necessarily have a team sat there going, "What are the current technologies of the future? How are they going to be used for national security purposes in the future?", or even, "What are the technologies of the future going to be?" I am pretty confident that DE&S is not particularly effective at doing exactly that. How do we tackle that forecasting capability?

Professor Nick Jennings: The foresighting of future tech is, of course, exceedingly difficult. If you could do it accurately and with great confidence you would be—

Alicia Kearns: Very wealthy.

Professor Nick Jennings: You would be very wealthy, obviously. It is always difficult. The Government Office for Science has a key and important role to play. It does tech foresighting for a number of Government Departments. My old office—the office of the chief scientific adviser for national security—would often take those sorts of insights and give them a national security flavour where there might be issues and concerns.

As I said right at the beginning, the big challenge is with the more generic technologies. In a space where you are looking at crypt or at offensive cyber-tools, it is obvious you are in remit. When you are looking at broad areas like AI and quantum, it is far from obvious which bit of it is relevant, or even if an AI company is going to be relevant, from a national security point of view. That is the thing that is really hard in this space.

Q201 **Chair:** The bit I do not understand and that is running around in the back of my head is this. I think we all, as MPs, probably want British industry to be going out there and winning alliances with other companies elsewhere in the world. Is there a danger that all of this simply makes us more inward looking and more reluctant to do deals with fast-growing economies?

Professor Jennings: That is the trade-off you face. In my university context, two thirds of the research we publish is with international co-authors from countries around the world. China is the biggest country that we co-author and publish with. We do that because that is where a lot of the interesting science and engineering is. There are great collaborators and great expertise out there. It is a very open system of working.

The more that you clamp down and put restrictions on these sorts of things, the less outward that makes you, and, I would contend, from a science and tech point of view, the less good your science and tech is. There is lots of evidence now that international collaboration leads to better science and tech. The more siloed you become, the more isolationist you become, and the worse your science and tech will become.

Q202 **Alicia Kearns:** In terms of reasonable expectations to be placed on businesses, and whether it is the chief scientific advisers or the FCDO, what can we reasonably expect them to be able to forecast for technology and intellectual property held now by British companies and how that might be used in 10 to 15 years' time? For example, in the Dynex case was there any way to reasonably forecast its future use in PLA capabilities, or would that have been an unfair hindsight application of forecasting?

Professor Jennings: Tech forecasting and tech foresighting has a role in picking out areas that are likely to become increasingly prominent. At a

high level, it works well. The areas of quantum technology and AI are now much more in the general consciousness than they were. Tech forecasters have been saying for 10 or 20 years that they are going to be really important technologies. At that level, it is easy to say that AI and quantum are going to be important.

Exactly what that looks like, which companies are going to grow, and what sorts of applications they are able to develop with those technologies, is much harder to know. It is difficult to figure out the companies and individual products for anything more than a couple of years. For high tech, it is difficult to know about specific advances a year or 18 months away at best.

Grace Cassy: As Nick says, we are probably quite good at strategic, theoretical horizon-scanning, but we still have a way to go in connecting that to the reality of what is actually in the UK cupboard today. What companies do we have that are building technologies in areas that we have determined may be interesting in future? The scouting of companies is an important complement to the more theoretical horizon-scanning, but it is a difficult job. That is what venture capital funds are there to do, and many others. Nobody gets it quite right. It requires breadth and depth of engagement across the start-up space, and that hitherto has not been a priority for Government.

I think the Government have a tendency, perhaps understandably, to engage with other large organisations. In the private sector, they will tend to find it easier to engage with large, well-established market leaders in technology and, at the emerging tech end of the scale, to engage with universities as well-respected, established partners. That is good at both ends of the scale, but there is a vast swathe of other activity between primary research at one end and fully commercialised at the other where the Government currently lack penetration.

What I am talking about there is the relatively large proportion of successful companies that emerge from the private sector writ large. They are people working in their spare time, collaborating informally on ideas, maybe with their employer's support or maybe not with their employer's support, and then they may launch a company. That whole space between universities and big tech is not well understood by Government at the moment. To be fair to them, they have not been resourced to have deep links like that in the past, and perhaps we should not expect them to either, but it is important to note that often Government come at the question of engagement with tech, or understanding forecasting tech, with the idea that there is a sort of triangle of Government, industry and academia. Too often, industry tends to be big companies. There should be a reasonable expectation that they do a better job of understanding the large space where a lot of innovation is emerging. It is not well understood currently.

Q203 **Alicia Kearns:** I imagine that DSTL's role is really intrinsic to this, but

should the FCDO essentially be leaving it for DSTL to manage and look after, or do you think there is a good place for the two of them to work together?

Professor Jennings: DSTL is really good and spends a lot of time and effort getting its tech forecasting right, but it is quite tech focused. As we mentioned earlier, the nuance of countries and context is what you need when you are looking at the national security space. You need the tech underpinning, but then you need the area of country expertise. I would also suggest in this context that you need a layer of national security expertise to sit on top of those sorts of things.

Q204 **Alicia Kearns:** It is more of a JTAC, Cabinet Office-focused role, where it should sit.

Chair: Can you stop with all the acronyms?

Alicia Kearns: Sorry, once you use an acronym you forget what they are called. DSTL is Department for Science, Technology—

Professor Jennings: The Defence Science and Technology Lab.

Q205 **Alicia Kearns:** Thank you; it is obviously based in Porton Down. JTAC is the Joint—

Professor Jennings: Joint Terrorism and Analysis Centre.

Q206 **Alicia Kearns:** Thank you; based at the Cabinet Office. Yes, given that we are obviously worried about state-sponsored terrorism use of it, I am wondering if the Cabinet Office is the right place for this sort of analysis to sit cross-government rather than specifically with just the labs, the Foreign Office or the BEIS bods.

I apologise absolutely; it is the worst thing in the world. Once you get used to acronyms you cannot do anything but use them. I apologise, Chair.

Professor Jennings: To answer the question, I have less of a view on exactly where it should sit but more on its form. It needs a number of these ingredients to come together.

Grace Cassy: I agree with that. I am not hung up on exactly where it sits geographically in Whitehall, but it is clear to me that there needs to be a mix of expertise, including DSTL and other parts of defence, the intelligence agencies, chief scientific advisers from across Government and HM Treasury and others looking at this with a commercial lens too.

Alicia Kearns: Thank you.

Q207 **Chair:** I have two more areas of questioning. On the whole, of course we focus on our national security as being ours and we seek to protect the people of the United Kingdom, of Great Britain and Northern Ireland. However, in the main we do that through a series of international bodies and alliances, whether it is Five Eyes, NATO or a series of different things.

My anxiety in this particular world is that when we say no to being involved in a particular deal or investment, whether from China, Russia or wherever else it may be, the French, the Germans or whoever will just hoover it up. How do we make sure that that is not part of the equation?

Grace Cassy: It is a legitimate concern. You raise an important question.

Q208 **Chair:** Oh dear. It's always bad when somebody says you have raised a good question and then slows down in answering.

Grace Cassy: You are right that typically one might aim to do it through multilateral bodies and so forth, but when you come to questions of investment and technology development, once you are beyond the kind of multilateral science that Nick was referring to earlier, with countries collaborating across borders, and you come into actual companies, it is quite hard to do that on a multilateral basis. Ultimately, it is a company, and it has investors, and a board that directs the strategic direction of the business.

I do not want to call our peer countries competitors, because ultimately your examples of France and Germany are clearly allies of ours, but in some respects they may compete with us in these technological things. It is reasonable to consider that, if we do not take certain opportunities to grow our technologies using foreign investment, others may take that chance.

Professor Jennings: I am in broad agreement. As a country, we should be in partnerships with others where it makes sense—European, "Five Eyes" and beyond—but able to make our own choices framed in that context. For me, it comes back to something Grace said earlier and that you picked her up on in terms of understanding.

Companies have opportunities to invest in companies around the world. If we do not have a good regulatory framework, where the investment can come in and work well for us as a country, that money will go elsewhere, and those companies will be built up elsewhere. It is important that we have a framework and set of regulations that work well to get direct investment coming in. In general, it is a good thing when it happens, but we should also be able to be clear when we do not want it or when we have concerns and want constraints put around it. Those should not be too restrictive, otherwise it will just go elsewhere and what is in the UK will not flourish.

Q209 **Chair:** We have obviously talked about cases where there is a controlling interest or material control that might be handed over to a foreign investor. Do some of the same issues apply when there is a minority shareholding? At what point does it tip into being a matter of concern?

Professor Jennings: I will leave that one to Grace.

Grace Cassy: This is a really interesting area. Typically, it is easy to make a determination when there is a majority stake, or when control

has clearly moved from a UK to a non-UK entity. What we see more commonly operating at the early stages of investment is a foreign investor taking a minority stake, either directly or through a limited partner stake in a fund. One or two investments of that kind are unlikely to be a problem, but over time they can begin to represent a challenge. Tens or hundreds of small stakes of that kind can start to give any one country a pretty good level of insight into cutting-edge technological developments and their evolving use cases.

It is hard to see how you could create a wide-ranging control or notification regime to deal with that situation. Requiring start-ups to notify any sort of minority stake investment would, I think, end up having a very damaging effect very quickly on the ability of more companies to progress their investment rounds and would, overall, put us at a competitive disadvantage to our peers.

There is probably scope to do more to address that risk through old-fashioned reporting, whether from the FCDO or from our intelligence services, around the intentions of countries in gathering a large enough number of such minority stakes to give them at scale the kind of jigsaw pieces that start to become a problem for us.

Q210 **Chair:** Presumably, as you said right at the beginning, one of the key issues at stake is the ownership of the IP.

Grace Cassy: Yes; the ownership of the IP and the ability to control how the product is developed in future—the product road map, as we say in the sector—and their strategy for to whom they sell.

Chair: Nick, do you want to say anything more? Is there anything else from other members of the Committee?

This has been really useful. We are very grateful to you; thank you. It has taken us into a different area that we have not looked at thus far. There will be some significant things that we will want to take out of it for the report that we eventually produce.

Thank you very much, Nick and Grace. We lapsed into first names, which is terribly informal. We did not even have a moment at which we decided that gentlemen could remove their jackets, and some of us have cups of tea sitting next to us, which is breaking all the rules of parliamentary standards over centuries. Grace and Nick, you are very welcome to remain with us if you want. We are now moving to our second panel. Thank you very much. Ta-ra, as we say in Wales.

Examination of witnesses

Witnesses: Shaowei He and Azeem Azhar.

Q211 **Chair:** Thank you very much, Azeem Azhar and Shaowei He, for joining us. We are not going to do introductions, if that is okay. We all know who you are, and I guess you have some idea of who we are. We are very

grateful to you for coming along this afternoon and being with us virtually.

You know the kinds of things that we are looking at. My only plea is that, if it is a tendency of yours to use acronyms, could you please, at least the first time, explain what they are. I am a bear of very little brain and, although other members of the Committee might know what you are talking about, I might not.

Can I start by asking you both, through what mechanisms does knowledge or technology transfer between an acquired entity and its foreign owner take place?

Azeem Azhar: If there has been acquisition of a company, the new owner owns all the assets in the company, which includes the intellectual property, the working software code, the data, the customer list and the employment obligations of the firm to the employees and the employees back to the firm. Typically, once an acquisition has taken place, the new owner can access any information and know-how that exists in the acquired target company.

If we take a look at something like software, what that might mean in practice is that a piece of software that is developed in a UK company that has been acquired by an American firm might find its way through a specific project into the infrastructure of the American company, perhaps to be delivered to all its subsidiaries in some shape or form.

Shaowei He: There are two points that I would like to make. The first is that knowledge transfer is perhaps more difficult than we thought. Very often knowledge is very tacit. It is in people's minds. You can have, for example, a Chinese acquisition of a UK car company, and the UK car company can give away the design of a car, but that does not necessarily mean that the Chinese car company now knows how to design a car. Knowledge is very tacit and sticky.

Secondly, it is very often thought that knowledge transfer is not a perfect name to describe the phenomenon. A better term is perhaps knowledge flow. Very often, knowledge flow is in both directions. An acquiring company gets knowledge from an acquired company, but very often the acquired company learns from the acquiring company as well. As far as our research is concerned, the knowledge flow is very often in two directions. It is a two-way street.

Azeem Azhar: On the observation that my colleague has made around knowledge being in people's heads, one of the biggest considerations by an acquirer will always be, "How well are we going to be able to keep hold of the employees in the company we are acquiring?" If a company does it well—for example, when Google acquired DeepMind—the acquiring company will grow. DeepMind has grown from some 40 employees when it was acquired to close to 1,000. In other cases, if an acquisition does not go well, the employees leave as soon as they

possibly can. The value then dissipates. That is an important consideration for an acquirer.

Q212 **Royston Smith:** To expand that, what are the strengths of the UK's technology sector and what makes it so appealing to foreign investors?

Azeem Azhar: My experience is in the internet, computing and software domain. I can talk about that. We have strong computer science research groups in the key universities, in the typical clusters. There are particular strengths emerging, for example, in Cambridge around machine learning and how machine learning gets applied to healthcare. We have a particular strength of course in London and the other key university clusters. It is rather concentrated from an early-stage technology standpoint—the start-ups that get built from a couple of founders in the south-east.

A second dynamic dimension to our strength comes from the fact that we have a reasonably well-established entrepreneurial ecosystem, with venture capital that is a professionalised form of investment capital that understands the kinds of risks that get taken when you back three or four smart young PhD students to come up with a new piece of software. The UK attracted just over €10 billion of venture capital in 2019 into its technology companies, which was double what France or Germany managed.

That is the sign of a strong technology ecosystem that combines our core research skills with the availability of the right kind of capital. The third leg of that tripos is that, as we have been one of the economies that rapidly took to the internet and rapidly digitised, we have lots of executives who have worked in either American firms or British start-ups in the technology sector who know how to take those ideas into some sort of commercial success. Those three legs—the initial founding spark based on technology, the experienced talent and the professional capital—play together to give us, relatively speaking, a strong ecosystem in the technology arena.

Q213 **Chair:** I am going to ask another stupid question, Royston, before I come back to you. Azeem, just imagine that I didn't understand what you meant by machine learning.

Azeem Azhar: I will explain that in more detail. Machine learning is just one particular computational technique where you are able to build programmes that learn from the data they see. Before we had machine learning, programmes were very dumb. They just did the same thing over and over again. Machine learning is a key part of being able to develop systems that we call artificially intelligent systems. In the last 10 years, the most exciting area of software development and software innovation has been around machine learning as a way of building artificially intelligent systems.

Q214 **Chair:** How close is that to the thing that happens when I am watching

"The Crown" and I want to look up "Did Mountbatten really do that?"? Suddenly, even before I have typed "Mountbatten", my Google on my phone already knows that I am about to ask, "Is it true what Mountbatten did in 'The Crown'?"

Azeem Azhar: That is exactly it. I use machine learning synonymously with the phrase artificial intelligence. One point of it is to help our predictions and help our systems to make predictions. In the case of you watching "The Crown"—a great choice of show—it will predict what you are likely to ask. Of course, it is a very general-purpose technology. We can use it in other areas. We can use it in retail; we can use it in behaviour; we can use it to predict almost any problem you could throw at it.

Q215 **Chair:** It is really frightening. Am I the only person who gets spooked by this? Alicia looked spooked as well. Sorry to interfere, Royston. Shaowei, do you want to answer Royston's question?

Shaowei He: I do not have much to add. The only thing is that the attractiveness of the UK is its status as an open economy.

Q216 **Royston Smith:** Our PhD students are good at it, and our economy is open, so that is why people want to come and invest in our country. What impact does foreign investment have on the ability of UK technology companies to grow or innovate? What is in it for us?

Azeem Azhar: If we look at the path of technology start-ups—and most of the successful firms that we might think of in this sector have gone through this route—they need specialist venture capital, and they will look for that capital wherever it is. Sometimes a foreign investor, a foreign venture capital firm or a foreign corporate investor will invest because they bring access to a new market. For example, there is a Japanese venture capital firm operating in the UK called Global Brain, and its promise is, "If we invest in your company"—and they will take a minority stake, typically—"we will help you get access first to the Japanese market and then other markets over in Asia."

As a technology founder, which I have been in the past, normally what you are looking for from your investor is the so-called value add that it might be able to provide. The most obvious thing is, "Can you help me get into a bigger market?" Traditionally, in the UK that has meant, "How do we get access to the US market? We have grown our company from this initial idea. We have a lot of good technology. We are selling well in the UK, but the US market is six or seven times the size, and it tends to buy technology more aggressively than the UK does. Can we find an American investor to put some money into our business and therefore help us expand into that market?"

What has happened traditionally that has been a bit uncomfortable is that alongside those terms has come the requirement to move one's headquarters from London to Silicon Valley, to the west coast of California, and the company starts to look like an American company. In

the last five years, that has been happening slightly less frequently as our own ecosystem has matured.

Shaowei He: Azeem has mentioned the capital market already. There are two things I would add as to the potential benefits that foreign investors could bring. The first one concerns the application of particular technologies. Sometimes a start-up company, or the owner of a particular technology company, is not able to foresee, as we have discussed in the previous session, the application of AI. In this country it is very difficult to tell how this could be applied in mobile payments, for example, but that might be another story in China because it is already far ahead in that kind of application. Foreign investors could bring into this country a different perspective as to how, and in what markets and other areas, a particular technology could be applied.

The second point, and I think this is very often neglected, is the learning and upgrading opportunities that foreign investors could potentially bring. The UK is very strong in scientific discovery, by the way, and we all know that. However, very often we neglect the fact that a foreign investor could bring in complementary capabilities to help UK companies that already own advanced technologies to further learn and upgrade. If you do not mind, I would mention some research I have done on Chinese acquisitions in the UK. Yes, it is very true they come to learn from us, but they also bring new knowledge into the acquired British firms so that they learn how to further develop their technologies, in the same area or in a different market area. We very often neglect that.

Q217 **Royston Smith:** You have both spoken positively about foreign investment and how it is a good thing in general. We are looking at asset stripping and how to protect companies from asset strippers. In your opinions, would restrictions on investment have an impact on the competitiveness of the UK technology sector? I can guess what you will say, but do you think it would make that sector less competitive around the world if we were to put more restrictions on foreign investment?

Azeem Azhar: Asset stripping is quite an interesting phrase. It is not really one that you hear in the technology sector. Because the technology changes so quickly, you need to be acquiring working technology with a team, with the customers, for it to have any value. When you get into the space of asset stripping, you are probably selling things that are not of that much use in the market, unfortunately—or, fortunately, in the case of the risks that emerge.

I think there are two separate questions. The first is: to what extent does the acquisition of British companies diminish our ability to build successful companies in the UK? That has happened with the internet to a certain extent. While there was a lot of knowledge transfer between successful American companies and UK executives, which has allowed us to build a new generation of companies, we also saw some of our great companies being successful under the aegis of an American firm rather

than being able to carve their own path in the UK and their own stock market listing, and the success that that brings.

There is a second dimension that is less to do with asset stripping and more to do with the fact that these technologies are increasingly strategic in our world, and they are increasingly dual use, in the sense that they are not so much swords into ploughshares as ploughshares into swords. They are developed for the consumer market. They are incredibly important in the consumer market, but they have dual use, and they can be used in security or military arenas. The deal that has made me feel uncomfortable—unfortunately, and I do not have a good answer as to how I would have handled it had I been sitting in your seat—is the discussions over ARM. I feel this is a strategic and important business that we have in the UK, and it perhaps merits more scrutiny. In answer to your question, it is not asset stripping in the way that we traditionally think of it.

Shaowei He: I have lived in the UK for nearly 20 years now, and I am a great admirer of the decision-making process in this country, where we say that policy making should be evidence-based. We have great examples of that. As regards asset stripping associated with foreign investment, I think the same principle could be applied. We need to see if there is any evidence of asset stripping. Even in the context of Chinese investment or acquisitions in the UK, is there any evidence that Chinese investment has caused systematic harms to the UK economy, and is there evidence of asset stripping? We can go away and sit down and decide how we cope with that, if we have evidence of that, of course. That is number one.

Number two is, yes, if there is evidence of asset stripping, could that be termed as a threat to national security? At the same time I am thinking about the other side of the coin. If we do not have foreign investment, start-ups and scientific discoveries in this country could be deprived of the learning and development opportunities, the capital for them to scale up quickly, access to foreign markets and other applications that we have just discussed. If that happens, that also could be treated as a threat to our national security. We want to develop our science and technologies but we may not be able to. A much stricter regime may have the unintended consequence of what we do not want to see, if you know what I mean.

Chair: Royston, have you finished?

Royston Smith: Yes, thank you, Chair.

Q218 **Chair:** May I ask whether there is a direct correlation between the size of a foreign investor's stake in a company and the impact on the company and the knowledge transfer? Is it direct or are there other ways, even if you have a small investment in the company, in which you can seize intellectual control, as it were?

Shaowei He: The short answer from me is no, perhaps. I happened to do some research on the issue of control. The control of a company is a question related to the power relationship between the acquirer and the acquired company. You may look at the size of the stake the acquiring company has taken and you may also look at, for example, the number of senior managers the parent company parachuted in to the subsidiary. According to our research and the academic literature, very often that does not reflect the real picture of control or influence that a parent company has on its subsidiaries. The academic literature seems to indicate that the picture is very dynamic and fluid, and that the relationship between the two entities changes over time. It is very difficult for anybody to establish how much control that parent company has on a subsidiary.

Azeem Azhar: I was blown away by the answer from Shaowei, so I do not have much to add. One tiny point I would make is that more is better. The point at which a foreign company owns more than 75% of a British company it has de facto control on every decision, but perhaps the threshold occurs earlier. In the kinds of investments that I am familiar with in the venture capital landscape, you have financial investors taking minority stakes with typically very limited information rights and quite limited rights in respect to the ability to make use of the know-how within the organisation.

Shaowei He: If you will allow me, Chair, I can give you an example. In the case study of a company I have been studying, the Chinese company acquired 75% of the stake in the British company, but it did not have 75% of the board membership. It only parachuted one senior manager in to the subsidiary. As regards the ownership of the IP that they co-developed, it is an equal share between them, as far as I know.

Q219 **Chair:** I remember Rupert Murdoch maintaining that, despite the fact he completely owned *The News of the World*, *The Sun, The Times* and *The Sunday Times*, he had absolutely no ability to know what was going on within the organisation when it was breaking the law by paying police officers for information. Sometimes, even when you have complete control, you can deny it. I think as Chair I should rule myself out of order for raising that. Do you think there should be any limits on the share of ownership by foreign-owned companies in any sectors at all? I can guess where you are both going to come from on this, but go on, Shaowei first.

Shaowei He: It is difficult to put a limit on the share of foreign investors. Do you apply it to investors from every country or investors from a single country, or do you have different rules? It is very difficult to implement.

Q220 **Chair:** Going to that question—and, Azeem, I will come to you in a moment—I do sometimes worry that it feels as though we are talking only about China in this discussion. That does not seem equitable but maybe it is prudent; I do not know.

Azeem Azhar: We have rules in other sectors; we have had rules around media ownership for a while. One of my observations would be that we have to think about the other aspects that exist in how we govern technology in a multi-stakeholder and multipolar world. The last line of defence might be whether we have greater scrutiny of investment or acquisitions that might yield a veto. There are a couple of questions you would have to ask there, including what the level of materiality is. We have such a vibrant start-up ecosystem that is producing brilliant companies like DeepMind. It is commercially sensitive when these companies go out to raise money in their early stages, and to apply scrutiny at that point would be severely deleterious to this ecosystem and all the innovation that comes out of it.

At the point of acquisition, which is where I would be more concerned than with a small minority investment from a professional financial investor, it might merit some kind of consideration. The thing that we need to be very up front about is that it is very hard to decide whether those are good investments at the time. Quite often the acquisitions happen and the press discussion says, "Why on earth is so-and-so buying this company?" For example, when Google acquired YouTube for $1.6 billion, people laughed, and many people laughed when Facebook acquired Instagram, which had 10 employees, for $1 billion. There are so many stories like this, because it is very unclear where we should draw that line of materiality. That is a hard question when it comes to the dual-use nature of these technologies, and the fact that we cannot be clear on the point at which they start to create some form of threat to us from the perspective of national security.

It is also important to do two other things. One of them is to work out where the common sense about the digital world is being developed within the FCDO. I know the Government have a lot of fantastic technology and scientific expertise, but I am not sure they necessarily have that muscle running that looks at the intersection between technology innovation and its commercialisation, and how it changes cultural behaviour, which is where a lot of our risks from technology currently exist. That kind of horizon-scanning and interpretation function becomes quite important because it lets you make better decisions.

The second area that we need to work on for our technologies to work is that we need to have trust and trusted governance. We have been gifted this slightly random thing that emerged out of America in the 1970s through the internet and the microchip, and we never thought that hard on those technologies about what multi-stakeholder international governance should look like if it is going to deliver the right level of trust that we all need if this is going to work for our benefit. There is a role for the FCDO in promoting the mechanisms that create trusted technology governance in this rather more fragmented environment we find ourselves in.

Chair: Alicia, do you want to come in?

Q221 **Alicia Kearns:** Thank you, Chair. You talked about the difficulty of forecasting and mitigating threats that might be many years ahead. How do we compare with our allies in terms of vulnerability to British companies versus those in Europe, or the US, Canada, Australia and New Zealand? What further practices could companies or the Government adopt from our allies or others, to improve our resilience in the face of hostile states that actively indulge in asset stripping to gain that competitive advantage in national security?

Azeem Azhar: I probably do not know enough about what is going on in other countries to be helpful, I am afraid.

Shaowei He: Me neither. Again, I would love to start from evidence.

Q222 **Alicia Kearns:** That is a bit of homework for the Committee to take away. Looking specifically at the acquisition of Dynex by Times Electric, we have talked about how asset stripping is not necessarily a term that is readily used within the finance industry, and along those lines the acquisition might have been seen as beneficial for both companies involved. Were there any benefits to the wider UK technology sector more broadly or was it down to benefits for those two companies?

Shaowei He: I am not entirely sure I understand the question.

Q223 **Alicia Kearns:** The acquisition was beneficial for Dynex and for Times Electric. We are looking at this through a very narrow lens of the risks and dangers of asset stripping, and I am trying to look at the converse, which is the benefits of asset stripping to the wider technology sector, as we saw when Dynex was bought by Times Electric. Is there no wider peripheral benefit for the sector but literally about company-by-company benefits rather than the industry as a whole benefiting from these sorts of acquisitions?

Shaowei He: Again, you would expect an answer from a researcher. Personally, I have not done any research in that area, but it could be a very good research question for my PhD students. I can only gauge the potential benefits to the wider economy from what I know from the literature. I just mentioned an example from my own case studies that there has been benefit in learning and upgrading to a British firm that already owned advanced technologies—benefits from a Chinese investment in that case in particular, but that does not necessarily have to be the case.

In theory, this knowledge and learning and these upgrading opportunities could trickle down to the wider industrial cluster that Dynex, for example, sits in. Dynex does not operate on its own. It is a member of the wider industry. It has employee engagement with the local economy, and, by being a member of a trade association and other mechanisms, this learning and upgrading of knowledge, and new knowledge coming from foreign investors, could be shared and exchanged with other local cluster companies, if you like.

Q224 **Alicia Kearns:** Once a foreign entity has access to the assets in an acquired UK company, how vulnerable is that UK company to asset stripping? What are the advantages compared with keeping the UK company intact?

Azeem Azhar: I will take a punt at this. In most technology companies, the assets tend to be in a set of intangibles that might be things that you can lock up because it is property, or things you can write down because it is software, or what we discussed earlier: tacit knowledge that lives within the heads of the employees. If you are not able to maintain the running operation of the business, and that means the people essentially, you do not gain very much by just having the code or just having the intellectual property.

One exception maybe is if you have patents. A company that has a lot of patents may find that those are very useful, and that they become useful for the acquirer in defensive terms in giving it the ability to block other competitors globally to enter into a space. It is not as straightforward as taking some sort of physical tangible machinery and moving it elsewhere. It is a little more nuanced. Personally, I would focus in the software business on the team and the ability to keep the team working, because that is where the value comes from. There are clearly domains, particularly in hardware, where patent portfolios become an important intangible asset that can be used for years to come.

Shaowei He: I echo the importance of maintaining talent in this country. That is also very important from the perspective of foreign investors. Talent is the most important asset that they are acquiring. It makes no sense for them to give it away. From a foreign direct investment regulation point of view, it is very important to make sure that we have mechanisms to maintain that talent, and to give them further opportunities to learn and develop in the future.

Alicia Kearns: Thank you ever so much. If only every acquirer was as benevolent as the two of you, I do not think we would be holding this inquiry. That is all from me, Chair.

Q225 **Chair:** I am going to ask a final question, which I am a bit hesitant about, but I am going to go ahead. It is about TikTok and Grindr. Grindr was originally an Israeli-American company, I think, bought by China in two chunks, which has now been sold because there were worries about Grindr's national security interests problems for the United States of America. I am not quite sure how that works, but anyway. Obviously, there has been a big row about TikTok this year. What is your take on how significant Chinese investments in those kinds of companies have been for national security?

Azeem Azhar: I will take a shot if that is okay. The situation with Grindr was that it clearly opened up a lot of people using the service to some form of potential blackmail. We are learning, and I alluded to this earlier, about the difficulty in understanding whether a particular acquisition

would be problematic or not. We are learning that you cannot necessarily tell a priori. That was true when Facebook acquired WhatsApp. We did not realise that WhatsApp would become such a tool for sectarian violence in Burma and India just five years later.

When I look at TikTok specifically, and I think it is important to look at the details, TikTok tried very hard to set itself up in a way that would respect national or regional issues as related to data and privacy and content standards. It had set up Europe, separately to the US, separately to China. It was trying to take a new model for a global internet company that partitioned itself in that way.

It is also important to note, and we have just seen this happen in the last hour while we have been on this Committee, that Ant Financial has pulled its initial public offering on the Shanghai Stock Exchange through directives from above, as it were. The challenge that we have within certain Chinese companies is that even if they set themselves up very well, according to better-than-normal standards of governance anywhere in the world, as TikTok might have done, we do not know how far the Chinese Communist Party will go in changing those. It is quite surprising to see Ant Financial have its IPO halted on the proposed day of trading probably by an edict from Beijing. That is a knotty question, but each situation requires us to go in and look at what the firm in particular has tried to do.

Shaowei He: Overall, despite the fact that we are very often talking about the scale of Chinese investment into the UK, the volume of Chinese investment into the UK is still very small compared with American investment and investment from Germany, for example.

Q226 **Chair:** And France.

Shaowei He: And France. We are talking about a very small volume of investment. That is number one. Number two is perhaps slightly off the topic, but Azeem has mentioned that TikTok has been trying to be a good global citizen. It was forced to sell itself about a month or two ago.

My interpretation is that American policy making is driven by anxiety over the rise of China and its enterprises, and the fact that in the past people tended to underestimate Chinese innovation, but suddenly, from 2015 onwards, they overreacted and overestimated the strength of the Chinese innovation system. I think that has resulted in and contributed to the anxiety that I mentioned earlier. To what extent the UK, despite the fact that it is no longer a superpower, unfortunately—

Chair: You are obviously not trying to win friends and influence people here.

Shaowei He: It is not me saying this. Many of my British fellows have said this to me. We need to consider to what extent we should share the same anxiety and our policy should be driven by the same level of anxiety.

Chair: I think my anxiety levels about what is happening in America are much higher than my anxiety levels about anything else on this particular day of the year.

Incidentally, I am constantly perplexed by how TikTok knows that I want to see quite so many clips of Miriam Margolyes being rude to people on television programmes, and Dame Edna Everage, and Carol Burnett, bizarrely.

Unless anybody else on the Committee has any more questions to ask, I want to say an enormous thank you to both of our witnesses this afternoon. It has been very kind of you to be with us. We are very grateful and we are hopeful that we will be able to produce a much better-informed report. Thank you both for your time this afternoon and thank you very much to the rest of the Committee.