Treasury Committee

Oral evidence: Bank of England Financial Stability Reports, HC 681

Tuesday 17 July 2018, Farnborough

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Members present: Nicky Morgan (Chair); Rushanara Ali; Charlie Elphicke; Stephen Hammond; Catherine McKinnell; John Mann; Wes Streeting.

Questions 71 - 114

Witnesses

I: Mark Carney, Governor, Bank of England; Andrew Bailey, Member of the Financial Policy Committee and Member of the Prudential Regulation Committee; Sir Jon Cunliffe, Deputy Governor for Financial Stability; and Elisabeth Stheeman, External Member of Financial Policy Committee.

Examination of witnesses

Witnesses: Dr Mark Carney, Andrew Bailey, Sir Jon Cunliffe and Elisabeth Stheeman.

Q71 **Chair:** Good morning and thank you very much to our witnesses for joining the Treasury Select Committee on our summer outing to Farnborough. We are all delighted to be out of Westminster. I am going to ask you all to introduce yourselves. You will need to press the button on the microphone in front of you when you are speaking. We are livestreaming, so we will see whether we can perhaps get this session trending on Twitter, for all the right reasons rather than the wrong ones. Governor, can I start with you?

Dr Carney: I am Mark Carney.

Elisabeth Stheeman: I am Elisabeth Stheeman, external member of the FPC.

Andrew Bailey: I am Andrew Bailey, member of the FPC and chief executive of the FCA.

Sir Jon Cunliffe: I am Jon Cunliffe, deputy governor for financial stability.

Q72 **Chair:** Lovely, thank you very much. This morning we are particularly looking at the latest financial stability report, and I want to start with the part of the report that looks at cyber resilience and the stress test on attacks. The FSR largely refers to resilience against external attacks but, of course, in the last few months we have seen the difficulties with the IT migration at TSB and the issues that Visa faced. I want to ask about the balance between external attacks and internal resilience and whether you think the Bank's stress testing should cover internal failures as well as resilience to external attacks.

Dr Carney: Yes, it is very on point. Cyber resilience does require resilience both externally and internally. There is a huge people element to what is called cyber hygiene. If I may, I will make one point about something that is referenced specifically in this FSR. This is part of the FPC's broader cyber strategy, and this element is to address failure, so assume failure. There are other elements that build up defences, but this element of the cyber stress test is to take out a component of financial market infrastructure, a payment system or, ultimately, financial institutions' systems and see how rapidly they can recover from a severe but plausible cyber failure. That is the operational analogue to a credit event, a big credit failure or financial crisis, which we do with our conventional stress testing.

I absolutely agree that there are risks internally, and those can be of commission or omission. It is as simple as dealing with phishing e-mails, which is the classic example—it is remarkable how much is caused by very basic cyber hygiene—but obviously there can be malicious actors in large organisations, and one has to plan and design systems for that. The core element—and I will stop here—of what we are launching as this part of the strategy is to assume failure. We will use the National Cyber Security Centre to help us design that severe but plausible test and then see how quickly the institution can recover. The FPC will be setting impact tolerances, so limits and requirements on how quickly institutions can get themselves back up and running.

Q73 **Chair:** Obviously, TSB thought that it had prepared for its IT migration. We have had exchanges with Mr Bailey and the FCA on this. In the real world, when it hit reality, the migration did not go at all smoothly; it generated, I think, over 100,000 complaints in the last couple of months. I don't think anyone wants to imply that external attacks are not important and should not be tested against, but where—in terms of looking, for example, at financial stability—do internal risks or lack of internal resilience fit? I will ask you, Governor, and perhaps Sir Jon as well.

Dr Carney: I will make two points, first. One is, as you are well aware, that both in the case of TSB and in the case of Visa, these were not cyber events; these were issues of fundamental failures of operational resilience. The TSC has taken a direct interest in both of those situations and both of them are ongoing, ex-post evaluations that both the FCA and the PRA—not the FPC per se—are monitoring and following up on. There will be, I am sure, further discussions about the learnings from those.

Cyber is within the broader range of operational resilience. As the FPC, we have to judge when an event flips from an issue of consumer detriment—proper service to consumers—to an issue of systemic risk. I would say, as a general point, not absolutely—and this is something we will find with the impact tolerances, and I will hand over on that, if I may—that in most cases the consumer tolerances will be much tighter than the systemic tolerances. In other words, the expectations of a Visa customer, a TSB customer or any retail banking customer, which are legitimate expectations overseen by the FCA, will be much tighter than the point at which an individual institution's failure—or incapacity, to put it better—rises to an issue of generalised confidence and systemic risk. We have to get that balance right, but part of what we are doing is to be very explicit and very deliberate about that and then be interrogated, rightly, by you to ensure that we have the balance right.

Sir Jon Cunliffe: To build on that a little bit, the FPC has looked at cyber, which is a subset of operational resilience, but it has tended to focus on cyber. A cyber-attack has the ability to be systemic and to run across a number of firms, whereas operational incidents could lead to that but generally tend to be concentrated in one firm or another. This approach to cyber resilience—how quickly can you respond, detect, ameliorate and recover—is at the heart of the proposals that the Bank and the FCA are rolling out for operational resilience more generally. The FPC's objectives are engaged at the financial stability level. That is a higher test, and Andrew can talk about when the FCA is engaged. But the same idea about "How quickly can you come back, do you test and do you have the processes?" is at the heart of what we are pushing out for operational resilience more generally, which will involve the sorts of failures that we have seen in TSB and Visa.

Q74 **Chair:** I will bring in Mr Bailey in a moment. TSB and Visa were internal failures rather than attacks from outside, as we understand it, but Visa was more systemic. TSB is one institution—I fully take the Governor's point about the risk to financial stability from internal problems at one institution—but Visa, of course, is a much more widely used system, which is used by many, many different customers in many different settings. That would tend towards the more systemic, wouldn't it?

Sir Jon Cunliffe: Yes, and it will be covered by this general operational resilience approach, which will use, effectively—I think we say this in the FSR—the technology and the thinking that we have pioneered on the cyber side.

Dr Carney: If I may, I will make a short and precise point. As you know, systemic payment systems are designated by the Treasury and overseen as well by the Bank, as the FCA, for the consumer side. Visa falls into that camp.

Andrew Bailey: I have a couple of points to add to that. As I think you know, we have this thing called the Authorities Response Framework, which is how we manage incidents. That is why, in the Visa case, the Bank of England was the lead authority in managing that incident. In TSB, it was us. That is, in a sense, a natural reflection of the point you make about systemic.

The other point I would make is this. There are two phases to what can go wrong in these incidents. One is the root cause and why the incident happened, but the second part is how the firm or the system responds and manages the incident. The second one can magnify the problem. To your original question, testing for a cyber incident will tell us a lot about how they would manage a non-cyber incident in terms of the second part, because in many ways that is common ground: how well do they know their systems, and how practised are they at responding? I have seen this happen. A firm can magnify the effect of a problem by the way in which it is handled. That is pretty common ground, whether it is cyber or non-cyber.

Dr Carney: On the Authorities Response Framework—in the case of TSB and certainly in the case of Visa—it was important to get across early on that this was an internal hardware issue as opposed to a cyber issue, and to be confident of that. That reinforces something about cyber that was alluded to earlier. Once something is a cyber issue, the nervousness level, the potential contagion level and, obviously, the threat level—there are reasons for that—go up quite substantially. It is noticeable that although these are important issues and Visa is systemic, it just takes down the level of concern. It is important in either path that that information is transmitted as quickly as possible to all potentially affected institutions.

Q75 **Chair:** I have two final questions. Governor, do you think that systemically important financial institutions should have to demonstrate to the PRA that planned IT maintenance or migration changes will be successfully carried out prior to their execution in the real world?

Dr Carney: Yes, they are. They should be. Those representations were made, which is one of the reasons why the PRA and the PRC take such a close interest in the ex-post investigation at TSB.

Q76 **Chair:** We are sitting here today amid the great and the good of the aerospace industry. Do you think that there is anything that financial services can learn anything from other sectors, such as aerospace, about cyber-attack stress testing or knowledge?

Dr Carney: Without question. One of the advantages of the new architecture around cyber security in this country, with the NCSC under GCHQ, is that you get a clearing house of that expertise. We are drawing heavily on that expertise as we think about cyber defences—it would be wonderful if we could build perfect cyber defences and isolate incidents—and as we do exactly as we are talking about here and assume failure. Take out a part of your system, and how quickly can you recover the system? What are your backups? What is your governance? These will be very important tests, and I suspect that we and the institutions will learn a great deal and probably will not be entirely satisfied.

Chair: Thank you. I am going to hand over to Rushanara.

Q77 **Rushanara Ali:** I want to ask some questions about Brexit risks to derivatives. The status of derivatives contracts has again been highlighted by the FPC as a significant Brexit financial stability risk. What consequences would arise if these contracts could suddenly no longer be serviced? Governor, do you want to start?

Dr Carney: It is important, as you can appreciate from previous conversations, to distinguish between cleared and uncleared derivatives. Let us start with the mass of uncleared derivative contracts. Just so we are all on the same page, we are talking about contracts between UK-based institutions—they could be a foreign bank that has a subsidiary here or a UK-headquartered bank—and institutions in the EEA. The scale of that, as detailed in the report, is in the order of £26 trillion-plus. Notionally, it is £26 trillion to £27 trillion. The important thing is that about £16 trillion of that matures following the Brexit date, so some of it could roll off but the majority matures beyond.

What potentially happens, at least as we stand right now, is that the EEA—I will simplify it to the EU27—counterparty will not be authorised to enter into that contract, so the contract will continue to be legally valid so it can be serviced. In other words, if it runs to maturity, the payment can be made. It is still governed by English law and we recognise that that is the case. The financial stability issue is that with these contracts there is a series of so-called life-cycle events over the life of the contracts. Sometimes they are rolled over; that is an obvious one. In many cases, for financial stability, capital preservation and optimisation purposes, trades are compressed. A series of trades are brought together and reduced into fewer trades, saving capital and collateral. There are embedded options, in many cases, in these contracts, and so on.

The crucial point here is that on the day of leaving, the contract can still be serviced; however, life-cycle events will start to accumulate and, arguably, they will accumulate quite rapidly in the event of a cliff-edge Brexit because one would reasonably expect the volatility in markets to go up. How big is that potential risk? We have done the due diligence on that. For a mid-size firm there are about 1,000 life-cycle events a month. For a large derivative counterparty, there are up to 250,000 a week. If you think about it in the world of derivatives hedging underlying positions, with the inability to conduct these life-cycle events and an environment where there is volatility, the risk—the inability to dynamically hedge—increases with time, and you see a financial stability risk developing fairly quickly, in our opinion. We shared that opinion publicly through the FSR and directly with our counterparts in the EU.

There is a separate set of issues—I will try not to go on as long—with respect to cleared derivatives. The issue, to make it simple, is that effectively, as it stands at present, the large, UK-based clearing houses would no longer be authorised clearing houses by the EU following the Brexit date. Therefore, the actions of European counterparties that had cleared in those clearing houses would be ultra vires; they would not be authorised to use those clearing houses. Those clearing houses would know that in advance and so the European counterparties would have to close out those positions in advance. The question is how rapidly that could be done. The orders of magnitude are much higher—it is a notional £60 trillion-plus of exposure—than they are in the uncleared space. That process, which the Bank of England oversees as the regulator of these clearing houses, would have to begin prior to the Brexit date.

I want to make two final points. First, the UK Government have signalled their intention and developed statutory instruments, which they will lay before Parliament as soon as is practical. Given the timing of the summer recess, that is likely to be in the fall, but it will be done in a timely way. Those statutory instruments will solve the UK side of this issue—both authorisation of EU CCPs and authorisation of the EU counterparties. The European Union has not yet indicated a solution to this.

Q78 **Rushanara Ali:** Dr Carney, in the past when you have come and addressed these issues, you were much more optimistic, but time is running out. How do you feel about it now? Do you think the EU27 are being irresponsible? What has gone wrong? Why are things not progressing as much as they should have done, given your optimism in the past?

Dr Carney: You are the first person to describe any member of the FPC as optimistic.

Rushanara Ali: More optimistic than you are now.

Dr Carney: To be clear, my personal view and the view of the Committee—colleagues who are here can disagree if they wish—is that we welcome the steps that the UK Government have taken, their understanding of the issue and the fact that the UK is solving its side of this issue. Yes, we are concerned that the EU has not yet indicated its solutions to their side of these issues, but there is time. To be absolutely clear, we are in no doubt—I will put it in the positive—that the private sector cannot solve these issues. There is not enough time for the private sector to solve these issues. We know that. Mr Bailey, Sir Jon and others, including Sam Woods, know from actual experience of trying to novate contracts in much, much smaller variants of this that it takes years to novate something on this scale. I think the Chair of this Committee would be familiar with these issues as well. This is absolutely an area where there needs to be a public sector solution.

Q79 **Rushanara Ali:** Mr Bailey, the UK is doing what it needs to do but the EU27 are not budging, and their expectation of businesses having to do this, and prepare, is within a much shorter timeframe than the Governor has just said it is going to take. What are the consequences of that? What should we be expecting, given this mismatch? What do you see happening?

Andrew Bailey: I agree with everything the Governor has said about this. As you would expect, given our roles, our view is that this should be sorted out sooner rather than later. We welcome the fact that the UK Government have taken the steps that they have taken and made the commitments they have made. I also agree with the Governor's assessment that it is too late now to expect the private sector to undertake this activity on its own and unassisted.

You are right to say that there is a clear tension here, because there is a line that comes out of the EU that these are matters that the private sector should deal with. As I think we have discussed at previous hearings, I disagree with that, and I think it is unfortunate that this is now being tied up in the broader process. Wearing our hat, it would be much better, frankly, if this was taken off the table. It should not be a chip on the table. We have to keep making that point. We have to do all the preparations we can do but, as we have said, we cannot make the preparations outside our own jurisdiction. We can point out the risks of this, and I fully agree with the Governor's assessment of the risks. I do not have anything to add to that. It is a shared view.

Q80 **Rushanara Ali:** Do you think it was naive for us to not expect it to be used as a chip, Governor?

Dr Carney: I think this is best viewed—

Rushanara Ali: Is it a consequence of bad-tempered negotiations?

Dr Carney: It is a technocratic issue.

Q81 **Rushanara Ali:** Which has been politicised?

Dr Carney: It is a core issue that has been discussed at the technical working group, chaired by the Bank of England and the ECB. The FCA is a member of that, and other jurisdictions are members as required around these issues. We are doing everything we can to develop a shared understanding of the seriousness of the issue. It is for the European side to determine how they would solve it. This has no precedential value to the end state relationship. It should not be viewed as such. It is unfortunate if some on the continent view it that way. This is fundamentally about taking our responsibilities to protect the financial system, but very much the real economy from the financial system. It is cold comfort, but it will be worse in Europe than it is here.

Q82 **Rushanara Ali:** That message, Governor, with respect, does not seem to have got through yet. How confident are you that it is going to get through in time so that the consequences are not what we fear?

Dr Carney: What we can do, and what we are doing, is to do the due diligence, to gather the evidence, share the evidence and understand the European perspective. In some—many—respects, the European analysis of this issue is lagging ours, but they have to do their own due diligence to come to that determination.

The other thing we have to do as a committee, and we are doing it, is to assume that this will not get solved and look at what the consequences would be for our institutions. We have to make sure that they have the adequate capital, liquidity and that we have the right facilities in place, on the assumption that it does not get solved. That is what we are doing.

Q83 **Rushanara Ali:** Great. I have one final question. A while back, the Chancellor, when he was asked about what life would be like in the event of no deal—since we are in Farnborough, I have to quote him—used the line about planes being grounded, and much else. It was a very colourful evidence session that was widely reported. What are the consequences in the event of a no deal? Do you share that perspective, in the light of where we are right now?

Dr Carney: If we have no deal and no implementation period, there will be a situation that I would characterise as one in which we have issues such as we are discussing, if they have not been solved by other means. It is possible, by the way, to have no deal and have these issues solved.

Let's assume that, which is a glass half-full, no-deal scenario. Europe comes up with their analogue—their equivalent solution—to what the UK Government have signalled, so we do not have the derivative problem. That solution could just be for legacy contracts as opposed to on a go-forward basis, so we could have extreme fragmentation of the European capital market and a situation in the UK, speaking strictly from a financial services perspective, where we have an excess of bankers, capital, collateral and capacity in the financial sector. Sterling markets would be affected by global developments and European developments, but actually the capacity would be there. There would be a shortage of capital collateral capacity in Europe, without question, which would take some time to adjust to.

I am speaking very narrowly about the financial services side. We can all appreciate, in the aerospace sector as much as any, that in a no-deal scenario there would be big economic consequences. We might have a lot of idle bankers because there is not a lot of demand for their services, but we will not have a shortage of capacity in the UK.

Q84 **Rushanara Ali:** Are you going to hang around to make sure that we have an orderly transition, or orderly movement, in the event of no deal? This is an attempt to try to get you to commit to staying longer.

Dr Carney: March comes before June, yes.

Q85 **Chair:** I am going to bring Catherine in in a moment, but first, to follow up on Rushanara's questions about the discussions with the EU27 on the derivatives contracts, I am sure that the Treasury is well aware of these issues and that you have discussed them with the Treasury. Have there been requests for this to be formally raised up to the level of ministerial negotiating teams—DExEU Ministers—with Michel Barnier, Governor?

Dr Carney: I probably should answer that. The approach, which we support, has been that this technical working group has been set up with the ECB and the Bank of England—I chair it along with President Draghi—and the senior representative of the Treasury and the Commission are observers at that. Then the other authorities, as required, are there for the various issues. That is a process that was agreed at the highest levels, with the Prime Minister and President Juncker, and endorsed by Commissioner Barnier, the Chancellor and the Secretary of State for DExEU. That is the process to deal with what is a technocratic issue.

If I can venture my personal view, that is the right place for it because this is very important plumbing in the financial system that the authorities should be sorting out. The advantage of having the Treasury and the Commission at all these meetings is that they hear first hand what the facts and options are, and it is then for them to go back and help to determine the solutions.

Q86 **Catherine McKinnell:** The Chequers agreement, as reached—more or less—last week, stated that "the UK and the EU will not have current levels of access to each other's markets" but they will have arrangements on financial services that, "preserve the mutual benefits of integrated markets and protect financial stability", noting that, "these could not replicate the EU's passporting regimes". Is it your view that it is actually possible to achieve these joint objectives while not having the same level of services trade between the EU and the UK?

Dr Carney: If I may, I will restrict my comments to financial stability.

There are a few issues around financial stability. One is the transition to the end state—we have been talking about a more extreme version of transition—and how orderly that process is, and another is the characteristics of the end state. Having acknowledged the transition, I will focus on your question about the White Paper, which is about the end state.

Several aspects will influence the ability to maintain financial stability in the UK. The first is the scope of the agreement. The White Paper is fairly high level about the types of activities—activities that have big economies of scale and scope. It is the right thing to be talking about, but it does not go into detail about what those activities exactly will be and, of course, that is a matter for negotiation. Scope will matter because the less scope there is, the more fragmented certain markets will be and potentially the less competition and the less diversity there will be in those markets. In all those respects, there is a challenge for financial stability. Those challenges can be overcome, but there are issues that need to be addressed.

The second thing is whether the Financial Policy Committee has the ability to maintain our current standard of resilience in the system, which is generally higher than minimum international standards. There are areas in which rules are applied—whether they are capital standards, some liquidity standards or other standards—where the requirements in the UK are higher than European rules. We do not want to be in the situation where there is "maximum harmonisation" because, to put it simply—and we have talked about this before—this is a system that is 10 times UK GDP. It is of a different order of magnitude, in terms of size and complexity, from anything on the continent, actual or prospective, I would argue. There needs to be that flexibility to be tougher, as appropriate.

Thirdly, there is a question about the types of rules and our ability to vary them for macro-prudential purposes. I will give you an example. Most recently, in response to concerns about the rapid growth of the consumer credit pocket of risk, we worked in co-ordination with the PRA on an adjustment to so-called Pillar 2 capital for such exposures that had both a micro-prudential safety and soundness of individual institution benefit, and a macro-prudential benefit. We want to continue to have the ability to vary those. Again, that is an important element of the system today, but it needs to be part of the agreement. We need elements of supervisory co-operation and information sharing with the European Union if those institutions are going to be active here, and ours are going to be active there.

There is a question about the overall approach to the arrangement. In other words, does it seek to find evidence-based assessments of equivalence of outcomes—that is referenced in the White Paper—or is it an approach that involves, effectively, cutting and pasting existing rules from Europe to here? Bearing in mind everything that I said earlier in my comments, the drafting of paragraphs 61, 62 and onwards in the financial services section of the White Paper is, to my eye, more consistent with the need for flexibility—for us to be able to have tougher standards if we need to and to focus more on equivalence of outcomes—although we do recognise that this is a White Paper. It is the start of a negotiation and it is a mixture, in some respects, of two models. It is a bit early to give a final judgment on it.

Q87 **Catherine McKinnell:** That was a very detailed response to whether those are mutually possible objectives. I want first of all to jump to the resilience question, because the Government's White Paper says that "one study has found that if new regulatory barriers forced the fragmentation of firms' balance sheets, the wholesale banking industry would need to find £23-38 billion of extra capital". Do you agree with those numbers? Was the Bank consulted on the drafting of the White Paper? Were you consulted—yes or no—and, if so, were the issues that you highlighted to them addressed within the White Paper?

Dr Carney: There are several points on that. Let me be clear on your first question. If I simplify it down to "Can you have prosperity and financial stability?" balancing those two, you can have financial stability at various levels of prosperity. Financial stability is a necessary condition for prosperity, but it is obviously not a sufficient one. The reason I gave you the detailed answer was because those are the types of things that matter to our ability to fulfil our statutory remit to maintain financial stability, but that is not the same thing, nor is it our role to comment on the overall approach in terms of whether it delivers prosperity.

The £28 billion to £33 billion figure, or thereabouts, is an Oliver Wyman figure. From memory, I think it is footnoted in the report. We did not endorse that figure. We have looked—for purposes including, importantly, our stress testing—at various degrees of fragmentation in the system and the potential capital consequences of that fragmentation. That was part and parcel of us making the overall judgment that the very severe stress test that we did last year that was caused by other factors—problems in China, misconduct costs and other things that led to £50 billion of losses— encompassed, in our words, the risks around Brexit to the financial sector. In terms of capital figures, I am comfortable that we have the institutions capitalised to that, but there would be costs of fragmentation.

You asked if we were consulted on the White Paper. I will answer in a few ways. One is that, yes, we have had regular discussions with the Treasury. I have regular discussions, as you would expect, with the Chancellor, as does Mr Bailey in both his roles. The final White Paper is the responsibility of the Government, so we did not edit the final version.

Q88 **Chair:** Did you see the paragraphs?

Dr Carney: I saw earlier versions of the paragraphs, but the final versions of the paragraphs I saw as fait accompli.

Q89 **Catherine McKinnell:** The UK Government also stated in the Chequers agreement that the UK will no longer follow EU rules on services where potential trading opportunities outside of the EU are largest. When it comes to financial services, and in the context of financial stability, where do you think those trading opportunities are going to come from? Do you think it is realistic to assume that any lost trading opportunities resulting from our exit from the EU will be made up by those trading opportunities outside of the EU?

Dr Carney: With respect to financial services specifically, it is possible in the fullness of time, yes. The reason I say that is that if one looks at the likely growth of cross-border capital flows over the course of the next quarter century, and at where they are likely to come from, London's traditional role is intermediating a substantial proportion of cross-border capital flows. The largest ones are going to come from the emerging markets. They are increasingly going to be south-south as opposed to north-south, so that may present a bit of a challenge. But if the UK keeps its market share, which is an extreme assumption, you can argue that the sector will continue to grow despite lost EU activity. That is a small answer to a much bigger question, which I am going to try to avoid answering, which is the bigger question of whether lost overall trade with the EU could be made up elsewhere.

Q90 **Catherine McKinnell:** When you say "the fullness of time" you are talking quarter of a century away here. What are the immediate risks in terms of stress testing, and in terms of what is now clearer coming out of the White Paper? Does that stress test need to be rerun with the greater clarity that appears to be emerging, and are there some immediate risks to financial services that will only be made up in the fullness of time, to use your words?

Dr Carney: Okay; that is very important. The stress test, or the way the FPC looked at the stresses around Brexit, was to assume the worst: a disorderly cliff-edge Brexit, no access on a go-forward basis, capital figures in the order of magnitude that you were discussing earlier, and the knock-on effects on confidence, risk premium and other factors. We have looked at that worst case. From a financial stability perspective, that is the approach we have taken. We retain the confidence, as we reiterated in this report, that the core of the sector is appropriately capitalised, even for a disorderly cliff-edge Brexit, in order to maintain overall financial stability and meet the demands of the real economy at that time.

Let me put in two important caveats, so we are clear that we are talking about the same thing. Maintaining overall financial stability in a disorderly cliff-edge Brexit—that would be a large economic shock, with potentially quite substantial changes to asset valuations, the exchange rate and other factors—is having a resilience in the system. It means the system is not making it worse, but that plus the economic shock is not a very happy situation for the economy; that is a gross understatement. Meeting the demands for credit from the real economy in that circumstance has to be put in the context of a situation where demand for credit will be relatively modest. That said, any household or business that wants to take on credit should be able to get it, and that is our responsibility.

Q91 **Catherine McKinnell:** At the risk of drawing you into areas that you do not want to talk about, can I ask for your reflections on the impact on financial stability of the Government's handling of the Brexit negotiations so far in producing the White Paper, the debate around it and the political discourse. Do you think we are strengthening our hand or weakening it, the way the negotiations are going?

Dr Carney: I will just make a general comment, which is that I think it is very healthy that issues such as the difference between goods and services and the issues around short-term financial services are being surfaced, that they are on the table and that they are being properly debated. I am not sure how much time there will be to have this debate to the extent that it needs to be had. In terms of the practical difference between a rule-based equivalence mechanism versus an outcome-based equivalence mechanism and all the variants in between—of course, there are variants in between—this is a new form of relationship that is being sought, and it is hard to distil it to binary choices. There are lots of issues now out in the open that were not perhaps as fully discussed in the past, but there is no sense in dwelling on the past.

Q92 **Wes Streeting:** Good morning. First of all, I want to pick up a specific point in the Financial Stability Report, which identifies clearing services as a red risk—high risk—for the EU but a medium or amber risk for the UK. Would someone like to explain the difference between the two and why you have reached that judgment?

Sir Jon Cunliffe: It goes back to the point discussed earlier. If there is no deal and no transition period, then EU banks and EU clients will be ultra vires, as the Governor said, in using UK clearing houses for many products that depend upon UK clearing houses. I think we have the figure of £68 trillion notional of euro business in the UK. Derivatives are risk management products, so if you disturb the way in which derivatives work you disturb risk management. The key thing here is that a clearing house is not a bank. It has a matched book, so for every position it has an equal and offsetting position. That is its job.

If you have a position at a clearing house, you cannot just transfer it somewhere else. That may be difficult anyway because the capacity is not there. You have to ensure that the clearing house retains a matched book afterwards, so you either have to find somebody to replace you so that the clearing house remains balanced, or the clearing house has to find a way— or you have to find a way—of selling your position, which will cost and will be difficult to do in time.

The risk is that you have a relatively large number of members—in fact, 20% of the clearing houses—who will not be able to perform their obligations and who will, therefore, have to move those positions or close them out. As the Governor says, they will have to do that in a relatively limited period of time.

I think that the reason why the risk is amber on one side and red on the other is that clearly the clearing houses cannot put themselves in a position where they will have a number of members who will not be able to perform their obligations, so they will have to take action to ensure those positions are closed out. That is on the UK side. On the European side, a large number of European banks, and behind them the clients who depend on risk management products, will first have to find a substitute derivative somewhere else and, secondly, have to find somebody to take their contractual position at the clearing house. That is, as the Governor says, quite a difficult thing to do for that many contracts of that value.

Q93 **Wes Streeting:** It is the FPC's view that the consequence for the UK here is more around loss of business for UK CCPs rather than a financial stability risk. Is that a fair characterisation?

Sir Jon Cunliffe: For the clearing house managing this process operationally, the clearing house has the ability to ask members to leave and to close out their positions, but nonetheless there is a risk to doing that. It has to be done in a short space of time. It is a very large volume. The loss of protection and the need to find somebody to stand in place will sit on the other side, which is why you have those two.

Dr Carney: To add to that, the Government intend to put a statutory instrument—a temporary recognition regime—in place that would allow us to be in a position to recognise a European clearing house. UK-based entities could continue to clear in the European clearing house if the European solution, as we discussed earlier, does not come in place. They cannot here. The point, and the reason why it is red, is that the vast majority of this activity takes place in the UK, so it is absolutely in Europe's interest to solve this issue, but they have not done so yet so it is going to fall disproportionately on them.

Q94 **Wes Streeting:** Governor, can I just follow up on Catherine's line of questioning on scenario planning at the Bank? It will not have escaped your notice that following the fallout from the Chequers deal, the risk of no deal has increased significantly in the last week. It is very difficult to see the parliamentary arithmetic in which the Prime Minister can get any deal through, frankly. In that context, how prepared is the Bank for the disorderly Brexit that you described? How much firepower is available to the Bank to mitigate against the risks, and how concerned ought we to be about that scenario?

Dr Carney: I make no comment on the relative probabilities because fortunately the responsibility of the FPC is to think about these risks, and even though they are unlikely—we have always described a disorderly cliff-edge Brexit as possible but highly unlikely—we have been planning for that. We plan for that in terms of the capitalisation of the banks and, as I say, we have reiterated our judgment in this report. We feel quite confident that the core of the UK banking system has tier 1 capital of 17% of risk-weighted assets, so more than three times what they had prior to the crisis. The losses in the first two years of our stress test are bigger than the losses in the first two years of the crisis that we subjected them to last time, and they absorbed it all in their buffers and still have room to continue to act. That is the first thing.

The second is in terms of preparation for solving as many as possible of the issues that we have detailed in the report. We are not holding anything back. To our knowledge, these are the main cross-cutting issues. Where there are solutions, there are paths to green, and in many cases the statutory instruments that the Government intend to lay will flip them to green. From insurance contracts to clearing services and banking services—asset management and personal data have to be solved separately—there are ways to solve those issues. They are not absolute and Mr Bailey can speak in more detail to both, if you wish.

That leaves us the potential situation of a market event with unanticipated developments, and requirements for collateral and for liquidity. That is where using the Bank of England's balance sheet could be potentially quite important. I will highlight a few things, if I may. First, the proportion of short-term funding that banks use, which is detailed in the report, has gone from more than 16% of overall risk-weighted assets to about 4% now. Their coverage of short-term liabilities that are runnable—think wholesale borrowing, repo and other things like that—has gone from 10% prior to the crisis to 110% today. Just with the liquidity they have on balance sheet, the collateral they have already prepositioned with the Bank of England and the facilities we have in place, they have the ability to more than meet their wholesale, if all of their wholesale funding disappeared, which one would not expect. They are in a position to do that already.

I will not go into detail unless you wish, but we have the agreement with the Treasury announced a few weeks ago with the additional capital into the Bank, which vastly increases our capacity to lend to the system. That was put in place not because of Brexit, but because of some of the issues we were talking about earlier: the evolution of this system, the growth in cross-border capital flows, the system potentially going from 10 to 15 times GDP and the need to have balance sheet capacity in order to support that, if necessary. It happens to be the case that if it were required, we could move very quickly and in much bigger size than prior to the referendum when we had more than enough capacity.

Even if the probability is infinitesimal, our job is to make sure that we are as prepared as possible and to be very clear—as you would expect—where things are not solved, about when addressing certain things is not just out of our hands, but out of the UK's hands.

Q95 **Wes Streeting:** With your MPC hat on, as opposed to your FPC hat, would a no-deal scenario be an interest rate-moving event, do you think?

Dr Carney: We always have to assess the economic outlook and I think it would be a material event. I would not prejudge in which direction, though.

Q96 **Wes Streeting:** Let me finally turn to the issue of household finances and debt. The savings ratio in the UK is at a record low. Do you foresee this having any bearing on financial stability in the UK, and do you think the ratio of saving to borrowing is sustainable in the long term?

Dr Carney: Household finances have naturally been a focus of the committee for several years, since its inception. We are aware of the relatively low level of savings. We are aware of pockets of risk in household borrowing. We have acted alongside the PRA to address some of those. For several years, we have been acting to reduce or limit the proportion of households that are highly indebted through the mortgage market. We have done that not so much because of concerns about the impact on banks' balance sheets, but more because of concerns about the impact of the economic cycle and the potential amplification of a down cycle with a large proportion of highly indebted households.

Those insurance measures have been working. They have limited the growth in the higher loan-to-income mortgages, as you would expect. Today, the proportion of households who have debt service ratios above 40% is about 1.3%; these figures are in the report. Historically, once you get to 35% or 40%, a debt service ratio has a much higher probability of falling into distress. It does not take much. You lose your job for a few months and you are in distress pretty quickly. The historic average is almost double that, and it would take a 200 basis point increase in interest rates without any corresponding rise in income for it to get back to that historic average.

The picture is complex, but the situation is being managed. Recall, of course, that one of the reasons we are in this situation—and the situation has improved since five years ago—is that unfortunately the system in UK households became very indebted in the run-up to the crisis. Then, of course, that expanded with the crisis as a consequence of macro-economic impacts. We have been managing it from there.

So, that is absolutely a focus. Measures have been taken. It needs some context in terms of the overall resilience of households, and to their credit UK households have worked hard to put themselves in a better position. While there are many still at risk, the vast majority are in a stronger position.

Q97 **Wes Streeting:** I wish we had time to go into the housing market, but we have lots on this morning. I have one final question, which flows on from your previous answer, the general theme of this morning and where the Bank of England might need to spend more money and put more cash into the economy. You recently commented that economists and policymakers have not been sufficiently up front about the distributional consequences of rapid changes in technology and globalisation. Do you think the Bank could be more up front about the distributional consequences of the financial stability policy? Thinking back to the last 10 years, an awful lot has been put into the economy, but not to the benefit of the general public directly.

Dr Carney: I will say two things. With respect to monetary policy, we have spent a lot of time analysing the distributional impacts of quantitative easing and low interest rates from various speeches, staff working papers and submissions to this Committee. With respect to that, we have, but your question is about the financial stability policy.

I think that is a good challenge, in the sense that just like high variable inflation, the cost is disproportionately borne by the less well-off members of society. With financial instability, that is absolutely the case. That is where credit and access to banking services get withdrawn. In the run-up to financial instability are the cases where on the cusp of a new era, people are brought into higher indebtedness and then pay the price with decades of attempted repayments. Why don't we take that challenge away? We will not be able to give you a quick response, but it deserves a more considered response.

Chair: Thank you for that. That is very interesting. I am going to bring in Charlie.

Q98 **Charlie Elphicke:** Governor, last week Sam Woods told this Committee, and you have said today, that the ideal is mutual recognition and equivalence of outcome. Of course, you are right. Is it not concerning that the White Paper has not even tried to make that case?

Dr Carney: I do not recall all of Mr Woods's testimony. I do recall my testimony today. I did not use the term "mutual recognition". In fact, that is not a term that we have used. Equivalence of outcomes is an important element; I agree with that. Are we getting to, in slightly different ways, comparable levels of financial stability, consumer protection and market integrity? The White Paper does reference that in the section on financial services.

Q99 **Charlie Elphicke:** Governor, you are talking a good game, but the truth is you were presented with a fait accompli. Is it not the case that the White Paper is ultimately a massive defeat for the financial services industry and the Bank of England?

Dr Carney: Are you expecting a yes/no answer to that? First off, the White Paper goes far, far beyond the competence and responsibilities of the Financial Policy Committee or the Bank of England; that is the first point. The second point is that the components of the White Paper are connected. For example, there are cross-references in the financial services sector section to the dispute resolution mechanisms and the Council of Ministers and Joint Committee elements that are detailed elsewhere in the White Paper. There is a balance in the White Paper that is not yet specified in the White Paper, because I presume it is part of the negotiations between that which is "autonomous" and that which is part of a bilateral agreement—a trade agreement. Those distinctions will matter. The White Paper also acknowledges, very importantly, the deficiencies and the shortcomings of the existing EU equivalence regime. It goes through those deficiencies in some detail and suggests some remedies, including evidence-based equivalence of outcome.

In that regard, to be quite candid, I think it is premature for us to make a judgment on the White Paper and the outcome of these negotiations. I will go back to where I started a few minutes ago on the description of it, which is that it is also not clear which activities are going to be in scope. Of course, it cannot be clear because the negotiation on this aspect has not yet begun.

Q100 **Charlie Elphicke:** It does not seem from the White Paper as though we get a lot of market access, but it does look like there are some restrictions on the Bank of England as regulator that the EU seems to have. How free will the Bank of England be and will the EU, the ECB or any regulator in the EU have any say over what you guys get up to?

Dr Carney: At this stage, it is not clear. It would be premature, Mr Elphicke, for me to make those judgments. I will reiterate a few points—I believe they are shared or consistent with the White Paper—that are very important to us as a Committee. The first is that we maintain a degree of financial resilience that is generally above that which is consistent with international standards, so we go beyond that. The reason why we do that is 10 times GDP, a near-death experience in 2008-09, and an ability to run the most complex financial system in the world. We need to retain that ability.

We are very strongly of the view that we should have an ability to continue to vary micro-prudential tools, such as capital—there are other examples, such as underwriting standards—for macro-prudential reasons. That is hugely important, and it is hugely important—and something that does not exist in existing EU equivalence regimes—that there are appropriate mechanisms for supervisory co-operation and information sharing, and that there are mechanisms to resolve disputes or differences of view on application of similar rules.

All of those elements are referenced in the White Paper; however, it is a White Paper that has not yet been translated, obviously, into actual negotiations. That is why I am pointing out the things that are consistent with what would be required for us to maintain the current degree of financial stability, but I am stopping short of saying, "It is all there in the White Paper." As we all know, it is a first step in a hugely important negotiation.

Q101 **Charlie Elphicke:** Let me understand this. The evidence we have had is that the EU would be far worse off than we are from any financial dislocation and it would suffer the most. However, we have a White Paper that focuses on goods, virtually leaves financial services to one side, does not make the strong arguments that we have for the financial services industry and gives the EU a say over our financial regulation. Sir Jon, you used to be UKRep; would you negotiate a deal like this?

Sir Jon Cunliffe: First, we are not involved with the negotiation and, secondly, one of the things that is most difficult when you are involved in negotiation is to have your predecessors looking over your shoulder. If you are not in the negotiation it is impossible to take a view on where things are. I would say a couple of things. One is about context; we import financial stability risk from all round the world. Think about the City of London, the players that are here and the size of the players from the US, Switzerland and Japan, and so on. There is not a world in which you can control all financial stability risk.

You have to do a number of things. First, you have to make sure you have effective arrangements in place to manage particular risks in different parts of the financial system. Secondly, you have to make sure that those arrangements are proportionate to the jurisdictions that you are dealing with. Thirdly, you have to know that you can trust the regulatory and supervisory regimes in those jurisdictions from which the risk is coming, and vice versa.

I know, from long experience, why the EU thinks in terms of particular models: it is a form of institutional construct, and, eventually, all these things will have to be put into some model of agreement or other. From a financial stability point of view, you concentrate on: what is the risk? Are there effective arrangements for managing them? Are they proportionate? Can we trust the people on the other side? That is how we operate.

The approach in the White Paper is, as the Governor has said, about outcome-based evidence and equivalence. It looks for certain processes around how you assess equivalence and dispute resolution; none of that is filled out. When it is filled out and you look at the risks, then you ask the questions: do you have effective arrangements? Are they proportionate? Can you depend on the other side? We will have to see. It is the Treasury's and the Government's job to negotiate them, and it is our job to think about the risks and the management.

Q102 **Charlie Elphicke:** Governor, can I urge you to take back control of these negotiations? Take with you Sir Jon Cunliffe, batter down the doors of the Treasury and make sure that the case for the financial services industry is strengthened.

Dr Carney: Mr Elphicke, you can rest assured that the FPC is very focused on ensuring that we have arrangements, and that the ultimate arrangements will ensure that we can maintain the degree of financial resilience and stability in this county. But our job, as Sir Jon just said, is not to negotiate; it is to provide that advice. Clearly, at the end of the process—and we have had an exchange of letters on this—we will have to give our view on whether or not the arrangements are consistent with our ability to fulfil our statutory responsibilities.

Q103 **Charlie Elphicke:** Moving on to the financial crisis and institutional memory, my constituents in Dover and Deal feel like the lessons of the financial crash have not been learnt. They feel like they have been made to pay the price while bankers have got away with it. Are my constituents wrong?

Dr Carney: Your constituents are right to be concerned, without question. There is a lot of wisdom in their concerns, because the history of financial crises, and finance in general, is one of institutional memory loss. The half life of institutional memory in the financial services sector is distressingly short. What is required is institutional change that locks in the lessons of the financial crisis. I will try to be brief, but one of those is having a Financial Policy Committee whose job is to think about what can go wrong and to be interrogated by your constituents through their representative.

The second lesson, as per our earlier discussion, is not to sit back and decide that nothing can go wrong or that the defences are so strong, but to literally plan for failure. That is ending "too big to fail". That is having a cyber strategy which looks at, "Assuming failure, how quickly can you recover?"

The third goes directly to one element of your constituents' valid concern, which is the consequences for the senior management of these institutions of taking on excessive risk or, God forbid, misconduct. That is buttressed by a series of tougher rules and criminal penalties but, very importantly, by a uniquely British innovation, the senior managers regime—enforced both by the FCA and by the PRA—which links seniority to accountability. The defence, "I did not know what the people on the desk were doing" is no longer there, and it has direct consequences for compensation, and also fitness and propriety. Having that link, all those elements can institutionalise the lessons of the crisis.

Q104 **Charlie Elphicke:** Elisabeth, in the crisis, the market was ahead of the regulators. How can you use market intelligence as a regulatory tool?

Elisabeth Stheeman: As you will be aware, the Bank has regional agents scattered around the country. For us, that is incredibly important to make an assessment of what is going on. For example, I went to Wales about 10 days ago, spoke to over 100 companies and went to schools. On that point, it struck me that most of the sixth formers I spoke to there would have been six or seven years old during the financial crisis, so it is important for us to go out there and bring that message.

Intelligence, for us, is incredibly important; listening is at least as important as bringing the message across. We rely on that heavily, in terms both of our network and of our market contacts. That is what we, as external members of the FPC and of the other committees, bring. We have spent many years in industry and can bring that knowledge into the committee discussions.

Q105 **Charlie Elphicke:** Finally, Elisabeth, Basel III is an important part of international stability and lessons, and yet it is riddled with national opt-outs and non-adoption by several countries. Is it not time to accept that the whole Basel system just is not working and is, effectively, dead?

Elisabeth Stheeman: I am not sure I would put it that way. As you will be aware, a huge number of people, both across the industry and particularly in the Bank, have been intimately involved in this. Basel is entering into a new phase of negotiation and, given a lot of other things going on at the moment, it may not be as much in the forefront as it might have been in the last 10 years, but I would certainly not share the opinion that it is a dead process. It is just working at a different pace at this point.

Q106 **John Mann:** Governor, you said a minute ago that you would want to assess any deal based on your ability to fulfil your statutory obligations, which means that, in your mind, there is a possibility of a scenario that might not be the case. We would need to be very clear about that at the time, because there is no deal yet. Parliament is currently voting and anticipating what a deal might be. You used the words "very important negotiation" and, several times, "crash out." From where we are now, the alternative to a deal being reached would be the WTO rules. If we are under WTO rules, will my constituents over the next 3 years be worse or better off?

Dr Carney: Than at present?

John Mann: Than at present.

Dr Carney: If your constituents—and the country—fall under WTO rules from the spring of next year, they will be worse off.

Q107 **John Mann:** How much?

Dr Carney: We have not done, and it is not the role of the FPC to do, precise forecasting around that. The Government and Parliament have access to analysis—which they can interrogate—that gives figures for various scenarios. We have the potential, as does Europe, of a financial stability event in the event that there is both no deal and no transition or implementation period. You could have WTO rules stapled on to the withdrawal agreement—that is a variant, as you know—and you could also have European solutions to some of the issues we have been talking about today in the derivative market on the data side, which we have not covered, but which needs to be covered. You could have solutions to that that would help to mitigate the fallout from it.

Moving from an integrated market for almost half of the trade in goods and services to a much less integrated trading system with some financial consequences on top, even with mitigants, would be a hit to the economic performance of the country in the short term, relative to the status quo. There are bigger issues and there is a longer trajectory, so I am not making a judgment on that, but I do not think we should kid ourselves that the outlook would be marked down.

Q108 **John Mann:** Some people are suggesting that because the Government's position—the Chequers agreement—does not incorporate services, it is so catastrophic that that, in itself, is decisive for them. You are giving the impression that in terms of your ability to fulfil statutory obligations, a deal on goods is of huge significance; you described it as, "a very important negotiation". I appreciate there is a separate issue, in terms of derivatives and so on, about whether the Commission allows agreement to be reached—you have gone into it in detail—but if there is no deal on goods, it could affect your ability to fulfil your statutory obligations.

Dr Carney: I apologise if I have not been clear. "Very important negotiation" just describes the overall Brexit negotiations; all aspects of it are clearly important. The judgment around our ability to fulfil our statutory obligations is around the structure of the end-state relationship as it pertains to financial regulations, supervisory co-operation, the authorities of the Bank of England and our ability to vary. All those aspects are touched upon in the White Paper but, by definition, are not decided upon because the negotiation has not happened. From a financial stability perspective, a no-deal scenario—and certainly a no-deal scenario without any transition to the end of 2020—is, without question, a financial stability event for which we are preparing. We are doing our best to prepare for that, as we should, and that is no comment on the relative probability.

An orderly transition to a more challenging economic environment also has elements of financial stability to it because more households will be unemployed and there will be more defaults in both consumer and corporate credit. Those are, again, states for which we can prepare. I would make the general point—and I am not trying to avoid a more poignant question—that, provided we have the tools, we can achieve financial stability in very different degrees of prosperity for the economy. Our ability to do our job is important, and it is a building block. We restrict ourselves to commenting on that; it is in no way a comment on the overall desirability of certain economic outcomes.

Q109 **John Mann:** I want to add one more question, and I direct it to you, Sir Jon. As we are here in aerospace, can the aerospace and car industries in this country over the next five to 10 years survive operating under World Trade Organisation rules? What would be the impact of moving immediately to WTO rules—an increasing number of politicians in the last week, including some who have resigned from Cabinet, are saying that that is what is needed—over the next 10 years, and immediately on the aerospace and car industries?

Sir Jon Cunliffe: Our assessment and the responsibilities we have been talking about are around financial stability. We know one sector of the economy—the financial sector—extremely well; we can see into it through our supervisory machinery and we can judge financial stability risks. The question of what the impacts are on particular sectors is for the parts of Government that deal with those sectors, so we are not deeply involved with the aerospace or car industries.

I would make one more general point, which is a very short-term one. This this is not about the five or 10 years that you asked about. Estimates have been done by the public sector of different states of the world—WTO, EEA and the like—but my more general point is that the economy has had 45-odd years of being a member of the European Union. That is a certain trading arrangement, and you would expect it to have specialised around that trading arrangement because that is what economies do. Therefore, if the trading arrangement is different, those parts of the economy that are specialised around a certain arrangement will have to adjust.

Economies do adjust. How they do so and the cost is where you need to ask the Government those questions, but if the trading arrangement changes, by definition, those parts of industry that have specialised around a certain trading arrangement will have to adjust to that.

The debate that I see happening is around those adjustment costs and what they are likely to be. On financial stability and the financial sector, I could give you an answer, but on the aerospace industry, I am afraid I could not.

Chair: Thank you. Last, but by no means least, I am going to bring in Stephen.

Q110 **Stephen Hammond:** Good morning, and thank you all for coming this morning. Ms Stheeman, can I address the first couple of questions to you? In your pre-appointment questionnaire, you talked about the fragmentation of the financial system as a result of Brexit. Could you contrast what the implications might be for the financial system, and how great they might be, of Brexit versus a possible trade war?

Elisabeth Stheeman: Let me start on your first question about fragmentation. Some of these points were already covered previously. Given the interconnectedness of financial systems globally, any change to this will have implications in different jurisdictions. Sir Jon mentioned earlier how important the clearing houses are, and the Governor mentioned derivatives and the necessity also for European companies to be able to access UK clearers. LCH.Clearnet clears over 90% of interest rate swaps, to give you an example of how important it is and what a change that might be.

Moving on to the second part of your question in terms of trade wars, clearly in the FPC we will be following very closely what has been going on in terms of some announcements the US Government have made with respect to trade in China. One of the risks the Financial Policy Committee has clearly mentioned in its recent Financial Stability Report is that global risks continue to be at a material level. That is most definitely something we would continue to keep an eye on. As part of that, I would think that the Financial Policy Committee will also specifically look at the implications of making trades more difficult between different countries.

Q111 **Stephen Hammond:** You will have seen that the World Bank has said that a trade war or continued trade wars have the potential to have the same devastating effect for economic growth as the financial crisis. Has the FPC had a discussion, and do you agree with that assessment from the World Bank?

Elisabeth Stheeman: This was not an assessment that had already been out when the FPC went through it earlier this year. Certainly, this is something the FPC would continue to look at and that we, as policymakers, would take into account and take seriously, but it would be too early to say at this point.

Q112 **Stephen Hammond:** I know the Governor wants to come in, but can I just ask him this, because he may want to answer both questions at the same time? In your speech on 5 July, Governor, "From Protectionism to Prosperity", you talked about the direct and indirect effects of protectionism. I know you want to make a comment on what I have just asked Ms Stheeman, but could you give the Committee some idea of the sort of modelling the Bank has done of various scenarios and, in particular, the difference between direct and indirect channels?

Dr Carney: I will just answer that question because it goes to the heart of the issue. We have done modelling. We have not interrogated the detail of the World Bank's analysis and this has not yet gone to the FPC because of the timing of the report and then the subsequent analysis. As you appreciate, the trade discussion—and the deterioration in it, if I can put it that way—has been fairly fast moving globally, so it is rising up in terms of the level of risk, without question.

First, it is flagged in the report, but it is now more serious than it was a month ago, and that is post-G7 and other conversations that have been had. Secondly, the analysis that is embedded in that speech—and I can circulate more detail if you want—is a general equilibrium modelling approach. It is a global model we have used that looks at, very importantly, an asymmetric trade war—a series of protectionist measures out of the US, many of which have been announced, against not just China but NAFTA partners and the European Union, and therefore the United Kingdom as well. Think steel, aluminium and automobiles, which have been most important. What has been announced, if it is all implemented, would double the US tariff rate and bring the average US tariff to the order of magnitude of the rate it was 50 years ago.

We then look at what happens if it doubles again on an asymmetric basis in a tit-for-tat war. What is interesting about it is that the direct effects for the UK of an asymmetric trade war—not that I am recommending one—are relatively modest. You get, at least on a modelling basis over time—I would go back to Sir Jon's comments about the orientation of economies, and it does take some time for economies to adjust—some so-called trade diversions. UK entities become more competitive in the EU, for example, vis-à-vis US entities that are now subject to a tariff. It could have implications for what is going on outside of our Committee hearing here.

The direct effects to the UK are relatively modest, but where we would get hit is twofold. One is on confidence effects. We are seeing the confidence effects here at the moment—understandably, because of the uncertainty around the final arrangement in Brexit—in business investment. About three to four percentage points were knocked off business investment last year, which is understandable. At the point that there becomes greater clarity, we will see the adjustment. But also, very importantly, the financial conditions effects.

Because we have such an open financial system, a rise in risk premia could be expected. If this process continues and intensifies, we could expect both a steepening of yield curves, because there is an inflationary element to it, and a rise in risk premia in markets. Potentially, jurisdictions where you have a relatively large current account deficit, where you are reliant on foreign capital and where you run relatively large fiscal deficits—albeit declining—are the ones that are potentially more at risk.

We did not put it in our modelling, but if you are also subject to your own trade negotiations or de-integration process, which is what Brexit is, there are potentially larger effects. The bottom line—and I will finish on this, and we can supply the numbers to you—is that the US is affected the most. The UK is not affected that much, but it is another 1.5% or 2% off growth in level of GDP over three years. It is largely about those confidence and financial conditions effects.

Q113 **Stephen Hammond:** Thank you. I know we would appreciate seeing your numbers and the analysis. Mr Bailey and Sir Jon, in the context of global trade wars, do you think the Bank and the Financial Conduct Authority should be making a greater case for openness in financial services?

Andrew Bailey: I think we have been strong advocates of openness in financial services for as long as I can remember, and we will go on being so. I was looking the other day, in the context of the White Paper coming out, at the letter that I sent you 18 months ago and the five principles I set out. No. 1 is open markets. We are very strong advocates of open markets, and we fully intend to go on being so.

Q114 **Stephen Hammond:** So reiteration?

Andrew Bailey: Reiteration and emphasis, yes.

Sir Jon Cunliffe: I very much agree with that, and we have taken a similar stance. Openness in financial services is only possible if we have global standards on regulation and supervision. That is the hard part of this. You can have openness without standards and then you have crises, and the global capital market has produced a number of those in different places throughout the world. You need the development since the financial crisis and the learning of the lesson to go hand in hand.

Andrew Bailey: If I could just say, the second principle—*[Interruption.]*

Dr Carney: Just to tie these two strands together, free trade and services can eliminate half the US deficit, so the positive agenda on services trade can eliminate half the US deficit and substantially reduce ours. Therefore, what is the services agreement that is currently under negotiation that can provide the template for that? That is the Brexit negotiation. Getting this right for financial services and service more broadly, as a template for the US and the world, is a positive trade agenda that is not just good for the UK but good for the world.

Chair: Thank you very much indeed. I want to thank our witnesses for their evidence this morning. I want to thank my fellow Committee members and all the staff for arranging this session. Thank you to ADS as well for all their assistance in getting us here and sorted, and I hope that people have an opportunity to go and admire some planes before we all have to beat a path back to London. Thank you all again very much for your time this morning.