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Statement No: 1

Module: 9

Exhibits: VM/01 - VM/122

Dated: 16th October 2025
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THE UK COVID-19 INQUIRY

**WITNESS STATEMENT OF
VANESSA MACDOUGALL**

I, VANESSA MACDOUGALL, will say as follows: -

1. I make this statement pursuant to a Rule 9 request from the UK Covid-19 Inquiry dated 4 July 2025 in relation to Module 9: Economic Response.

2. For the purposes of this statement, I have focused principally on the work I engaged in as part of the UK Government's economic response to the pandemic, for the period between January 2020 and October 2020 ('the relevant period') when, as explained below, I was the Director for the Economics Group at His Majesty's Treasury ("**HM Treasury**").

3. I welcome the opportunity to contribute to the Inquiry's Module 9 and ensure that lessons can be learned from the experience of Covid-19. I have compiled this statement in good faith and with best efforts in the time available. In order to assist my recollection of the matters referred to in the Inquiry's Rule 9 Request and the preparation of this statement, I have taken account of information supplied by HM Treasury and read HM Treasury's Module 9 corporate statement. Due to the passage of time, to assist in the Inquiry and for expediency, where it accords with my own

recollection, I have drawn upon relevant parts of the corporate statement to provide established background context.

4.   The matters referred to in the Inquiry's Rule 9 request are wide-ranging and the scale of the material generated over the relevant period is vast. It has not therefore been possible to read all contemporaneous documentation. Those assisting me with the statement have sought to identify the documents and correspondence relevant to the Inquiry's Terms of Reference and the matters I have been asked to address, and the most relevant materials are exhibited. Whilst I have some independent knowledge and recollection of matters referred to, I have also read information provided by HM Treasury to assist my recollection and ensure the contents of this statement are accurate. Any views expressed in this statement are my own. Should it assist the Inquiry I would be happy to clarify or expand on any aspect of the matters set out in this statement. Where questions posed by the Inquiry's Rule 9 are better answered by others, I have indicated that in my comments below.

5.   Once my role as Director for Economics Group ended in October 2020, my email inbox was not retained by HM Treasury. However, I am informed that department officials have taken reasonable steps to locate all the relevant documents to support this statement. If further material is made available to me, I would be happy to add to or clarify this statement to take it into account.

Part A: Overview of Role at HM Treasury

6.   I am the UK Director to the European Bank for Reconstruction and Development ("**EBRD**"), appointed by the Chancellor to represent the UK government at the EBRD. I have held this position since 1 January 2025. I have worked in the Civil Service since the late 1990s and most recently I held the following director-level positions: Director for the Economics Group at HM Treasury between 1 April 2017 and 30 October 2020. Director for International Economics and G7 Presidency Policy in the National Security Secretariat at the Cabinet Office from 1 November 2020 to 19 March 2022. Director for Labour Markets and Welfare at HM Treasury from 21 March 2022 to 31 December 2024.

7.   During the relevant period, I was responsible for overseeing the work of the Economics Group (around 100 staff members). This focused on analysis and assessment of the impacts on the UK economy of the pandemic and of the measures taken by the

government to manage it, such as Non-Pharmaceutical Interventions ("**NPIs**"). The Economics Group had no responsibilities for policy development during the relevant period, but the work of the Economics Group was used by colleagues as they developed policy options during this period, including those related to the government's economic response. More detail on the work of the Economics Group is set out in Part B.

8. Covid-19 was a multi-faceted crisis, impacting lives and livelihoods. The nature of the economic shock was unique, and the scale of the economic impact was immense, given the intentional suppression of economic activity on a national (and in many cases international) scale. The pandemic, and the measures put in place by the government to manage it, had an unprecedented impact on the UK economy **[VM/001 - INQ000184621]**. During the first national lockdown, Gross Domestic Product ("**GDP**") fell by over 20 per cent between April 2020 and June 2020. As the government removed restrictions and the economy re-opened over the summer of 2020, the economy re-bounded by nearly 17 per cent. These magnitudes of change are on a scale not seen since consistent Office for National Statistics ("**ONS**") data is available from 1955.

9. The Economics Group, working closely with analytical colleagues from across HM Treasury, leads on providing regular updates to the Chancellor and other ministers on an assessment of the economic conjuncture and outlook, based on the latest available economic data, reflecting internal analysis and assessment and external analysis and commentary. This approach was continued and intensified during the relevant period. The Economics Group also undertakes detailed analysis of structural issues affecting the UK economy and assesses potential economic risks. The Economics Group works with policy colleagues to provide input, where appropriate, to support the evidence base for policy development. For example, during the relevant period, analysis and assessment undertaken by the Economics Group was used by policy colleagues to inform their thinking and advice on issues such as the NPIs and the economic support schemes such as the Coronavirus Job Retention Scheme ("**CJRS**") and Coronavirus Business Interruption Loan Scheme ("**CBILS**").

10. The Economics Group deployed a range of tools and techniques to undertake its analysis during the relevant period. These ranged from more traditional data analysis and modelling work to new innovations in both data and modelling. These new approaches were necessary given the extraordinary circumstances of the pandemic, which introduced unprecedented levels of uncertainty, constraints in the availability of

economic data, and which meant that previous underpinning economic relationships and assumptions did not necessarily hold. This is described in more detail in Part B.

Relationships with others

11. The pandemic touched every part of HM Treasury, government and the country. The work I was involved in during the relevant period was a collaborative effort on a level beyond that which had happened previously. In developing its analysis and assessment of the UK economy, and the tools and techniques to undertake that analysis, HM Treasury sought views and insights from a wide range of credible interlocutors. As Director for the Economics Group, I had a broad network of colleagues and contacts that I worked with during the relevant period.

12. Within HM Treasury, I reported to the Chief Economic Adviser ("**CEA**"), who is the primary adviser to the Chancellor on economic and fiscal issues. The CEA has oversight for analysis across HM Treasury and also manages the Economics Group and the Fiscal Group in HM Treasury. Given the cross-cutting nature of the issues, HM Treasury's work on Covid-19 was coordinated by a Covid Response Team ("**CRT**") in the Strategy, Policy and Budget Group ("**SPB**"), led at Director level during the relevant period by Dan York-Smith. I also worked closely with Director, Director General ("**DG**") and Deputy Director ("**DD**") colleagues across HM Treasury, including but not limited to those who were responsible for other aspects of analysis and/or who were most closely involved in the pandemic response. There would be regular and frequent formal and informal engagement, including through, but not limited to, the Covid Response Board ("**CRB**"), the Economic Risks Group ("**ERG**") and the Economic and Business Covid-19 Internal Board ("**EBCSB**"), which are described in more detail below.

13. HM Treasury officials' role is to advise ministers, who take decisions on behalf of the government. During the relevant period I attended meetings with the Chancellor, together with the CEA and other members of the Economics Group, to discuss the latest macroeconomic analysis and assessment. These were usually broader meetings, led by the CRT, to discuss the impacts of the pandemic and the government's possible policy response, including ahead of Cabinet and other ministerial meetings.

14. Outside of HM Treasury, I worked closely with the government's key partners in the UK's macroeconomic framework, namely the Office for Budget Responsibility ("**OBR**")

and the Bank of England ("**BoE**"), to share ideas and test thinking on UK economic analysis and assessment.

14.1. The OBR is an executive non-departmental public body, sponsored by HM Treasury and is the government's official forecaster, producing detailed five-year economic and fiscal forecasts for the UK twice a year. During the relevant period, the OBR published full five-year forecasts in their Economic and Fiscal Outlooks ("**EFO**") alongside the Chancellor's Budget in March 2020 and the Spending Review in November 2020, and additionally published in April 2020 a 'coronavirus reference scenario' which assessed the potential impact of the pandemic on the UK economy, based on an illustrative three-month lockdown scenario, which was updated and expanded in their July 2020 Fiscal Sustainability Report. I joined meetings with the Budget Responsibility Council ("**BRC**") of the OBR, and OBR staff, to share and discuss analysis by the Economics Group.

14.2. The BoE holds statutory responsibilities for setting monetary policy, protecting and enhancing financial stability and, subject to this, supporting the government's economic policy. The BoE publishes their economic analysis and inflation projections in a quarterly Monetary Policy Report, which forms the basis for the Monetary Policy Committee's ("**MPC**") interest rate decisions. HM Treasury and the BoE regularly share information and analysis with one another. During the relevant period, Economics Group staff and I collaborated in a number of ways with the BoE, including to develop new and faster economic data and to share analysis and assessment on the macroeconomic conjuncture, and potential macroeconomic impacts of the pandemic. During the relevant period, I joined dedicated pandemic sessions with the MPC which are described in more detail below.

15. Beyond HM Treasury, I collaborated with colleagues across government including, but not limited to:

15.1. The Cabinet Office and No.10, who were responsible for coordinating the overall government response to the pandemic and synthesising relevant data, analysis and assessment from across government. During the relevant period, I would often join small group meetings between HM Treasury's CRT and senior colleagues in the Cabinet Office/Covid Taskforce and No.10, in order to share updates and insights on economic analysis and assessment; and would

engage directly with senior analytical leads in the Cabinet Office/Covid Taskforce such as Stephen Aldridge at DG, and Ben Cropper at Director level. Early in the relevant period, I also seconded staff from the Economics Group into the Cabinet Office, including the Civil Contingencies Secretariat ("**CCS**"), to provide expertise and support in integrating economic data into materials and advice for ministers.

15.2. The ONS, where I worked closely with senior colleagues to build a shared understanding of what economic statistics were available during the relevant period, on what timeframe, and how new and faster indicators might be developed.

15.3. The department for Business, Energy and Industrial Strategy ("**BEIS**"), where I collaborated with analysis colleagues including on the economy elements of a regular dashboard sent to the Prime Minister, which included macroeconomic indicators from HM Treasury and sectoral-level material from BEIS.

15.4. A wide range of colleagues through more formal structures and cross-government governance, including through my attendance during the relevant period at meetings of the Board of the Government Economic Service ("**GES**") and the Departmental Directors of Analysis ("**DDAN**"), both attended by senior economists and analysts from across government, and through my observer status at meetings of the Scientific Advisory Group for Emergencies ("**SAGE**"). Members of the Economics Group also engaged with a wide set of analysis colleagues from other government departments, including for example the Department for Health and Social Care ("**DHSC**") and the Ministry of Housing, Communities and Local Government ("**MHCLG**"), both bilaterally and through formal governance structures.

16. Beyond government, I engaged with external experts in the UK and internationally. This included:

16.1. Key international institutions responsible for global and country-level economic analysis and assessment, including the International Monetary Fund ("**IMF**") and the Organisation for Economic Development and Cooperation ("**OECD**"). During the relevant period, staff in Economics Group and I continued our regular engagement with the IMF and OECD, drawing on their modelling, analysis and forecasts, of both global and UK-level impacts. For example, the

IMF developed modelling estimates that compared the relative impact of the virus and NPIs on economic activity in different countries **[VM/002 – INQ000065324]**. The OECD conducted extensive work on different governments' policy responses to Covid, including a report which evaluated the impact of restrictions like NPIs on activity and spending **[VM/003 - INQ000226503]**. With the CEA, I led HM Treasury's engagement with the IMF during their official bilateral mission to the UK in autumn 2020 and ahead of the publication on 29 October 2020 of their concluding statement setting out preliminary conclusions on their surveillance of the UK economy **[VM/004 – INQ000655696]**; and with the OECD ahead of their publication of the OECD Economic Survey on the UK on 14 October 2020 **[VM/005 - INQ000236537]**.

16.2.   UK think-tanks, including the Institute for Fiscal Studies ("**IFS**") and the Resolution Foundation ("**RF**"). With the CEA and other colleagues, I was part of regular discussions with the IFS and RF, including with the latter on their macroeconomic analysis of the impact of the pandemic on the UK economy, and with the former on restarting the economy and on the inequality impacts of Covid **[VM/006 - INQ000236532] [VM/007 – INQ000655217] [VM/008 – INQ000655212] [VM/009 – INQ000655230] [VM/010 - INQ000236571] [VM/011 - INQ000236568] [VM/012 – INQ000655237]**.

16.3.   The academic community. During the relevant period, alongside the CEA I led a series of engagements with external experts. At that time, these were facilitated by the Royal Economic Society ("**RES**") and involved a combination of established contacts, and new contacts who were at the frontier of developing novel analytical techniques, such as so-called 'epi-macro' modelling. At these sessions, which were joined by analysts from other government departments and the BoE as appropriate, Economics Group colleagues shared approaches to analysis and evidence, and sought challenge and insights from academic partners. Topics included, amongst other things, sectoral impacts, sectoral re-opening, novel data sources, inequalities, restarting the economy, epi-macro strategy and future healthcare provision **[VM/013 - INQ000236570] [VM/014 - INQ000236567]**.

17.   I have been asked about my relationships with ministers and senior civil servants in the devolved administrations and senior officials in local government. Engagement by HM Treasury with the Devolved Administrations and with Local Government was led by the relevant officials in the Public Services Group.

Part B: The Economics Group

Role and responsibilities

18. As noted earlier, for the period under consideration, I was the Director for the Economics Group at HM Treasury until 30 October 2020, when I was replaced by James Benford.

19. Given the scale and nature of the impact of the pandemic on the UK economy, the analysis and assessment undertaken by the Economics Group in HM Treasury played a central role in understanding that economic impact and in informing the policy development undertaken by policy colleagues across HM Treasury and the wider government.

20. During the relevant period, my responsibilities in this role included:

    20.1. Overseeing the work of the Economics Group, in providing ongoing analysis and assessment of the UK's macroeconomic performance, the economic outlook and key economic risks.

    20.2. Working collaboratively with colleagues across HM Treasury, government and externally, to support a shared analysis and assessment of key macroeconomic issues, and to ensure that Economics Group analysis and assessment was well communicated and understood, including to inform policy development.

    20.3. Chairing the ERG, working closely with colleagues in the Financial Stability Group ("**FinStab**"), to consider medium-term macroeconomic and macroprudential risks to the UK economy, ensuring those risks were well understood and communicated.

    20.4. Providing leadership to the (around 100) staff members in the Economics Group, ensuring they were well supported in their personal and professional development, adhered to the professional standards for the economics and wider analyst professions, and operated in line with the values and standards of behaviour set out in the Civil Service Code.

    20.5. Playing an active role in the wider leadership of HM Treasury.

Work of the Economics Group

21. The Economics Group works closely with the wider analytical community across HM Treasury, which is much broader than those staff based in the Economics Group. There are a large number of analysts embedded in other Groups across HM Treasury, including but not limited to, those working on fiscal analysis in the Fiscal Group, business and sectoral analysis in the Enterprise and Growth Unit ("**EGU**"), labour market, welfare and distributional and equalities analysis in the Personal Tax, Welfare and Pensions Group ("**PTWP**"), global economic analysis in the International Group ("**IG**") and financial stability analysis in FinStab. The Economics Group works very closely with these colleagues, but analysis undertaken by those staff in other groups is overseen by the relevant Director for their Group.

22. The functions of the Economics Group are primarily analytical. While this work informs policymaking, and this remained the case during the relevant period, the Economics Group did not have responsibility for developing the economic policy response to the pandemic, and I held no policymaking responsibilities regarding the government's economic response.

23. The main aim and objectives of the Economics Group is to provide analysis, assessment and advice on the UK macroeconomy. The Economics Group is responsible - working with key partners across HM Treasury, the wider government system and externally – for undertaking analysis and assessment of the UK economic conjuncture, the economic outlook and identifying key economic risks. Taken together, this analysis and assessment helps to inform policy development undertaken by policy colleagues across HM Treasury and government more widely, and in turn helps inform policy decisions by ministers, ensuring the government has the strongest possible evidence base available.

24. As noted above, the pandemic, and the measures put in place by the government to manage it, had an unprecedented impact on the UK economy, with key economic variables changing by magnitudes not seen since consistent ONS data is available. The work of the Economics Group therefore played a central role in HM Treasury's and the wider government's work during the relevant period.

25. During this time, the Economics Group: developed and contributed to a range of products to ensure the results of its analysis and assessment were well communicated and well understood; engaged in a wide range of discussions and exchanges with colleagues across HM Treasury, the wider government system and externally, to

ensure its analysis was robust, was drawing on the latest thinking, and was subject to sufficient scrutiny and challenge; and deployed a wide range of tools and techniques to undertake its analysis (ranging from more traditional data analysis and modelling work to new innovations in both data and modelling), to try and deliver the best possible insights despite the unprecedented levels of uncertainty introduced by the pandemic – which overturned previous underpinning economic assumptions, and imposed constraints in terms of the availability of economic data. These areas are described in more detail below.

Structure and expertise of the group

26. During the relevant period there were around 100 members of staff in the Economics Group (106 Full-Time Equivalents ("**FTE**") as of September 2020, the latest month during my tenure for which data is available). This reflected a steady increase (staff in the Economics Group numbered around 89 FTE in December 2019 and 95 FTE in March 2020), as I increased resource to build resilience and deal with the additional demands posed by the pandemic. This built on an expansion in the size of the Economics Group that I had overseen in the years prior to the pandemic (there were around 50 FTE in the Group in June 2018), as I increased capacity and capability in the Economics Group to support the government's analysis of the economic implications and risks from the UK's EU exit, and wider HM Treasury priorities. More detail on this strengthening of capacity and capability in the Economics Group ahead of the pandemic is set out in Part E on Preparations. As can be seen below, in terms of the team structures within the Economics Group, most of these staff members were professional analysts focusing on analytical work. There were a small number of non-analytical roles in the team which supports the GES and Government Social Research ("**GSR**") professions.

27. As mentioned, there were additionally a large number of analysts embedded in other teams and Groups across HM Treasury, who were under the responsibility of their relevant Group Directors. Others are best placed to give a view on the number of analysts in their Groups at the relevant time.

28. In early 2020, the structure of the Economics Group was as follows:

28.1. Macro Coordination and Strategy Team ("**MCS**"). This DD-led team was responsible for providing regular assessments and briefing on UK macroeconomic developments and the conjuncture. They were responsible for

regular update packs sent to ministers and other government departments and provided macroeconomy material for a 'daily dashboard' coordinated by the Cabinet Office. MCS was also the lead team on engagement with the ONS and more broadly responsible for economic data and statistics; they led work through the relevant period on novel and real-time data sources, as described in more detail below. MCS also developed their existing 'Nowcasting' capability, as outlined below. The team led on HM Treasury's engagement with the BoE's MPC and with international financial institutions such as the IMF and OECD on their surveillance and assessment of the UK economy.

28.2. Economic Assessment Team ("**EA**"). This DD-led team housed HM Treasury's Model Unit which, amongst other things, has responsibility for maintaining the UK macroeconomic model which is used by the OBR for their economy forecasting. The team was responsible for leading HM Treasury's relationship with the OBR on the economy forecast and also led within HM Treasury on the so-called 'indirect effects' process, which estimates second round effects on the UK economy from fiscal policies and packages. During the relevant period, EA led on HM Treasury's scenario analysis, which is described in more detail below. EA was also responsible for analysis and assessment of key components of the UK macro economy, including the labour market, regions, consumer spending and the housing market, working closely with other teams across HM Treasury. The team helped drive high standards in economic modelling practice across HM Treasury and led HM Treasury's community of data scientists during the relevant period.

28.3. Structural Economic Analysis Team ("**SEA**"). Formerly known as the Brexit Analysis team, the DD-led SEA was originally established to develop capability in Computable General Equilibrium ("**CGE**") modelling as part of the government's economic analysis on EU exit. However, this capability was deployed to understand long-term economic impacts of a wider set of structural issues, including those related to tax, and the transition to net zero. During the relevant period, the team's work was re-prioritised towards the pandemic, and SEA led on a range of modelling tools beyond CGE, including a labour supply model, the National Institute's Global Econometric Model ("**NiGEM**") and development of HM Treasury's epi-macro modelling capability.

28.4. Economic Risks Team ("**ER**"). This DD-led team was responsible for monitoring medium-term risks to the UK economy and coordinating more broadly with

colleagues across HM Treasury's risk management framework (as described in more detail in Part C below). As part of this, they provided (jointly with FinStab colleagues) the secretariat for the ERG. During the relevant period, ER coordinated input from the Economics Group into wider HM Treasury and wider government processes and advice, including leading engagement with the CRT in HM Treasury, and through them with the Covid Taskforce in Cabinet Office, and jointly providing the secretariat for the internal EBCSB.

28.5.　Analytical Projects Unit ("**APU**"). This was a Grade 6 led unit, overseen by the DD for ER. The APU was a flexible resource pool of professional analysts who could be deployed to high priority analytical projects across the department. During the relevant period, resource from the APU was rapidly deployed to the highest priority pandemic work, both within the Economics Group and across HM Treasury (for example, a Grade 6 analyst from the APU was quickly deployed to PTWP at an early stage to support analytical work on the CJRS). Given the analytical demands arising from the pandemic, the APU was increased in size during the relevant period.

28.6.　Retail Prices Index ("**RPI**") Team. This was a small DD-led unit set up originally to lead HM Treasury's work, jointly with the UK Statistics Authority, on the public consultation on the future of the RPI, a measure of inflation widely thought to be flawed. During the relevant period, in light of the pandemic, the Chancellor decided to extend the RPI consultation period. This allowed the RPI unit to be rapidly reallocated onto pandemic-related analysis and assessment. The RPI unit were moved to boost resource in ER, with the DD for the RPI unit becoming a co-DD for ER alongside the existing DD.

28.7.　Government Economic and Social Research Team ("**GESR**"). This was the central DD-led team for the whole of government, managing recruitment into the GES and GSR, as well as professional development and professional standards for GES and GSR members. Work on these issues continued through the relevant period, though non-priority work was paused, and resource from within GESR was rapidly reallocated towards pandemic work. The GESR DD, with support from others in the team, coordinated the programme of engagement with external academics, facilitated by the RES (as outlined below).

29. During the relevant period, I rapidly reallocated and redeployed staff within the Economics Group, to ensure we had the maximum possible capacity and capability devoted to the pandemic effort. Although resource within the Economics Group was focused on the emergence of the pandemic from January 2020, as the scale of the pandemic became clearer in early March 2020, I rapidly reprioritised all work to ensure analysis and assessment of the economic issues raised by the pandemic was a whole-of-group endeavour. All members of the Economics Group engaged in analysis and modelling re-reprioritised their work towards the pandemic, supporting a substantive increase in our capacity and capability to analyse economic impacts as the crisis unfolded. As noted above, I rapidly boosted the capacity of ER, by reallocating the RPI unit into ER to work on pandemic issues, and in so doing created a double DD-headed ER, strengthening resilience and capacity during an intense period; I also reallocated resource in GESR towards the academic engagement on pandemic issues, ensuring sufficient capacity on this critical area.

30. As well as reallocation within the Group, I also delivered a net increase in Economics Group resourcing over the relevant period. As part of this, I increased the size of the APU, to strengthen our ability to rapidly deploy analytical staff to the highest priority analytical projects within HM Treasury. In the summer of 2020, I also recruited an additional DD to build capacity and resilience on pandemic-related issues like the labour market and regional analysis – splitting the DD-headed EA into two separate DD-headed teams (a Labour Markets and Regions Team and a Macroeconomic Assessment Team), together with additional staff to build out those teams at Grade 6, Grade 7 and SEO/HEO.

31. Despite the challenges in understanding the economic impacts of the pandemic at the time (as detailed below), I believe the right resources were in the right place in the Economics Group during the relevant period.

32. In addition, at the onset of the pandemic, I approved the secondment of experienced analysts to the Cabinet Office to ensure economic data was well understood and properly interpreted, was being integrated into products put to senior decision makers, and more generally to ensure strong join up between the Economics Group and the Cabinet Office/Covid Taskforce, given their responsibilities for synthesising the health picture with economic data and other factors.

33. I have been asked to provide a view on how the number of analysts in HM Treasury and the Economics Group compared with other government departments. I do not

have information on the number of analysts in other government departments or knowledge of the scope of their work. I am not therefore in a position to form a view.

Data, analysis and modelling

34.   As the government's economics and finance ministry, HM Treasury has deep knowledge of, experience in, and capability to analyse and assess the UK economy. HM Treasury and the Economics Group draws on a wide variety of processes and methodologies to assess the economic outlook, the impact of potential policy decisions by government, and the effects of shocks to the economy. Underpinning this is HM Treasury officials' understanding and use of a range of analytical theories and practices. These range from in-depth assessments of economic theory and the latest external analysis to the department undertaking its own data analysis and assessment, and the development and deployment of economic modelling.

35.   The pandemic was a shock of unprecedented nature, affecting the economy – and the information usually used to assess the economy – in ways not seen before in modern times. This required HM Treasury, and the Economics Group, to adapt existing techniques or devise new approaches in order to best inform policy development by colleagues and policy decisions by ministers.

Data

36.   Reliable, timely and relevant data is critical to the production of economic analysis. HM Treasury officials use their professional judgement and expertise to assess incoming data to best communicate their implications. As part of this, officials analyse the impact that these trends could have, and their interactions with policy development. Even in normal times, outside of the pandemic, this involves analysing a significant amount of data, while operating under high levels of uncertainty. The department's collective analytical understanding is bought together in regular conjunctural assessments on the state of the economy, for the Chancellor and HM Treasury senior officials including the Executive Management Board (**"EMB"**) **[VM/015 - INQ000184618]**. These assessments elaborate on data releases by including HM Treasury analysis and interpretation of the data. Similar assessments are provided to the Prime Minister, but less frequently.

37.   Throughout the relevant period, the Economics Group and HM Treasury more widely interrogated a vast amount of data to inform ministerial decision making across government. The pandemic and the government response evolved rapidly, affecting

economic activity with unprecedented speed and severity, and disrupting normal data collection; this meant the department had to seek new and more timely data sources.

38. Under normal circumstances, official statistics - which meet certain standards and are quality assured - are the best data for understanding the state of the economy and informing assessments of the economic outlook. Wherever we could, the Economics Group made extensive use of existing official statistics being produced by the ONS. However, even in normal times, these take time to produce - for example, the earliest official GDP data is published is 45 days after the end of each month, and this was too slow for real-time decision making in such a fast-moving crisis as the pandemic. The disruption to normal data collection caused by the pandemic (and associated restrictions) also slowed down the delivery of other traditional statistics. This required HM Treasury to seek more frequent and additional sources of data, and the Economics Group played a central role during the relevant period in both widening the scope of data sources and in adopting novel data sources, to ensure policy colleagues and ministers had the best available information on which to develop policy and base decisions.

39. Looking beyond official statistics to other parts of government, HM Treasury and the Economics Group made extensive use of administrative data collected by government and economic statistics produced by other government departments. This included flash estimates of payrolled employee numbers from His Majesty's Revenue and Customs ("**HMRC**"), which were vital in providing more timely estimates of UK employment, and data from the Department for Work and Pensions ("**DWP**") on the number of applications to Universal Credit **[VM/016 - INQ000252719]**. Data that had not previously been used to consider economic impacts, such as transport data from the Department for Transport ("**DfT**") which helped assess levels of mobility across the UK, and education data from the Department for Education ("**DfE**") to understand school attendance numbers was also utilised. HM Treasury also worked with BEIS to assess business impacts and sector-specific data. These novel indicators were used across the work of the Economics Group and were included in the Covid-19 Dashboards **[VM/017 – INQ000655206]**.

40. However, some impacts could not be fully assessed from existing sources. To address this, the Economics Group worked closely with the ONS and BoE to develop new or improved sources of data. HM Treasury has long been a key user of ONS statistics and has maintained a close stakeholder relationship with them over time, which helped the ONS to understand the government's priorities as a statistics user during this period.

The ONS responded rapidly to the constraints and demands of the new context, including by rapidly adapting the pre-existing Opinions and Lifestyle survey to cover NPI compliance. They also rapidly adapted the previous business conditions survey to become the Business Impacts of Covid-19 survey to understand how firms were dealing with the pandemic and the imposition of NPIs, and HM Treasury was able to propose questions to be included in the survey **[VM/018 - INQ000181687]**.

41. In addition, the Economics Group and the ONS together looked beyond the public sector, exploring new measures of economic activity using a variety of data sourced from private sector companies. Platforms such as Open Table shared restaurant booking trends, while Google mobility data helped to assess transport and retail activity. Other companies, such as Revolut, privately shared anonymised real-time financial transaction data with the government to enhance understanding of consumer behaviour **[VM/019 – INQ000655216] [VM/020 - INQ000184631]**. Changes were also made to the Decision Maker Panel (a joint survey between the BoE, Stanford University and the University of Nottingham), to provide insight into business expectations and uncertainty **[VM/021 - INQ000181690]**. The ONS bought together much of this material in new publications (including for example, shipping indicators, traffic activity, restaurant bookings, retail footfall, card spending data, online job adverts, VAT returns, company incorporations, business impacts and online weekly price changes for selected food and drink). These developments in data collection were vital in allowing economic activity to be tracked closer to real time.

42. Beyond economic statistics, it was crucial during this period that HM Treasury had a detailed understanding of the health picture, and the likely path of the virus, particularly given the speed with which the public health position was evolving, and the interactions with government policy, including the NPIs and, in turn, the government's economic support schemes. HM Treasury gained useful insights on health developments during the relevant period from a number of sources, including papers and analysis produced by SAGE (where HM Treasury benefitted from observer status from March 2020, as described in more detail below in Part F), the ONS Covid-19 Infection Survey (undertaken by the ONS from April 2020 to discover the rate of infections in private households) **[VM/022 – INQ000655389]**, and from the Joint Biosecurity Centre ("**JBC**"), which provided real-time analysis and assessment of infection outbreaks at a community level .

43. At the same time as developing the sources of data to which it had access, HM Treasury had also been developing its ability to assess such data through data science

techniques. Such techniques were already being used prior to the pandemic, with a number of analysts from across HM Treasury and the Economics Group using a range of statistical programming software, such as Power BI, Tableau and Alteryx, to underpin their analysis and automate stages of analysis and data presentation. In 2019 these analysts, led by staff in the Economics Group, formalised a 'Community of Interest' on programming and data science, sharing approaches and best practice, and embarked on the development of a data platform, which continued to progress during the relevant period. I understand the platform ultimately went live at the end of 2020. During the relevant period, data science techniques amongst other things strengthened HM Treasury's capability to ingest, analyse and present the big data sets that were being received as part of the collaboration with private sector providers in particular.

Modelling

44. Economic modelling was another key technique used by HM Treasury and the Economics Group in its analysis of the UK economy during the relevant period. Economic modelling offers a structured way to understand how different parts of the economy interact. By studying economic theory and exploring the previous relationships between key economic variables (usually based on extensive previous data sets), economic models can help describe the impact on a set of economic variables of changes in other variables. They help convert complex economic data into useful insights and provide a framework for thinking that can help shape policy decision making.

45. During the relevant period, HM Treasury's use of economic models was an important input into wider analysis and assessment and played a key role in ensuring ministers had the strongest possible evidence base on which to make decisions. Some examples of where economic modelling tools provided useful insights was in understanding the differential impacts of different NPIs, for example the number of workers who would be impacted by closing specific sectors of the economy, and the possible impact of closing one sector on other parts of the economy **[VM/023 – INQ000655207]**.

46. That said, and as set out above, there was an extraordinary degree of uncertainty in all modelling undertaken during this period (whether conducted by the Economics Group, by HM Treasury more widely, elsewhere in government, or externally). This was especially true for the first lockdown in spring 2020, when there was no previous data or previous economic relationships on which to guide modelling of this unprecedented

event. Predicting the reactions and interactions of individuals in response to changes in the prevalence of the virus and to the restrictions imposed by the government to manage the virus, the efficacy of the restrictions in controlling the spread of the virus, and the ability of support measures to mitigate economic consequences were all uncertain at the time. In these circumstances, all economic analysis and modelling was subject to major uncertainty and wide margins of error.

47. The OBR acknowledged this in their November 2020 EFO, highlighting clearly the very high degrees of uncertainty in economic modelling at this time. They said that their November 2020 economic forecast made 'no attempt to assign probabilities to any particular outcome' and that 'ultimately these are judgement-based scenarios' **[VM/024 – INQ000114451]**. Using a wide range of tools and techniques was important given the heightened uncertainties involved, and a range of economic tools were therefore developed and deployed by HM Treasury during this period, as set out below. This included using existing and traditional modelling techniques, alongside the development of new approaches and capability – from building a labour supply model to understand the potential economic impact of the different forms of NPIs, to procuring a firm-level model to assess how policy interventions might affect businesses' employment levels or the likelihood of insolvency, to developing epi-macro modelling to explore the interactions between health and economic factors.

48. Even in normal times, modelling outputs can only ever be one input into policy development and decision making by ministers, but the lack of empirical evidence and rapid speed of policy design that was happening at the time made this especially pronounced during the relevant period. These uncertainties were consistently highlighted by HM Treasury analysts in engagement with policy colleagues and in advice to ministers.

49. Modelling tools used by the Economics Group during the relevant period **[VM/025 – INQ000655223]**, included:

   49.1. Labour supply modelling. An aggregate labour supply model was a new tool rapidly developed in the Economics Group in March 2020 ahead of the first national lockdown. The purpose of this model was to understand the potential economic impacts of different forms of NPIs that ministers were considering, including isolating individuals with suspected cases of Covid-19, enforcing household quarantines or mandating school closures. The analysis was based on assumptions from DHSC and SAGE on the scale of workforce absences

under different NPI scenarios. **[VM/026 - INQ000184562]**. This analysis could only ever be partial, as it took no account of wider supply issues such as disruption to supply chains, nor did it consider the demand side of the economy (through changes to consumption or business investment for example); but in the circumstances it was a useful framework to understand the nature and scale of potential economic impacts. Recognising these limitations, this analysis supported briefing products for ministers ahead of decision points **[VM/027 - INQ000184563]**.

49.2. Nowcasting. To understand the very near-term outlook for economic growth, the Economics Group routinely uses a so-called 'Nowcasting' framework. This is a process of estimating the current state of the economy in real time and is beneficial given official data on GDP is published with around a 45-day lag. It involves using statistical models that exploit the past relationship between GDP and a range of faster indicators (indicators that are available closer to real time than official statistics) to produce a numerical estimate for GDP growth for the current month and a limited number of future months. Examples of the data drawn on in nowcasting includes, but is not limited to, business and consumer surveys, tax receipts, retail sales, electricity and gas consumption, and temperature. Prior to the pandemic, HM Treasury's nowcast framework, which is similar to that employed by the BoE, used two models. The first is the 'Industry Model,' which uses sector-specific data to predict output for individual industries then weights them together to produce a 'bottom-up' estimate for total GDP growth. The second is the 'MIDAS (Mixed Data Sampling) Model', which uses data at mixed frequencies to directly predict a 'top-down' estimate of GDP growth for the next 6 months, making use of data on current and expected future output. Given that the unprecedented circumstances during the relevant period reduced the reliability of established data sources, the Economics Group rapidly updated its nowcasting framework to incorporate the kind of new data and real-time indicators described earlier **[VM/028 - INQ000236578] [VM/029 - INQ000609870]**. The results from this framework were used regularly in economic monitoring products shared with ministers and were an important part of the wider evidence base **[VM/001 - INQ000184621]**.

49.3. NiGEM. Another tool used by HM Treasury was the long-established NiGEM model **[VM/030 - INQ000609883]**. This is an international model and can be used for several purposes, including to assess how shocks to the economy –

both internal and external – affect key macroeconomic variables. HM Treasury used the NiGEM model to assess the impacts on the UK of other countries' adoption of NPIs, including by examining the impact on the UK economy of a trading partner's inability to export to the UK. This work suggested at the time that around a third of the overall economic impact of Covid in the UK would be accounted for by global spillovers, predominantly through reductions in global demand in 2020. The analysis showed that global supply effects would put a persistent drag on UK activity after 2020, more than outweighing the positive impacts on the UK of the expected rebound in global demand once the pandemic was over. The results were shared with the CEA on 7 May 2020, and subsequently the Chancellor, and a summary was included in the Chancellor's 2020 Plan for Jobs package published on 8 July **[VM/031 - INQ000184605] [VM/032 – INQ000655213] [VM/033 – INQ000088027]**.

49.4.   Input-Output modelling. This is a classic analytical framework that is used to examine interdependencies between different sectors of an economy, enabling analysis of how changes in one sector ripple through others. During the relevant period, this technique could be used to examine the effects on sectoral and whole economy output of supply chain disruptions (via labour inputs, intermediate products made in the UK and/or imported intermediates) and shocks to final demand (private and public consumption, investment and exports) as a result of the pandemic and related restrictions **[VM/034 – INQ000655229]**.

49.5.   CGE modelling. CGE modelling enables the analysis of long-run economic effects of policy changes. It compares potential future policy scenarios against today's arrangements, holding all other factors constant. One of the most common uses of CGE modelling is to explore changes in a country's terms of trade, and this approach was used for the government's long-term economic analysis of EU exit published in 2018 **[VM/035 – INQ000655247]**. CGE modelling supported assessment of the impact of the UK's EU exit in the context of the pandemic shock **[VM/036 – INQ000655221]**.

49.6.   Epi-macro modelling. During the relevant period, the Economics Group also developed its capability in so-called epi-macro modelling, which considers both macroeconomic and epidemiological issues. This was a novel technique during this time and is described in detail below.

50. HM Treasury was aware that the economic impacts of the pandemic would not be felt evenly, with differential impacts across firms and sectors, across individuals with different characteristics, and across households along the income distribution. Businesses that relied on in-person settings, such as hospitality, were particularly exposed. Many of these sectors also operated on thin margins, leaving them with little financial resilience to prolonged disruptions. At the same time, these sectors tended to have a high concentration of younger and lower-income workers, making those individuals vulnerable to unemployment. Taken together with those in insecure employment, some of the most vulnerable people in the UK were likely to suffer most from the impacts of the pandemic. HM Treasury's modelling capability therefore went beyond impacts at a macroeconomic level, in order to better understand these micro-level impacts.

50.1. Firm-level modelling. In July 2020, HM Treasury procured a firm-level model that takes illustrative macroeconomic assumptions and converts them to micro-outputs, looking at the effects on firms' solvency and employment levels **[VM/037 - INQ000236558] [VM/038 - INQ000236545]**. This helped HM Treasury to understand the impact of NPIs on different firms and sectors, and to inform how policy interventions might best target support. Analysts in EGU led the firm-level modelling, working closely with colleagues in the Economics Group, engaging with BEIS on the results of the modelling as part of joint work on business impacts.

50.2. Distributional analysis modelling. HM Treasury regularly assesses the impact of policies on household incomes. During the relevant period, HM Treasury used its household-level distributional analysis model to estimate the impact of Covid on working households' incomes, based on data from the UK Household Longitudinal Study ("UKHLS"). Drawing on the results of special Covid modules conducted by the UKHLS in April 2020 and May 2020, analysts in PTWP estimated the probability of working individuals losing their job, being furloughed, or seeing a reduction in their earnings or profits, based on their pre-pandemic earnings; then simulated a similarly sized employment and earnings shock using HM Treasury's distributional analysis model. By modelling the impact of the government support provided to mitigate this shock alongside, an assessment could be made of the impact of that support on household income, informing ministerial decision making on the ongoing design of the employment support schemes **[VM/039 – INQ000609890]**.

50.3. Equalities analysis. During the relevant period, HM Treasury sought to build further its capacity and capability to analyse the economic impacts of policy choices across different demographic groups, including ethnicity, age, geography and gender. It is known to be highly challenging to model such impacts, including because the most relevant data held by government exists on a household rather than personal basis. As the IFS have noted in relation to gender for example, because most people live in households with others, and we don't know how incomes are shared, it is very hard to look at effects separately for men and women. Additional resource was allocated to the relevant team in PTWP in the latter part of 2020, with a view to considering (where possible) the equalities impacts of fiscal policy packages and whether certain protected groups are at risk of being disproportionately affected, but a specific modelling approach was not developed for this. During the relevant period, HM Treasury drew mainly on external equalities analysis, including from the IFS for example, who published analysis in July 2020 showing that low earners were seven times more likely to work in a sector closed by NPI restrictions, people under 25 about 2.5 times as likely, and women about one third more likely to work in a closed sector. As noted above, HM Treasury met with the IFS to discuss in more detail their work on inequalities **[VM/040 - INQ000610857] [VM/010 - INQ000236571] [VM/011 - INQ000236568] [VM/041 – INQ000655252]**.

Scenario analysis

51. Beyond these modelling techniques, the Economics Group produced scenario analysis that sought to map out how differing paths of the virus and subsequent NPI restrictions might affect headline macroeconomic variables and the fiscal position. Scenario analysis is distinct from forecasting. Whereas economic forecasting aims to predict the most likely outcome, scenario analysis is instead a stylised projection, providing a view of what could happen under different conditions, to provide a sense of the range of possible outcomes. This type of analysis does not attempt to capture all possible ways in which the economy might evolve, nor does it attach probabilities to the scenarios considered. It instead provides a means to explore the effects of varying key assumptions within a model framework. Scenarios are typically partial analyses, looking at a particular relationship or part of the economy, rather than the whole economy in detail. In HM Treasury, these are generally internal tools used to inform advice to ministers, especially in the run-up to fiscal events. HM Treasury's scenario

analysis draws on OBR's forecast methodology, but in a reduced form, such as a reduced number of economic variables, or producing fiscal analysis using so-called 'ready reckoner' tools, rather than deploying the full model equations – although these give less precise outputs, they are quicker and require less resource.

52. The Economics Group's scenario work during the relevant period built on the OBR's 'coronavirus reference scenario' published on 14 April 2020 **[VM/043 – INQ000184606]**. One example of HM Treasury's scenario analysis, produced in May 2020, was to consider how a 'V-shaped' recession caused by the economic impacts of the pandemic might differ from a more protracted 'U-shaped' or 'L-shaped' recession; analysts in the Fiscal Group then developed this to assess the impact on tax receipts and public spending **[VM/043 - INQ000184606]**. This allowed the Chancellor to understand the outlook against which he might make further decisions on economic support and what medium-term challenges he might face at future fiscal events. The Economics Group also used scenario analysis to consider how different paths of the virus could cause economic scarring, the medium to long-term economic damage that can occur following a severe shock that leads to a recession **[VM/044 - INQ000184611]**. This analysis informed the OBR's assessment of economic scarring from Covid, produced initially in their November 2020 EFO.

53. I have been asked for my view on how valuable scenario analysis is as a tool in the context of risks and uncertainties. As outlined above, this type of analysis is not intended to capture all of the possible ways in which the economy might evolve, nor attach probabilities to particular outcomes; instead, it provides a means to explore the effects of varying key assumptions within a model framework. Scenario analysis proved to be a useful tool, alongside others, to gain an understanding of how different restrictions might affect the fiscal position, and economic risks such as scarring. It was just one of many tools used by HM Treasury during this period; having a suite of different analytical and modelling tools was important to build as clear a picture as possible of the economic impacts of the pandemic. Likewise, scenario analysis was just one input used by policy colleagues to inform their thinking, alongside other analysis and modelling from the Economics Group and wider HM Treasury teams, and other input (such as international comparisons, as described below).

Forecasting

54. As outlined above, the OBR is the government's official independent economic and fiscal forecaster. It is the OBR's duty to examine and report on the sustainability of the

public finances, as set out in the Budget Responsibility and National Audit Act 2011. In fulfilling this duty, the OBR must prepare detailed and comprehensive economic and fiscal forecasts on the UK economy at least twice yearly and make these publicly available. The OBR's forecasts are produced independently, with government providing a range of inputs necessary for the OBR to run their models, including official-level analysis (from HM Treasury as well as from HMRC and DWP for example) and likely government policy; during a Budget or other fiscal event, HM Treasury provides the OBR with detail of proposed major policy measures which are likely to affect their forecast. Reflecting the speed of developments and the need for as timely economic analysis as possible, the OBR produced four updates during the relevant period – regular economic and fiscal forecasts in March 2020 (alongside the Budget) and November 2020 (alongside the Spending Review), and then additionally a coronavirus reference scenario in April 2020, setting out an economic and fiscal scenario based on an assumed set of NPIs and policy measures announced at that point, and a further update in July 2020 as part of their Fiscal Sustainability Report, which incorporated the further developments in the pandemic and policy since April.

55. HM Treasury does not maintain or produce a regular whole-economy economic forecast of the sort produced by the OBR and has not done so since the creation of the OBR. In order to facilitate the production of their forecasts, the OBR uses a large-scale macroeconomic model. The model was originally designed and developed in the Economics Group but is now jointly maintained and developed by the Economics Group and the OBR **[VM/045 – INQ000655253] [VM/046 – INQ000655246]**. This involves ensuring that the model reflects any changes to the structure, composition and classification of the ONS national accounts and other data sources used in the model, the re-estimation of the behavioural equations in the model to reflect the latest data or theory, and other work to develop the overall coherence and consistency of the model.

56. The Economics Group also collects, assesses and publishes on a monthly basis a compendium of independent forecasts for the UK economy, in the 'Forecasts for the UK economy' publication. This practice continued during the relevant period **[VM/047 - INQ000226499]**.

Epi-macro modelling

57. The pandemic was at its core a public health emergency. As the UK's economic and finance ministry, HM Treasury's primary interest in the health implications of the virus was in relation to the economic impacts (while other departments such as DHSC

focused on the public health implications). Understanding the health picture, in order to understand closely the interactions between the health and economic impacts, was a key priority for HM Treasury during the relevant period. HM Treasury did not make its own assessment as to the nature, severity and duration of the pandemic, and relied on the relevant experts to gain these insights. There were a number of channels to achieve this, including: HM Treasury officials working closely with DHSC and wider public health officials; regular contact between the Chancellor and HM Treasury officials and the Chief Medical Officer ("**CMO**") and Government Chief Scientific Adviser ("**GCSA**"); information gained directly from SAGE through HM Treasury's observer status (described in more detail in Part F); considering papers on health and scientific issues from SAGE and its various sub-groups – including the Scientific Pandemic Infections Modelling Group ("**SPI-M**"), the Scientific Pandemic Insights Group on Behaviours ("**SPI-B**") and the New and Emerging Respiratory Virus Threats Advisory Group ("**NERVTAG**"); and senior HM Treasury officials routinely attending the JBC 'Gold' meetings chaired by the Secretary of State for DHSC, where the latest health data was discussed. Insights on the virus gained through these routes were reflected in advice to the Chancellor and in wider analysis. For example, advice to the Chancellor in February and early March 2020 **[VM/026 - INQ000184562] [VM/048 - INQ000088044] [VM/027 - INQ000184563]**, on the potential economic implications of the virus as understood at that point was based on SAGE's Reasonable Worst-Case Scenario ("**RWCS**") and DHSC health data. As well as HM Treasury officials capturing relevant health insights, both qualitative and quantitative, in advice to ministers, the Economics Group also rapidly developed during the relevant period the necessary capability to understand and model complex epidemiological and economic interactions, so-called 'epi-macro' modelling.

58. Ahead of developing this particular capability, the Economics Group undertook more simplistic analysis, in May 2020, that considered the interactions between the economy and the virus **[VM/049 - INQ000236555]**. Using purely illustrative paths of the virus (not based on epidemiological modelling or estimates) this work considered a range of scenarios, exploring both fewer NPI restrictions and higher levels of the virus in the population, and vice versa, with consideration in both cases to a 'successful' or 'unsuccessful' end in terms of controlling the virus. This analysis drew on sectoral-level labour supply modelling of the sort described above but was complemented with consumption modelling and international comparisons on NPI stringency. It showed, as expected, that an economy with fewer restrictions resulted in a smaller impact on GDP. However, the analysis also suggested that, should such a strategy be unsuccessful, a

lockdown would need to be reimposed, thereby incurring very high economic costs. This confirmed that the best thing for the economy was to control the virus. This early analysis also confirmed the benefit of continuing to develop techniques to understand the epi-macro interactions.

59. While epi-macro analysis had long been undertaken by health economists, it understandably gained prominence as the pandemic emerged, including in the economics community, with internationally recognised researchers combining macroeconomic modelling with analytical tools from epidemiology.

60. HM Treasury started to explore formal epi-macro modelling in summer 2020, reviewing the external literature, engaging directly with external epi-macro experts, and exchanging ideas and learning with colleagues in the UK system engaged in similar work, notably the BoE. Work was led by a small unit of technical analysts in the Economics Group, with support from policy officials in CRT (with the latter focusing on digesting relevant outputs from SAGE).

61. In July 2020, HM Treasury hosted a strategy session inviting past and present RES presidents and academic experts from Imperial College London and the London School of Economics ("**LSE**") to discuss the latest epi-macro research. Officials from the Economics Group talked through their own analysis to test findings and heard from academic colleagues on their thinking and research. The discussion focused on the impact of voluntary versus mandated social distancing, 'smart' or targeted NPIs versus a generalised approach, and the implications of uncertainty (for example with respect to the impact of the arrival of a vaccine) on the preferred NPI strategy **[VM/050 - INQ000236540]**. Officials from the Economics Group also engaged with BoE colleagues developing epi-macro modelling and attended and exchanged the latest analytical thinking and approach at a BoE-organised research awayday on epi-macro modelling on 14 July 2020 **[VM/051 - INQ000236539]**.

62. The early epi-macro modelling developed by HM Treasury during summer 2020 used a Susceptible-Infected-Recovered/Removed ("**SIR**") model combined with the NiGEM model. With SPI-M modelling estimates providing the potential path of the virus, the model incorporated voluntary social distancing as an additional dimension, following research that indicated this had significantly reduced mobility, spending and employment in the United States during the first wave of the pandemic in spring 2020, with estimates ranging from about 50 per cent up to 90 per cent **[VM/052 –**

INQ000236560]. Applied to the UK context going forward, this implied a wide range of possible paths for infections and the macroeconomy.

63. The results of early analysis were shared with me and the CEA in July 2020 **[VM/053 - INQ000236556]**. This analysis included a review of the emerging epi-macro literature and the results of preliminary epi-macro modelling undertaken internally, which sought to illustrate the potential epidemiological and economic impacts of different strategies for managing the virus. The work was shared and discussed with the Chancellor on 18 August 2020, as part of wider advice from the CRT on different virus management strategies, explaining that the modelling work was still nascent and preliminary **[VM/054 - INQ000236542]**. The early modelling illustrated how sensitive health and economic outcomes were to different parameters, including the degree of voluntary social distancing, the efficacy of and compliance with NPIs, and assumptions around immunity from infection. It suggested there might be a potential 'sweet spot' achieved through a strategy which 'advised' (rather than 'mandated') on social distancing, but that this would need to be accompanied by targeted and sustained communication strategies in order to be effective. While results were still a work-in-progress, meaning that firm conclusions could not be drawn, the aim was to highlight which parameters to monitor and seek to address through policy.

64. Based on the modelling and advice put to the Chancellor, officials received steers back from the Chancellor's office the following day to test a series of underlying assumptions; these included different base case assumptions on R (the average number of people that one infected person would pass the virus on to), the fatality rate, and immunity **[VM/055 - INQ000236543]**. On 28 August 2020, the Chancellor received further modelling outputs reflecting these steers **[VM/056 - INQ000236557]**. HM Treasury officials included preliminary estimates of total excess deaths, and sensitivity analysis on each of the key health assumptions, to assist the Chancellor in understanding how the health outcomes of different options were quantified. Consistent with the earlier modelling conclusions, these results suggested that, by keeping the effective R rate close to 1, the 'advise' strategy was particularly sensitive to key health assumptions, with the risk of a materially worse health outcome much greater in 'advise' than 'mandate'. Preliminary results also suggested that in the absence of an effective vaccine or significant improvements in treatment, the pandemic was unlikely to end in the foreseeable future, meaning that mandated or voluntary mitigation measures would need to remain in place for an extended period. The modelling found that, under any strategy, non-Covid-19 excess deaths were a

significant driver of total deaths, though deaths directly related to Covid-19 remained the most important single driver.

65. I recall that in October 2020, to continue to support internal understanding, the Economics Group began to develop further the epi-macro model, to explore how mass testing might impact on the model outputs. This was in very early development in October 2020. I am not able to comment on how epi-macro modelling was developed or deployed after October 2020 when I left my role as Director for the Economics Group.

66. Throughout the development of the epi-macro work, HM Treasury officials kept Covid Taskforce officials updated on progress, including to communicate the Chancellor's interest in the work. These updates were usually given as part of regular senior small group meetings between HM Treasury and the Taskforce. I am not aware that the analysis was more widely used in government at this stage, given it was still in very early development.

67. I have been asked to provide a view on whether different or greater use of epi-macro modelling would have better informed the Government's response to the pandemic, and what changes should be made to the department's capacity to undertake epi-macro modelling for the future. At the time I was involved, epi-macro modelling represented a novel advancement in economic analysis, integrating epidemiological dynamics with macroeconomic frameworks, to assess the complex interplay between the public health crisis and economic outcomes. This new technique had not been widely developed or used in mainstream economics before, with the onset of the pandemic acting as a catalyst for the development of epi-macro models, including in the academic community. It was important for HM Treasury to consider and develop capability in this new technique, alongside other analysis and modelling, to build as strong an understanding as possible of the potential economic impacts of the pandemic, and their interaction with the health picture. Epi-macro modelling provided valuable insights into how changes in one variable could influence outcomes elsewhere across what was a complex system. It also highlighted the significant economic costs associated with an uncontrolled virus and that implementing NPIs which were targeted in some way would, subject to their design, be the most effective approach in minimising economic impacts. Advice at the time made clear to ministers the very significant uncertainties with such modelling, and that it should not therefore be used to inform very granular decisions, such as which specific NPIs should be implemented, and in what geographies. While there are uncertainties with all

modelling, epi-macro techniques, and our understanding of them, was still developing in the relevant period; the challenges of a lack of empirical evidence were even greater with these models than with other modelling techniques (described above); and the relationships captured in these models were not static, given adaptations by businesses and individuals to the NPIs over time.

68. My last engagement with epi-macro modelling was during the early autumn of 2020, and I am not familiar with HM Treasury's current capacity for its use. Others are better placed to assist with what, if any, changes should be made to the government's capacity and capability for epi-macro modelling and its use.

69. I have also been asked to outline HM Treasury's use of a 'toy' model. I am not aware of the use or development of a 'toy' model during my tenure as Director for the Economics Group, which ended in October 2020. I understand this came later in the pandemic.

Reflections on analysis and modelling

70. Covid was a public health crisis in which economic activity was intentionally suppressed in the interest of the UK's long-term public health and economic recovery. The scale of this deliberate suppression in a modern, complex economy was unprecedented, making the novelty of the situation a key challenge.

71. There was an extraordinarily high degree of uncertainty in all economic analysis and modelling conducted during the relevant period – whether by HM Treasury, elsewhere in government, or externally. As previously noted, the OBR highlighted these uncertainties in their November 2020 EFO.

72. Even in normal times, and in the most stable of economic conditions, economic modelling comes with uncertainties. These were acutely pronounced during the relevant period, especially in the earlier stages of the pandemic, when so little was known about the virus, and the reaction of individuals and businesses to both the pandemic and the restrictions put in place to manage it. Modelling relies on historical evidence and data, and the relationship between key variables (such as output and unemployment) to estimate the path of variables going forwards; but within the context of the pandemic, such evidence did not exist, especially in the case of epi-macro modelling. There was no historical precedent for the imposition of NPIs, and the key relationships were changing and evolving over time, as economic actors adapted to the pandemic and to the restrictions put in place to manage it – to illustrate, as GDP fell

during the pandemic, unemployment did not rise as might be expected in a typical recession or business cycle, because of the effects of government policy and the behaviour of economic agents.

73. Economic modelling and scenario analysis undertaken by HM Treasury during the relevant period provided a useful framework to consider systematically the key economic issues associated with the evolution of the pandemic at that stage, informing understanding of impacts and supporting the evidence base for policy development. It provided for a sense of direction and likely order of magnitude but, as in normal times, could not provide estimates or predictions of precise impacts.

74. Different models provide different perspectives – they differ in the parts of the economy they are considering, the time horizons that they cover, and the analyses that they are relevant for. Given the particularly high levels of uncertainty in this period, HM Treasury utilised a wide range of analysis and modelling techniques, and a wide range of data sources, to support its understanding of economic impacts and inform policy development and decisions. Despite work as detailed above to develop new and improved sources of data, the lack of historical precedent for assessing the impacts of the virus, and the restrictions imposed to manage it, remained.

75. HM Treasury did not rely solely on economic models or domestic data analysis for its economic assessments during the relevant period. Instead, the department considered comprehensively all of the available evidence, complementing its quantitative analysis with qualitative assessments (especially where impacts could not be readily quantified) **[VM/044 - INQ000184611] [VM/052 - INQ000236560]**. Such qualitative analysis included undertaking reviews of the available academic literature, considering evidence provided by external parties such as business groups, and looking in detail at the experience of other countries to compare how economic activity there responded to the virus and guidance, and to restrictions such as NPIs, as set out in more detail below. These approaches informed, for example, HM Treasury's view on the potential speed of economic recovery and impacts from scarring **[VM/043 - INQ000184606]**.

76. I have been asked whether the capability and expertise of the analysis function with the Economics Group was adequate given the multifaceted nature of the emergency. As noted, the analytical challenges faced during the relevant period were not specific to the Economics Group or HM Treasury but shared across all analysts in government and externally trying to understand and analyse the impacts on the economy of this unprecedented event. In HM Treasury, we were acutely aware of the analytical

challenge and discussed the issues widely with the analytical community both within and outside government (as described in more detail below), in order to draw on as wide a range of expertise and opinion as possible. I believe the capability and expertise of the Economics Group to have been adequate during the relevant period and provided invaluable analysis and modelling to support decision making on NPIs and associated economic support schemes. Within the Economics Group and across HM Treasury we developed critical new capabilities including in labour supply modelling, firm-level modelling and epi-macro modelling, and developed and drew on new innovative real-time data sources; as well as relying on more traditional techniques and information sets. The work undertaken in the Economics Group ahead of 2020, to build data, analysis and modelling capability and assurance (as described in more detail in Part E), meant that the Economics Group was as well placed as it could have been going into the pandemic.

77. At all times when bringing together advice and analysis for ministers during the relevant period, staff in the Economics Group operated within the Civil Service Code, ensuring that all analysis and advice was provided with integrity and was impartial, honest and objective, setting out the full range of considerations and grounded in the evidence. Analysts in the Economics Group operated in line with the professional standards set out by the Government Analysis Function and the GES, including the 'AQuA Book' **[VM/057 – INQ000625674]** for quality assurance of government analysis, and other relevant professional standards – including those set internally within HM Treasury for quality assurance of economic modelling, through the 'Strength in Numbers' initiative, and the recommendations of regular audits by the Government Internal Audit Agency ("**GIAA**"), as described in more detail in Part E below.

78. At no point during the relevant period were concerns expressed to me about HM Treasury's capacity or capability to carry out analysis, or regarding the types of modelling and analysis being undertaken.

79. The development and deployment of new and previously unconsidered analytical tools and techniques during this unique period, together with the data that now exists on economic developments at the time, means that if in future the government ever has to again consider imposing NPIs or similar measures, analysts will have invaluable previous evidence and experience to draw on, enhancing future understanding of economics and in turn policy making.

Structures and processes

80. During the relevant period, the economic analysis produced by the Economics Group and across HM Treasury was regularly shared, discussed and scrutinised through a range of internal, cross-government and external processes and governance boards. This ensured that the analysis could inform the work of colleagues leading on policy development related to the pandemic, whether on the design of NPIs or the economic support schemes, and could inform ministers in their decision making.

Within HM Treasury

81. Within HM Treasury, EMB convened each day to review developments on the pandemic, set priorities and consider the department's resourcing and organisational requirements. As part of this, EMB received regular updates at its meetings on the Economic Group's economic analysis, in terms of the real-time assessment of the UK economy, work underway to develop that analysis and assessment (including the data and modelling tools and techniques described above), limitations and challenges with those approaches, engagement across government and with external experts on the analytical work programme and specific issues, and how analytical work was feeding into policy development and decisions in HM Treasury and across government, including at ministerial level. This was an important part of ensuring accountability within HM Treasury for the work undertaken by the Economics Group during the relevant period. EMB also received regular updates on the department's risk management, to which the Economics Group contributed through the ERG (as described in more detail in Part C). The Economics Group also shared regular written updates on the latest economic developments with EMB, senior officials within HM Treasury and the Chancellor **[VM/058 – INQ000655227] [VM/015 - INQ000184618] [VM/059 - INQ000236535] [VM/060 - INQ000184622]**. These ensured that all members of HM Treasury, including those working on policy development, had a shared understanding of the economic conjuncture as the pandemic progressed.

82. The CEA is a member of EMB but, given the CEA's specific responsibilities for economic analysis within HM Treasury, there were regular meetings between members of the Economics Group (and analysts from across HM Treasury) with the CEA on specific analytical projects and issues, to get the CEA's input, challenge, steers and clearance. There were also regular 'State of the Economy' sessions chaired by the CEA where analysts could present and discuss their latest economic analysis and assessment **[VM/061 - INQ000184564] [VM/062 - INQ000184574] [VM/063 - INQ000184599]**.

83. Beyond EMB, the main cross-department mechanism within HM Treasury for the Economics Group to share its analysis was through the CRT in SPB, which was responsible for coordinating pandemic-related work across the department and synthesising advice, including economic analysis, from across HM Treasury to advise ministers on key pandemic questions related to HM Treasury's objectives. CRT was also responsible for various HM Treasury governance related to the pandemic. Early on in the relevant period, the Covid Response Board ("**CRB**") was established, chaired during the relevant period by the SPB Director, Dan York-Smith, and supported by CRT. The CRB was a forum to coordinate pandemic work across HM Treasury and consider the range of HM Treasury interests including economic impacts, the approach to the NPIs, the economic policy response, the public finances and public services issues such as the supply of PPE. The CRB was attended by all relevant Directors, DGs and DDs across HM Treasury who were involved in pandemic work and provided an important forum for the Economics Group to share and subject to scrutiny its analysis and assessment of economic impacts, data development and modelling work, highlight key uncertainties and update on engagement with colleagues across government and externally.

84. A number of sub-boards were established under the CRB, allowing for more detailed scrutiny and challenge on specific issues. This included the EBCSB, co-chaired by me as Director for the Economics Group and Phil Duffy as Director/DG for EGU, where economic analysis, assessment and modelling from across HM Treasury was presented, discussed and developed. Members of the Economics Group were also regular attendees at other sub-boards, including for example on the employment support schemes and on vulnerable people, where analysis, modelling and assessment relevant to those issues would be presented, discussed and scrutinised.

85. As already noted, the Economics Group did not have any responsibilities for policy development, which was led by policy colleagues across HM Treasury, with ministers responsible for policy decisions in the usual way. The Economics Group would, however, regularly contribute economic analysis and assessment to written advice and briefing by policy colleagues. Where appropriate, members of the Economics Group, including myself, the CEA and/or relevant experts, would join meetings with the Chancellor to update on the latest economic analysis and assessment undertaken by the Group, on a specific analytical question, or in relation to wider policy considerations, such as the NPIs or the government's economic support schemes, such as the CJRS.

Across the government system

86. Advising and briefing the Chancellor ahead of his attendance at key ministerial decision-making meetings was an important way in which economic analysis was fed into policy decision making during this period **[VM/064 - INQ000088050]**. Throughout the relevant period, decisions on NPIs for example, were initiated outside of HM Treasury. The Chancellor's role in relation to such decisions was to represent economic and fiscal considerations, and to inform and contribute to collective decision making. It was ultimately the role of the Prime Minister to balance the range of objectives across government, to reach collective decisions.

87. It was the responsibility of the Cabinet Office to coordinate, collate and synthesise pandemic-related analysis and insights from across government, including but not limited to public health recommendations from DHSC and SAGE, and economic and fiscal considerations from HM Treasury. From the onset of the pandemic, HM Treasury fed analysis directly into meetings set up through the Cabinet Office Briefing Room ("**COBR**") structure. In the run-up to the Prime Minister's announcement of the first social distancing measures on 16 March 2020, the Economics Group contributed to cross-government decision making through the analysis of possible economic impacts, and in particular the potential supply disruption to the UK economy of the proposed restrictions – as per advice requested by the Cabinet Secretary on the likely impact of Covid-19 on the economy and financial stability, submitted on 14 February 2020 **[VM/048 - INQ000088044]**. As part of the 10 May 2020 announcement of a conditional, phased plan for lifting lockdown restrictions in England, HM Treasury officials contributed to Cabinet Office advice to the Prime Minister on the re-opening of non-essential retail, including economic analysis from the Economics Group **[VM/065 - INQ000184571] [VM/066 - INQ000184570]**.

88. Once the Cabinet Office had established the Covid Taskforce in June 2020, HM Treasury officials worked closely with taskforce colleagues to support them in analysing economic evidence and data and to ensure economic considerations were included in decision making. For example, HM Treasury was involved in the review of the two-metre social distancing guidance in June 2020, which was chaired by the Permanent Secretary to No.10 and included the GCSA, CMO and CEA **[VM/067 - INQ000181693]**. HM Treasury also provided the taskforce with underpinning economic analysis as part of the May 2020 'Roadmap' **[VM/068 - INQ000181691]**.

89. The main channel for liaison with the Cabinet Office and Covid Taskforce was the CRT, who also led HM Treasury input into wider cross-government pandemic discussions and governance, such as the Ministerial Implementation Groups ("**MIGs**") and, subsequently, Covid (O), Covid (S) and related processes. The Economics Group would regularly input into CRT-coordinated products and ministerial briefings for these meetings and processes. Senior members of the Economics Group (myself and/or the CEA and/or relevant DD) also often joined weekly senior small group meetings held between the CRT and the Covid Taskforce and No.10 to update on the latest HM Treasury analysis of economic impacts, to ensure it was well understood by colleagues at the centre, and was being factored into advice for ministers and the Prime Minister.

90. In addition, the Economics Group also input directly into Cabinet Office/Covid Taskforce products, with the provision from March 2020 of macroeconomic data (alongside business and sector updates from BEIS) to feed into the Cabinet Office 'SitReps'/dashboards, a tool that provided the whole of government with a central source of pandemic-related information. These dashboards were used by the Prime Minister and other ministers to inform discussions at their daily strategy meetings **[VM/066 - INQ000184570] [VM/069 - INQ000235261] [VM/070 – INQ000655204] [VM/071 - INQ000184624] [VM/016 - INQ000252719]**.

91. Furthermore, given the unprecedented economic impacts of the pandemic and the role of the Cabinet Office in coordinating the government response, HM Treasury seconded staff, including senior civil servants, to the Cabinet Office during the relevant period, to provide additional expertise in integrating economic inputs into updates and advice for ministers. This included analysts from the Economics Group, who were seconded into the 'SitCel' in CCS, which in the early phase of the pandemic was responsible for the daily dashboards mentioned above.

92. The Economics Group also provided material direct to the Prime Minister. As in normal times, HM Treasury provided the Chancellor and Prime Minister with regular economic updates – during the relevant period, these encompassed a wide range of the latest economic data, both traditional sources and more novel and faster indicators (as described above) **[VM/072 - INQ000184619]**. Additionally, from June 2020, senior members of the Economics Group including the CEA attended regular bilateral economy meetings that took place between the Chancellor and Prime Minister, presenting at those meetings a slide deck covering the latest economic data and sharing key insights from the economic analysis. These sessions, held on a weekly basis during the relevant period, allowed for scrutiny and challenge by the Chancellor

and Prime Minister, and ensured they had the latest available insights and thinking on the economic issues ahead of key policy discussions and decisions **[VM/073 - INQ000232116] [VM/074 - INQ000184625]**.

93. There were also processes for feeding in economic analysis by the Economics Group and HM Treasury into wider ministerial discussions. For example, HM Treasury produced analysis and papers for the ministerial Economic and Business Response Implementation Group ("**EBRIG**") that was chaired by the Chancellor (and Business Secretary) from mid-March 2020 to July 2020, to coordinate central decision making and advise on business-related regional, sectoral and corporate-level issues relating to the pandemic. This ministerial group was supported by a regular cross-government meeting – the Economic and Business Response Strategy group ("**EBRS**") - of Permanent Secretaries and DGs from economic departments, including BEIS, MHCLG, DWP, DfE, the Department for Culture, Media and Sport ("**DCMS**"), the Department for International Trade ("**DIT**") and the Department for the Environment, Food and Rural Affairs ("**DEFRA**"), and was chaired by HM Treasury Second Permanent Secretary Charles Roxburgh **[VM/075 – INQ000655208] [VM/076 - INQ000236533]**. These meetings, which were coordinated by the Cabinet Office and which effectively shadowed the EBRIG, received supporting papers and presentations on economic analysis from the Economics Group, wider HM Treasury and other government departments, including analysis conducted across government – where HM Treasury often produced joint papers with BEIS and the Cabinet Office **[VM/077 - INQ000236534] [VM/078 - INQ000236577]**. This forum ensured that insights from economic analysis were well communicated, well understood, supported the development of a common view at senior official level of the challenges facing the UK economy, and could help inform policy development **[VM/079 - INQ000236541]**.

94. Beyond the Cabinet Office, the Economics Group routinely liaises with other government departments, and with partners in the UK's macroeconomic framework, namely the OBR and BoE. This liaison was enhanced during the relevant period, reflecting the need to rapidly scale up economic analysis and monitoring in a whole-of-system effort, to ensure that ministers had the best possible evidence base on which to make decisions.

95. As outlined above, the Economics Group is a leading member of the UK macroeconomic framework and routinely engages with its key partner institutions to share ideas and analysis and to test thinking. During the relevant period, such collaboration included:

95.1. The OBR. The OBR is an executive non-departmental public body, sponsored by HM Treasury, created in 2010 to provide independent and authoritative analysis of the UK's economy and public finances; these form an essential input into the government's ongoing policymaking. The Economics Group drew actively on the OBR's economic analysis throughout the relevant period, to build out its own understanding of the impacts of the pandemic, including through regular engagement and dialogue ahead of the OBR's published forecasts and scenarios (in March 2020, April 2020, July 2020 and November 2020, as detailed above). HM Treasury shared insights from OBR engagement more widely to inform ministerial discussions; for example, the Chancellor's speaking note for a meeting with the Prime Minister in March 2020 included numerous references to the OBR's modelling of the potential impact of NPIs on the economy **[VM/064 - INQ000088050]**. As noted above, HM Treasury has a standing obligation under the relevant legislation to jointly maintain and develop the large-scale macroeconomic model that underpins the OBR's economic forecasts; this model was originally designed and developed by HM Treasury. In addition, HM Treasury shared official-level analysis with the OBR throughout the relevant period, both to support the development of their published forecasts and to share ideas and test thinking. This two-way exchange took place both through meetings between HM Treasury seniors and the OBR's BRC and OBR staff, which I often attended, and by sharing papers and analysis in writing. For example, in October 2020, HM Treasury officials shared wide-ranging internal analysis including the impact of various lockdown scenarios, HM Treasury's approach to novel data sources, potential scarring impacts and sectoral analysis scenarios **[VM/080 - INQ000236561] [VM/081 - INQ000236562]**.

95.2. The BoE. The BoE is operationally independent from government and holds statutory responsibilities for setting monetary policy, protecting and enhancing financial stability and, subject to this, supporting the government's economic policy, including its objectives for growth and employment. HM Treasury benefits from the BoE's Monetary Policy Report, published quarterly, which sets out the economic analysis and inflation projections that the MPC uses as a basis for its interest rate decisions **[VM/082 – INQ000616221] [VM/083 – INQ000655248] [VM/084 – INQ000655243]**. HM Treasury and the BoE regularly share economic analysis and thinking with each other, including through – but not limited to – the CEA's attendance as a non-voting member at

the meetings of the MPC. These exchanges continued at official level during the relevant period – for example, officials from the Economics Group attended and shared the latest HM Treasury analytical thinking and approach on epi-macro at a BoE-organised research awayday on epi-macro modelling on 14 July 2020 **[VM/051 - INQ000236539]**. Further exchanges took place at a senior level, including seminars and discussions with both the internal and external members of the MPC and the Financial Policy Committee ("**FPC**") held in July 2020 and October 2020 **[VM/085 - INQ000236559]**. As Director for the Economics Group, I chaired these sessions, which were also attended by the CEA and colleagues from key teams across HM Treasury. They were a forum which provided for a two-way exchange and challenge at the most senior levels – with HM Treasury presenting on our latest economic analysis and the government's wider pandemic policy, and MPC and FPC colleagues (which include independent experts and academics, as well as internal BoE members) providing updates and insights on their own analysis and thinking.

96. HM Treasury also worked closely with a range of government departments during the relevant period, to both draw on their analysis and expertise in understanding the economic implications of the pandemic and the NPIs in their particular sectors of the economy, and to share insights from HM Treasury's work, including to inform economic policy support designed alongside and in response to public health measures. During the relevant period, HM Treasury stepped up its engagement with other departments relative to the period prior. There was extensive joint working with other departments in respect of data sharing (as described above), including to inform economic policy decisions like the economic support schemes; and HM Treasury worked closely with other departments to support a shared understanding of the economic outlook and the economic impact of government policies. Other government departments had sight of the daily Covid-19 dashboards, to which HM Treasury contributed key economic data, and which was shared across government by the Cabinet Office. Additionally, HM Treasury routinely shared with departments such as Cabinet Office, No.10 and BEIS a weekly 'macro-monitor' update **[VM/058 – INQ000655227] [VM/015 - INQ000184618] [VM/060 - INQ000184622]**. This contained the latest data on key macroeconomic indicators such as GDP, inflation and unemployment, accompanied by a summary assessment. The purpose was to provide departments with a comprehensive view of the latest economic data, supporting the collective understanding of the economy across government. During the relevant period, HM Treasury also shared its analysis and insights with other government departments via substantive contributions to

various cross-government reviews, such as the review of the two-metre social distancing rule, as mentioned above.

97. Analysis teams in HM Treasury worked especially closely with departmental analytical colleagues on the development of real-time indicators, including in the ONS, BEIS, HMRC and DWP (as described above), and joined economic statistics user groups convened by the ONS.

97.1. As part of joint work with HMRC on the employment support schemes, HM Treasury drew regularly on HMRC administrative data to gain insights not available in light of the constraints on official statistics, while in turn sharing data with HMRC – for example, HMRC shared management information on the characteristics of those using the schemes and HM Treasury shared analysis on the economic performance of different sectors to identify which could be most impacted by future NPIs, and therefore be in most need of support. As noted above, HM Treasury also drew on DWP analysis of Universal Credit claims, to inform the unemployment outlook during the relevant period.

97.2. HM Treasury also worked with BEIS and UK Government Investments to gain insights on the impact of the pandemic on the UK corporate sector and to assess individual company circumstances as required. The monitoring made extensive use of data from ONS, the BoE and Companies House, feeding into a weekly dashboard produced by BEIS to track the financial health of sectors. As noted above, HM Treasury developed a firm-level model that used financial accounts for publicly listed and private UK companies, and modelled different pandemic scenarios and policy interventions, to understand the potential scale and path of corporate distress **[VM/038 - INQ000236545]**. Outputs from this model were shared with BEIS, for example when evaluating the impact of an end to the rent moratorium on company distress **[VM/037 - INQ000236558]**.

97.3. This data sharing was supplemented by more qualitative input from the key economic departments such as BEIS, DWP, MHCLG, DCMS, DfT, DfE and HMRC, which was integrated into HM Treasury analysis and advice. This was especially the case where HM Treasury was collaborating directly with departments on economic support measures – such as DCMS and DfT on sector-specific support, MHCLG on local government delivery, as well as HMRC on the employment schemes and BEIS on loans and grants as already

mentioned. Similarly, HM Treasury data was shared to help inform the thinking in other departments, including via the Cabinet Office dashboard and the weekly macro monitor, as outlined above.

98. As well as these bilateral engagements with other departments, two-way sharing of economic data and analysis also took place in cross-departmental fora. The formal record of the inaugural EBRS meeting on 8 April 2020 indicates that attendees agreed that the most productive role for these meetings included 'consideration of how to deliver the best evidence base to ensure this could inform overall decisions, including getting closer to real-time data and the realities of impacts on different cohorts and places' **[VM/076 - INQ000236533]**. Over subsequent meetings taking place through summer 2020, HM Treasury continued to provide updates on the economic outlook at these meetings, and discussions considered impacts on different sectors as they re-opened, and long-term economic objectives as the UK recovered from the pandemic **[VM/079 - INQ000236541]**. The meetings additionally received supporting papers, including economic analysis produced jointly – for example between HM Treasury and BEIS and/or the Cabinet Office – with the aim of supporting a common view at senior official level of the challenges facing the UK economy **[VM/077 - INQ000236534] [VM/078 - INQ000236577]**.

99. The Economics Group also relied on inputs from health and scientific experts, drawing input from its observer status at SAGE and from papers and analysis produced by SAGE and its sub-groups including SPI-M. Members of the Economics Group engaged directly with members of SPI-M in order to better understand the epidemiological modelling outputs that were an input into various modelling tools during the relevant period, including the labour supply modelling and epi-macro modelling, and members of the Economics Group and CRT joined a SAGE sub-group on NPIs in September 2020 which was considering the relative merits of different NPIs from a health perspective **[VM/086 – INQ000655222]**. The Covid-19 Infection Survey **[VM/022 – INQ000655389]**, undertaken by the ONS from April 2020 to discover the rate of Covid-19 infections in private households, together with the JBC's real-time assessment of infection outbreaks at a community level, were both important additional inputs into HM Treasury's understanding of the health picture.

100. I am asked if the Economics Group received requests to share its analysis with other government departments. As noted above, the Economics Group and HM Treasury more broadly, was engaged in extensive sharing of economic data and analysis with a wide range of government departments, the Covid Taskforce and key partners in the

UK macroeconomic system. I have no recollection of any requests being made to me to share analysis with other government departments beyond that which was already happening. Were any requests for additional sharing to have been made, the normal government procedures would have applied, with ministers making decisions on what information and analysis is shared outside the department and recognising that much of HM Treasury's analysis is highly market sensitive, necessitating extra care in the sharing of material outside the department.

With external experts

101. During the relevant period, HM Treasury sought a range of views from credible external partners in support of the development of its analytical tools and approach, reaching out to economists in academia, research institutes and the private sector to exchange views. Reflecting the unique nature of the crisis, and the lack of precedent, it was particularly important for HM Treasury to gather a range of views and inputs and seek challenge and scrutiny on its thinking. This level of external engagement was above that which HM Treasury had typically undertaken prior to the pandemic. Engagement with, and insights from, external experts was reflected in ongoing analytical development and in advice to ministers. The Economics Group led HM Treasury's engagement with external economic experts, engaging well-established contacts in the UK think-tank community, and working with the RES who helped to develop a rapid match-making service with the key thinkers from academia, to support a high volume and frequency of academic engagement during the relevant period. The Economics Group included colleagues from across the government system (including the OBR, BoE, BEIS, ONS and Cabinet Office) in these discussions as appropriate, so that a wider set of analytical colleagues could benefit from the insights gained:

101.1. Think tanks. In developing its economic analysis, HM Treasury engaged directly with UK think-tanks, with myself, other relevant colleagues and the CEA meeting on a number of occasions with the RF and the IFS, during which economic analysis was shared and discussed. This included discussions with the RF on some macroeconomic scenarios work, and with the IFS on the inequality impacts of Covid-19, covering age, income and ethnicity **[VM/007-INQ000655217]**.

101.2. Academics. A key part of the department's engagement with academics was facilitated by the RES. This involved a combination of established contacts

such as Professors Nick Stern, Tim Besley, Carol Propper and Rachel Griffith, as well as those at the frontier of developing novel analytical techniques. I attended the majority of the sessions in this series, along with colleagues from HM Treasury and elsewhere in government, with the CEA also joining a number. Topics ranged from future healthcare provision (9 April 2020), restarting the economy (28 April 2020), inequality and Covid (5 May 2020), sectoral reopening (3 June 2020), Covid and ethnicity (3 July 2020), epi-macro strategy (21 July 2020), structural sectoral impacts (28 July 2020) and data (16 September 2020). At these sessions, the Economics Group would generally give a short presentation of how we were approaching a particular analytical problem or issue, and the questions we were grappling with; then inviting external attendees to share their own latest academic research, wider insights and/or reflections on HM Treasury's approach **[VM/013 - INQ000236570] [VM/014 - INQ000236567]**. The session on epi-macro analysis and strategy was especially insightful, coming as it did at a point at which the Economics Group was developing this new capability (as set out above) **[VM/050 - INQ000236540]**.

101.3. Chancellor bilaterals. Throughout the relevant period, the Chancellor also had regular bilateral contact with a range of experts, including key economic experts within the public sector, especially the Governor of the BoE (Andrew Bailey) and the Chair of the OBR (Robert Chote and later Richard Hughes) as well as finance ministers from around the world. He also spoke to a range of external economists from academic and financial market institutions as the need arose, as well as the CMO, GCSA and others, to get a range of views and insights to feed into his policy decisions. Senior officials from HM Treasury would often join these Chancellor discussions with external experts, as well as undertaking their own bilateral discussions – for example, during the relevant period, the CEA and other senior HM Treasury officials spoke regularly with the BoE Governor, the Chair of the OBR, the CMO, GCSA and others.

102. Throughout the relevant period, HM Treasury sought to learn from experiences in other countries, drawing on international data and evidence to understand how the virus was affecting other economies around the world, to draw any lessons for the UK. The experiences of a range of countries were explored, including those such as China and Italy who had experienced the virus earlier, as well as those between similar countries taking different approaches, such as Sweden and Norway. These insights helped to

compare how economic activity was responding to the virus and guidance and to the imposition of restrictions, and the nature of economic policy support. Such analysis was reflected in policy development undertaken by policy colleagues, and in HM Treasury's advice and briefing for ministers.

103. HM Treasury worked closely on these issues with colleagues from the International Comparators Joint Unit ("**ICJU**"), which was established by the Foreign, Commonwealth and Development Office ("**FCDO**") and Joint Intelligence Organisation from May 2020, to provide rapid thematic analysis of relevant international comparisons in order to inform cross-government decision making. Such analysis was particularly relevant in the development of the re-opening timetable announced in May 2020. For example, the Cabinet briefing from 6 May 2020 noted that the UK was 'at a comparable position to other countries announcing changes to restrictions in early to mid-May', and that 'the longer the current economic disruption persists, the greater the risk of permanent scarring' **[VM/087 – INQ000655234]**. Such comparative analysis was also used later in the summer to inform options around the phases of the re-opening of non-essential retail (where some European countries had re-opened smaller shops before larger ones).

104. During the relevant period, the Economics Group also engaged directly with international institutions responsible for global and country-level economic analysis and assessment, including the IMF and OECD, drawing on their modelling, analysis and forecasting, as noted in Part A. The IMF developed modelling estimates that compared the relative impact of the virus and NPIs on economic activity in different countries. The OECD conducted extensive work on governments' policy responses to Covid-19, including a report which evaluated the impact of restrictions like NPIs on economic activity and spending, which was shared in advice sent to the Chancellor on 11 June 2020 **[VM/005 - INQ000236537]**.

105. With the CEA, I was responsible for HM Treasury's engagement with the IMF during their official bilateral mission to the UK in autumn 2020, as part of their regular surveillance of the UK economy, with the concluding statement setting out their preliminary conclusions published on 29 October 2020 **[VM/002 – INQ00065324]**; and with the OECD ahead of their publication of the OECD Economic Survey on the UK on 14 October 2020.

106. Taken together, these inputs and insights from external partners in the UK and internationally were an important element as HM Treasury developed its understanding

of the economic impacts of the pandemic during the relevant period. There was a wide range of experts engaged, a range of HM Treasury and wider government colleagues were involved, the programme of engagement was built rapidly early on in the relevant period, and there was a high pace of engagements during the period on which I am able to comment. Lessons which might be drawn from HM Treasury's external engagement on economic analysis and modelling during the relevant period are outlined in Part G.

107. It has been suggested by some that an economic equivalent of SAGE would have been beneficial during the pandemic, to independently advise the government on economic policy. Although there was some discussion about this idea in public, and informally within government, no formal proposal was made to HM Treasury. While the government could have set up such a body, there are established mechanisms already in place through the UK's macroeconomic framework (as described above) for substantive independent advice to the government on economic analysis and economic policy issues – performing a similar function to that provided by SAGE on health and science – including through the OBR and BoE's regular public forecasts of the UK economy and accompanying commentary and analysis, and HM Treasury's engagement with them on those forecasts. In 2020, the OBR published its two regular economic and fiscal forecasts, alongside the Chancellor's March Budget and November Spending Review, with additional forecast scenarios in April 2020 and July 2020 given the speed and nature of economic developments in that period; and the BoE published economic forecasts in its regular quarterly Monetary Policy Report (January 2020, May 2020, August 2020 and November 2020). Like SAGE, these bodies already include and draw on external experts and academics in delivery of their responsibilities and this informs their analysis and advice to HM Treasury. HM Treasury also engaged directly with a range of external experts and academics in this period, as detailed previously. The government additionally has to be mindful of market sensitivity and there might have been risks with an additional public advisory group discussing sensitive economic information; any downside risks to the economy discussed openly in public can potentially become self-fulfilling, causing financial instability and negatively affecting jobs and investment.

Wider dissemination

108. Although HM Treasury did not produce stand-alone academic-style papers or publications on its economic analysis, the department did step up the sharing of

analysis both across government and externally, and HM Treasury's economic analysis and assessment of the pandemic was contained in a number of broader publications by HM Treasury and the government.

109. As per usual practice, all fiscal decisions taken by HM Treasury were set out transparently in publications at fiscal events: Budget 2020 (11 March 2020**) [VM/088 – INQ000226505]**, A Plan for Jobs 2020 (8 July 2020**) [VM/089 – INQ000609915]** and the Winter Economy Plan (24 September 2020) **[VM/033 – INQ000088027]**. These documents each included a 'policy decisions' chapter which summarised every policy decision taken and the scoring implications of those measures. They also included the latest economic and fiscal forecasts as provided by the OBR. HM Treasury also published distributional analysis examining the impact of policy decisions on household incomes, as is standard practice at fiscal events, and additionally, HM Treasury produced an ad-hoc publication in July 2020 summarising the impact to date of government support packages against the impact of earnings and job losses **[VM/039 - INQ000609890]**. HM Treasury analysis was also published in wider government publications coordinated by the Cabinet Office/Covid Taskforce during the relevant period, including the May 2020 'Roadmap' **[VM/068 - INQ000181691]**, and the two-metre social distancing review **[VM/067 - INQ000181693]**.

110. However, in line with the overarching government approach, it was for ministers to decide on the sharing and publication of HM Treasury analysis to a wider audience, bearing in mind the need for care with market-sensitive information as noted above. There is no doubt a legitimate debate to be had about how much economic analysis can or should be put into the public domain, beyond that already contained in Budget documentation and related material, in a way that does not risk economic stability. This is covered further in Part G.

Part C: The Economic Risk Group

Overview

111. Assessing potential risks to the economic and fiscal outlook is an important part of HM Treasury's work, which is overseen by EMB. In undertaking their risk management responsibilities, the EMB considers a Quarterly Performance and Risk Report ("**QPRR**") every three months. This enables HM Treasury's senior leadership to review in one place risks to the delivery of Treasury objectives, considering and scrutinising

carefully any areas that fall outside of agreed risk appetite, understanding where these risks are owned, what the potential impacts would be, and agreeing how to respond through actions to manage or mitigate the risks.

112. The framework which underpins this approach is informed by the principles set out in HM Treasury's 'Orange Book' , which establishes the concept of risk management in government organisations and provides guidance on the development and implementation of risk management processes in government, including the maintenance of risk registers, regular reporting to governance forums, and regular discussion of the organisation's mitigation strategies **[VM/090 - INQ000068436]**.

113. EMB has two internal sub-committees considering risks to the UK economy - the ERG and the Fiscal Risks Group ("**FRG**"); there is also a third sub-committee (the Operations Committee) considering HM Treasury's operational risks. These Risk Groups also operate in line with the Orange Book approach, contributing to HM Treasury's risk management framework by identifying and tracking indicators, horizon-scanning, and assessing the likelihood and probable impact of risks, enabling EMB to have the information necessary to take decisions and action where appropriate. While the role of ERG, alongside the other two risks groups, is to support the EMB in managing the department's risks, EMB remains formally accountable for risk management at departmental level.

114. The ERG is a cross-HM Treasury governance board (rather than an organisational unit or 'group' within HM Treasury) and was established in 2010, as part of an overall strengthening of risk management processes in HM Treasury following the 2008-09 global financial crisis. It aimed at providing a regular senior-led forum to consider trends and explore a wide range of medium-term risks to the UK's macroeconomy and financial system, allowing for scrutiny and challenge. Consistent with the Orange Book approach, and as set out in the ERG Terms of Reference **[VM/091 - INQ000088160]**, the ERG is focused on: identifying and monitoring the most relevant indicators to assess risks to the economic and financial system; and regularly assessing the likelihood, probable impact and ownership of risks.

115. The work of the ERG contributed to the QPRR considered by EMB. ERG functions as a strategic rather than operational risk forum, so as soon as any risks start to crystallise, bespoke governance arrangements would be established within HM Treasury to ensure the necessary focus on the issues and to develop a response

through management or mitigation of the risk. In recent history, examples where this has been the case include the risks to the UK economy from the eurozone debt crisis that followed the global financial crisis, the risks to the UK economy from a potential no-deal EU exit and, during the relevant period, the risks to the UK economy from the pandemic. As already noted, the CRB was established early on in the relevant period to coordinate across all areas of HM Treasury on the day-to-day impacts and risks from the pandemic, including economic and fiscal risk management and mitigation. Membership of CRB included representatives of all HM Treasury teams involved in pandemic-related work, including the Chairs of the ERG and FRG. This ensured good coordination and collaboration between the work of the ERG and the CRB.

Roles, responsibilities and membership

116. The ERG is traditionally chaired by the Director for the Economics Group, with the Director for FinStab as co-owner. Throughout my tenure as Director for Economics Group, including the relevant period, I served as Chair of the ERG, with the Director for FinStab Lowri Khan as co-owner; the FRG is chaired by the Director for Fiscal Group, which during the relevant period was Tom Josephs. The ERG was supported by a joint secretariat based in both the Economics Group and FinStab. My responsibilities as ERG Chair included, working jointly with the Director for FinStab: overseeing the ERG work programme; approving meeting agendas; leading discussions to ensure that key strategic issues were fully considered; ensuring sufficient scrutiny and challenge; securing clear actions and conclusions; monitoring progress against those actions; coordinating with the other elements of the risk framework including FRG; and signing off material provided to EMB as part of the QPRR.

117. Prior to the pandemic, ERG convened on a roughly quarterly basis, to coincide with the quarterly reporting cycle through the QPRR. In between ERG meetings, I would additionally meet jointly with the Director for FinStab as co-owner, and the ERG secretariat, to agree the forward work programme, the agenda for forthcoming meetings, and other related issues such as join up with the FRG.

118. Given the cross-cutting nature of macroeconomic and financial stability risks, the ERG bought together members from across HM Treasury, including senior leaders (Directors and DDs) and wider staff members/experts (including at Grade 6 and 7) from: FinStab; Fiscal Group (including as owners of FRG); IG (including as owners of global economic

risks analysis - see below); SPB (including as owners of the QPRR process); as well as more broadly across the department, including EGU.

119. Prior to and during the relevant period, I oversaw steps to strengthen the operation and strategic focus of the ERG. This included fostering closer collaboration of risk management between ERG and FRG and their respective secretariats, to ensure that ERG was concentrating on the most material risks, and that the interactions between risks to the macroeconomic outlook, financial systems, and public finances were considered in the round; when scanning the horizon for medium-term risks, relevant policy leads worked together to identify the biggest economic and financial risks to the UK economy, and consider any compounding impacts.

120. In addition, I reviewed attendance to ensure that membership was genuinely representative and at a sufficiently senior level from across the department and worked with the FRG Chair to ensure that the standing memberships of ERG and FRG included common attendees to ensure that the interactions between economic, financial stability and fiscal risks received sufficient scrutiny.

121. I also looked to ensure that the ERG devoted time at its meetings to undertaking deep dives of priority issues, supported by detailed analysis from the expert leads, and encouraged debate and challenge from the ERG membership; this was intended to complement the existing dashboard and horizon-scanning approach. I also sought to broaden diversity of thought within the ERG membership, in terms of both professional and personal background and expertise, to ensure that there was sufficient challenge and scrutiny and to guard against groupthink. In the same vein, I introduced anonymised voting tools (such as 'sli.do') during the meetings, to ensure all members had a chance to input into decisions about future priorities and next steps. These reforms were formalised in a refreshed Terms of Reference (as noted above) during the relevant period.

122. Prior to the pandemic, I had set up a new economic risks team, to increase capacity for economic risk monitoring. Established in late 2018, I tasked this DD-led team with responsibility for understanding and communicating major economic risks identified by HM Treasury. These responsibilities had previously sat in MCS within the Economics Group, but by establishing a new stand-alone team focused solely on economic risks, I was able to build greater capacity and capability, including at a senior level. This new team led and coordinated economic analysis of impacts to the UK economy should

specific risks start to cause concern, with the scope of risks covered being shaped by external developments and trends in data. In each instance, working with experts across the Economics Group and more widely across HM Treasury, the team assessed the economic channels through which any effects might be felt, the potential magnitude of any shock, and the likelihood of the economic risks. The ER team in Economics Group formed part of the joint secretariat to the ERG, as described above.

ERG during the pandemic

123. As noted above, ERG was a strategic rather than operational body, and analytical rather than policy focused in nature. ERG was responsible for assessing and highlighting potential macroeconomic and financial stability risks, but it was for EMB and the respective policy owners to lead HM Treasury's response if and when risks crystallised. The ERG was not a decision-making body and had no remit to undertake policy development or make policy recommendations on risk management and mitigation. This was the case with the risks to the economy that arose from the pandemic, as it was with other major risks before it, such as those related to EU exit. As previously highlighted, the CRB, chaired by the SPB Director, led HM Treasury's response to the risks that emerged from the pandemic, coordinating work across the department and advising Ministers on the impacts and policy response to economic, fiscal and wider risks to the department's objectives. The CRB was supported by a number of sub-boards and associated governance arrangements, and the ERG continued to operate during the pandemic, supplementing and feeding into the work of the CRB.

124. The ERG met five times during the period for which I was Director for Economics Group and chair of the ERG (though I understand it met a sixth time towards the end of 2020, after I had left the role in October 2020).

125. Given the context of the pandemic, and the unprecedented impact of the pandemic on the UK economy, the ERG placed a particular priority during this period on the medium-term risks to the UK economy from Covid-19, but this was not the sole focus of the ERG's work during this time. As the relevant minutes show (see below), the ERG kept a focus on wider medium-term non-Covid specific risks to the UK economy during the relevant period – for example, the risks arising from EU exit (and the potential interplay between Covid and EU exit risks), and in relation to Central Bank Digital Currencies ("**CBDC**").

126. As described above, governance and coordination within HM Treasury was adjusted during the relevant period to meet the demands of the pandemic. Although the CRB was the main forum for managing the near-term economic risks arising from the pandemic, as the pandemic continued into the summer of 2020, I thought it would be prudent to increase the frequency of ERG meetings, to ensure enough time and space to consider the potential future economic and financial stability risks that might arise from the pandemic. During the relevant period, the first meeting of the ERG took place in February 2020, followed by a further meeting three months later, in early June 2020, on the usual quarterly cycle. At the June 2020 meeting, it was agreed to increase the frequency, and from then on during the relevant period, save for a summer pause in August, the ERG met monthly i.e. June 2020, July 2020, September 2020 and October 2020. The relevant minutes are discussed below.

127. During the relevant period, I also proposed that the agenda be reduced to a limited number of items per meeting - an update from the secretariat on latest developments in the dashboard (which is used to RAG rate different potential risks and their potential impact on the UK economy and financial stability) and a 'deep dive' on one or maximum two particular topics deserving attention. This allowed for the presentation of more detailed analysis and more in-depth discussions on particular risks and their potential impacts on the economy and financial stability.

128. Given that the CRB remained the main governance mechanism in the relevant period for assessing and responding to near-term economic risks from the pandemic, combined with the increased frequency and more detailed discussions I introduced to ERG during the relevant period, I believe the ERG was an effective forum to monitor and analyse medium-term risks arising from the pandemic, and met with sufficient frequency during this period.

Working with others

129. As part of HM Treasury's internal risks management framework, the ERG was necessarily an internal facing group within HM Treasury. However, the ERG worked alongside and in close collaboration with other groups that sat within HM Treasury's wider risk management framework, especially FRG, the wider QPRR process, as well as the CRB during the relevant period, as explained above.

130. The ERG also drew in key economic and financial stability risk leads elsewhere in HM Treasury, including in IG and FinStab, who in turn worked with relevant colleagues across government and beyond, and bought to bear on ERG preparations and discussions the benefits of those wider processes, insights and additional scrutiny.

131. As a small open economy, the UK is especially affected by wider issues and trends in the global economy. In HM Treasury, IG is responsible for monitoring risks to the global economy, and how events happening elsewhere in the world might impact on the UK economy. IG supports UK ministers and senior officials in regular multilateral meetings of the G7, G20, IMF, World Bank and OECD, where the UK plays an active role in regular assessments and discussions of global economic developments and risks. IG also monitors closely economic and financial stability risk assessments made by international bodies such as the IMF and OECD in their regular global and individual country surveillance reports and publications. In addition, HM Treasury, via IG, works with colleagues across the wider government community, including key departments and the BoE, to develop a shared view on global and country risks, especially where those countries are systemically or geopolitically important. Formal coordination happens through the Global Economic Analysis and Risk Group ("**GEARG**"), which HM Treasury chairs jointly with the FCDO. The core members of GEARG, both prior to and during the pandemic, were HM Treasury, FCDO, BoE, Cabinet Office, DIT and BEIS, with other departments invited as needed. GEARG has previously considered a wide range of potential risks (not limited to purely economic issues but including for example health risks such as Ebola) and produces a biannual Global Economic Risk Monitor ("**GERM**"). IG bring to the ERG insights and risk assessments from both GEARG and international multilateral meetings, by feeding in relevant papers (such as the GERM), working closely with the ERG secretariat to ensure the ERG work programme reflects global economic risks, and participating actively in the ERG, including through the relevant Director Robert Woods.

132. As already noted, FinStab plays an especially important role in ERG, as co-owner and co-secretariat alongside Economics Group colleagues, and bring to bear their insights and expertise on the work of the ERG that relates especially to medium-term risks to UK financial markets and institutions. FinStab has a standing analytical function that assesses and monitors system-wide financial stability risks, engaging with the financial authorities and a range of government departments to monitor, assess, and mitigate operational risks to the UK's financial system. As the lead department in government for the resilience of the financial sector, FinStab has a particular role in preparedness

for this sector as part of wider cross-government planning and exercising fora on national risks (including those listed on the National Risk Register ("**NRR**") and its classified version, the National Security Risk Assessment, ("**NRSA**")). Through FinStab, HM Treasury takes part in regular substantive sector-wide exercises on the financial sector and financial authorities' response to operational disruption; these take place on a biennial basis, with the 2006 scenario simulating disruption from a pandemic flu. FinStab brings to bear the benefit of lessons and insights from these exercises, and the wider perspective and challenge from other participants, into the work of the ERG.

133. During the relevant period, I also sought over time to ensure that the ERG joined up more actively with the work of CCS on the NRR and NRSA, ensuring that a broad set of potential risks to the UK economy and financial stability were considered by the ERG, not just those originating in the economic and financial system. More detail on this is captured below.

ERG meetings

134. During the relevant period, I chaired the following ERG meetings:

135. 12 February 2020. The main focus for this ERG was the global and UK economic and financial stability risks from the spread of Covid-19 though, alongside a general assessment of the latest dashboard indicators, the meeting also took an item on CBDCs and considered some new techniques for risk monitoring. During the meeting a range of data and potential risks were discussed including the current reported number of Covid-19 cases, market reactions, potential impacts on the Chinese economy, the global economy and the UK economy, including under a RWCS. The corresponding financial stability impacts were also considered **[VM/092 – INQ000655202]**.

136. This meeting took place at the early stages of the pandemic when there was limited information and understanding of the nature of the virus. The overall risk assessment presented to the ERG recognised the uncertainty around the epidemiological and economic impact and noted the potential for significant outbreak in the UK and the need for ongoing assessment. There was agreement to ongoing monitoring and analysis of the virus, including to explore further sensitivities around labour supply impacts, to deepen the analysis on global supply chains **[VM/093 – INQ000655239]**

and financial stability and to consult the OBR on their view on the potential impacts on UK growth.

137. On 3 June 2020 the ERG met to discuss the current medium-term outlook regarding macro-financial risks, with a particular focus on the potential risks from corporate distress resulting from the pandemic, as well as a deep dive on potential overlaps in the risk outlook from the coincidence of the pandemic and the end of the EU exit transition period **[VM/094 – INQ000655231]**. During the meeting a range of data and potential risks were discussed including in relation to areas of the economy which had shut down since March, credit market conditions, areas of resilience and vulnerabilities within the financial system, and the potential macro-financial risks in the event of a prolonged shock. Actions agreed by the meeting included that the next ERG meeting would include a more forward-looking set of macro-financial indicators and that the RAG rating needed to be updated to better reflect the increased level of risk across the economy **[VM/095 – INQ000655215]**. A separate deep dive with relevant senior leads was suggested to consider further the issues related to potential coincidence of the pandemic and the end of the EU exit transition period. It was also agreed that a proposal to increase the frequency of the ERG would be circulated to the ERG members once agreed by the joint chairs.

138. On 27 July 2020 the ERG met **[VM/096 – INQ000655219]**. Alongside an update and discussion on the current macro-financial risks, there was a deep dive on the UK's external financial vulnerabilities arising from the pandemic. Under the first item, ERG discussed the potential for economic scarring to the UK as a result of the pandemic. Under both items, there was a discussion regarding limitations in the available economic data **[VM/097 – INQ000655232]**. Actions arising from the meeting included that the group would continue work to further refine the macro-financial indicators ahead of the next QPRR and would also look to consider a wider range of risks at future meetings, including those that originate outside of the economy or financial system, drawing of the work of CCS.

139. On 16 September 2020 the ERG met **[VM/098 – INQ000655224]**. The meeting covered the usual presentation of the indicators dashboard and RAG-rating, to identify macro-financial issues of particular concern, and covered two further items. The group discussed further work that could be undertaken to improve HMT's own understanding of the potential impacts of risks originating outside the economic and financial system, and possible tools to help respond to risks at pace. An action was taken away for the

ERG secretariat to join up with the FRG secretariat, and QPRR leads, to consider whether and how to further develop HMT's wider risk assessment framework. This meeting also took a deep dive on dollar funding risks in light of the impact of the pandemic on the dollar's status as the premier reserve currency for global financial markets **[VM/099 – INQ000655203]**.

140. On 29 October 2020 the ERG met **[VM/100 – INQ000655225]**. Alongside the usual presentation of the indicators dashboard and RAG-rating, the ERG returned to two key issues for further consideration: the risks from the end of the EU exit transition coinciding with a potential second wave of Covid-19; and the risks from CBDCs **[VM/101 – INQ000655238]**. On the former item, an analysis had identified the sectors that would be most likely impacted by the interplay, including construction and manufacturing, and it was noted that the impact from both shocks hitting at the same time had the potential to be more pronounced than the combined impact of the individual shocks were they to hit sequentially – it was agreed that the next step should be a more detailed sectoral risk assessment and RAG rating.

Reflections on ERG

141. As already noted, my view is that ERG adequately performed its function within HM Treasury's wider risk management framework, and within the governance and structures set up to deal specifically with the pandemic, during the relevant period.

142. The challenges faced by the ERG during this period were consistent with those already highlighted, as more general challenges for HM Treasury in assessing and analysing the UK economy during this highly unusual period. As the ERG minutes demonstrate, this included the availability and quality of data being more limited than usual, both because the pandemic created challenges for collecting data through conventional channels and because the delivery times for traditional data sets were not commensurate with the pace of economic developments. To address these constraints, new and alternative data sources were explored and utilised, as described in Part B above. In addition, in the specific context of the ERG, refinements were made during the relevant period to the large dashboard of economic and financial indicators that has formed the basis for ongoing ERG assessment since 2017. From June 2020, the ERG secretariat began consistently reporting to the ERG meeting on a priority suite of these RAG-rated macro-financial indicators - those that were deemed to be the most pertinent for assessing medium-term economic risks arising from the pandemic,

or those that signalled the most pressing economic risks, rather than overloading the meeting with too much information that made it difficult to discern key trends. During the relevant period, the set of priority indicators were kept under regular review and updated as needed.

143. The ERG was agile in how it responded to the new risk environment during the relevant period, including how it engaged with wider governance established to manage HM Treasury's response to the risks arising from the pandemic, and in how it engaged with key partners across HM Treasury and the wider government system. I have reflected above a number of reforms I made to the ERG before and during the relevant period, as I evaluated in real time how to ensure it was operating as effectively as possible to meet the needs of HM Treasury, and was as agile as possible in its response to the pandemic – these included: modifications to the dashboard of key indicators; more frequent meetings; more detailed discussions through more focused agendas and deep dives; encouraging regular and senior attendance by key Treasury colleagues; more active join up with the FRG, and with the wider cross-system risk processes led by colleagues (including the GEARG and financial stability resilience exercises); a stronger consideration of risks which originate outside of the economic and financial system (where lead responsibility sits outside of HM Treasury), as captured in the NRR and NRSA; and ensuring there was sufficient challenge against group-think, by encouraging a diverse membership for ERG, and the use of anonymised voting tools such as sli.do, to agree future priorities and next steps.

Part D: The Economics and Business Covid-19 Sub Board

Overview

144. In March 2020, HM Treasury established the EBCSB (also referred to as the Economics and Business Covid-19 Internal Group). This was set up as one of a number of sub-boards of the CRB **[VM/102 – INQ000655226]** to provide a cross-HM Treasury forum for more detailed consideration of macroeconomic and microeconomic monitoring and analysis than was possible at the CRB. This helped to ensure a shared collective understanding of the analysis, allow for scrutiny and challenge and inform the work of HM Treasury colleagues responsible for pandemic-related policy development, such as business and sectoral support, labour market support and the design of the NPIs **[VM/103 – INQ000655209]**. The work of the EBCSB also supported some of HM Treasury's input into the cross-departmental EBRS, chaired by HM Treasury Second

Permanent Secretary Charles Roxburgh, as described above, and which in turn supported the cross-ministerial EBRIG, which was chaired by the Chancellor or Business Secretary between April 2020 and July 2020. Though I was not directly involved in the EBRIG, I understand it was tasked with coordinating and advising on business-related regional, sectoral and corporate-level issues arising from the pandemic **[VM/075 – INQ000655208] [VM/104 – INQ000274428]**.

Role, responsibilities and membership

145. During the relevant period, the EBCSB was co-chaired by Phil Duffy, the Director (and subsequently DG) for EGU and me as Director for Economics Group; however, in practice, depending on availability, meetings were often chaired by one of our HM Treasury colleagues or representatives. EBCSB meetings took place on a roughly fortnightly cycle until July 2020, when meetings then took place once a month. The secretariat for the EBCSB, which was drawn jointly from EGU and the Economics Group, was responsible for proposing the agenda, lining up presentations and drafting the minutes. A list of EBSCB meeting documents and minutes for the relevant period is provided at Annex A.

146. Given the cross-cutting nature of the EBCSB, which by design was intended to expose macro and microeconomic analysis to a wide range of Treasury policy colleagues, membership included Directors and/or their representatives from all key Treasury Groups involved in HM Treasury's work on the pandemic. Beyond EGU and the Economics Group, EBCSB attendees included the Public Services Group, Fiscal Group, Public Spending Group, PTWP, Business and International Tax Group, Financial Services Group, IG and SPB **[VM/103 – INQ000655209]**.

Focus of the EBCSB

147. As outlined above the main purpose of the EBCSB was to share analysis of the macroeconomic and microeconomic impacts of the pandemic on the UK economy, both to allow for scrutiny and challenge, and to help inform colleagues undertaking policy development on the government's economic response. The EBCSB was not itself a policy-development forum, although updates on policy issues would often be offered and discussed, in order to ensure the right analytical work was being undertaken to inform the evidence base for policy making, and to ensure that the

analytical work was well understood and informing policy development in the appropriate way.

148. Generally speaking, each meeting would receive an update on related cross-government discussions (such as the official-level EBRS and the ministerial-level EBRIG meetings, as appropriate); discuss relevant HM Treasury and cross-government economic policy issues **[VM/105 – INQ000655233]**, such as the business and labour market support schemes and/or NPI strategies **[VM/106 – INQ000655214]**; and gain insights into related HM Treasury economic analysis, such as sectoral impacts from the pandemic and NPIs.

149. The meeting papers for the relevant period are exhibited at Annex A.

Working with others

150. I was not involved in the ministerial-level EBRIG process or meetings, and others will be better placed to comment on preparation for those meetings, and HM Treasury's input into it. I was more closely involved in preparations for the cross-departmental EBRS Permanent Secretary level meetings - to the extent that analysis and assessment produced by the Economics Group was shared, presented and discussed at such meetings. As noted above, the EBRS was an official-level forum for discussing the cross-government economic and business response to the pandemic. As set out in the Terms of Reference **[VM/107 – INQ000625750]**, the purpose of the EBRS was to support a common cross-government approach, by providing a forum for sharing intelligence on the business environment and impact of Covid-19, and to consider the strategic and policy approach to the post-pandemic economic and business recovery. The minutes of the first meeting on 8 April 2020 **[VM/079 – INQ000236541]** record that attendees agreed that a key purpose for the EBRS was "consideration of how to deliver the best evidence base to ensure this could inform overall decisions, including getting closer to real time data and the realities of impacts on different cohorts and places". Given the aim of supporting a common cross-departmental view of the challenges facing the UK economy, discussions at this meeting included analysis and assessment of the economic conjuncture and outlook, including the economic impacts on the UK economy as a result of the pandemic, and any policy measures taken by the government in response. Supporting papers were shared, presented and discussed, including economic analysis produced by HM Treasury and analysis produced jointly

by HM Treasury and BEIS, or HM Treasury and the Cabinet Office **[VM/077 - INQ000236534] [VM/078 - INQ000236577]**.

151. Although I was not involved in the preparations for the ministerial EBRIG meetings, I understand that these official-level EBRS meetings also helped to prepare the EBRIG meetings between April and July 2020.

EBCSB during the pandemic

152. The EBCSB continued to operate as originally conceived throughout the relevant period; there was no change to the Terms of Reference and principal purpose of EBSCB, despite wider changes to cross-government governance and processes, including the establishment of the Covid Taskforce and the replacement of the MIGs, including EBRIG, with Covid (O) and Covid (S) for example. The EBCSB continued to provide an internal HM Treasury forum to share and scrutinise relevant analysis – including analysis to be shared more widely across departments - and for policy colleagues to update on relevant wider cross-government work, including how HM Treasury might contribute to such discussions. For example, the read out of the 22 July 2020 EBSCB, chaired by me **[VM/108 – INQ000655218]**, outlines a discussion around cross-government work on NPIs and Work from Home Guidance that was being coordinated by the Cabinet Office and No.10; while the EBCSB chaired by Phil Duffy on 2 September 2020 **[VM/109 – INQ000655220]** included an update from the Economics Group on the latest economic data and outlook, an update from SPB on the government's wider Covid-19 strategy work, and a presentation from EGU on sectoral prioritisation analysis being undertaken jointly with BEIS and DCMS.

153. As described above, the EBCSB considered analytical work undertaken in HM Treasury, including analysis produced jointly with other departments such as BEIS and the Cabinet Office, and also received updates on policy work underway in HM Treasury or more widely across government. Some of this analysis was material that was then shared across government, either through the cross-department EBRS, or through other mechanisms. However, the EBCSB was not a decision-making forum, and did not make decisions on what information was shared across government. More detail on the sharing of analysis across government in given above in Part B.

Reflections

154. My observation and experience was that the EBCSB provided an important function within HM Treasury, in terms of creating the space for colleagues to share and scrutinise analytical work on the impacts of the pandemic on the UK economy, to ensure a shared understanding of the analytical assessment, and to help drive evidence-based policy making by colleagues responsible for HM Treasury's policy response. It was a helpful complement to wider governance in HM Treasury, including for example the CRB as the main forum for coordination for the breadth of HM Treasury's work on Covid-19. As noted above, with respect to HM Treasury's and the government's wider analysis and assessment during this period, the main challenges faced in the context of the EBCSB were data limitations (given that traditional data sources were less readily available than usual and less timely than required) and the breakdown of traditional economic relationships given the intentional suppression of economic activity (which made the assessment of economic impacts more difficult than usual). This is explained in more detail in Part B above.

155. Given that the EBCSB was an internal HM Treasury forum, a sub-group of the overall CRB that coordinated across the breadth of HM Treasury's interests on the government's response to the pandemic, I am not able to comment on the question of whether the EBCSB was an effective forum to support departments in understanding the economic impact of the pandemic and HM Treasury's response to the pandemic. Others who were involved in relevant cross-government meetings and processes, such as the ministerial-level EBRIG, Covid(O), Covid(S), and the official-level processes that supported and complemented ministerial governance, would be better placed to provide a view.

Part E: Preparation for and Initial Reaction to the Pandemic

Preparations prior to the pandemic

156. In the months and years prior to the pandemic, I had implemented a number of reforms in the Economics Group to strengthen both analytical capacity and capability and create more flexibility in our resourcing model. This meant as a Group we were better placed to respond to the crisis when it hit than we would otherwise have been. These reforms included:

157. Strengthened risk capacity and capability, through some key initiatives:

157.1. I had established a new economic risks team (as outlined in Part B), led at DD level, within Economics Group. This was designed to expand our capacity to assess risks to the UK economy, to strengthen the governance of the ERG, and to join up more actively with risk management colleagues across HM Treasury. This function had previously been undertaken by a branch of the MCS team. The ER team played a critical role in supporting the work of the Economics Group during the pandemic response, coordinating analytical work across the Group, acting as the main interface between Economics Group and the central Covid response team in SPB, and contributing to the joint secretariats of both the ERG and the EBCSB.

157.2. I had strengthened the operation of the ERG (as outlined in Part C), including by improving join up between the ERG and other partners in HM Treasury's risk management framework, refreshing and expanding the ERG membership to ensure it was truly cross-cutting across the department, improving the quality of the ERG discussions by ensuring there was sufficient time for deep dives into the key issues, making the dashboard of key risks more systematic and transparent, and improving scrutiny and challenge by ensuring a genuinely diverse ERG membership and voting tools to ensure all members could have a say in key conclusions and future priorities.

158. Increased and more flexible analytical capacity: Prior to the pandemic, I had created within the Economics Group an analytical projects unit as outlined in Part B. This was a flexible project pool of professional analysts, able to be deployed rapidly to areas of the highest priority across HM Treasury, including within the Economics Group if more internal capacity were required. Members of this flexible analyst pool could be reallocated immediately to undertake analysis on pandemic priorities from the very beginning of the crisis (for example on the government's employment support schemes).

159. Strengthened analytical capability: Over the preceding years, we had continued to develop further our analytical capabilities. This included:

159.1. Expanding the range of technical modelling capabilities. In the run up to the government's EU exit analysis programme, the Economics Group procured and developed technical capability in running CGE modelling as part of a cross-government consortium. CGE modelling allows for the assessment of long-run economic impacts of policy changes. By the time of the onset of the pandemic,

HM Treasury had already applied and published the results of CGE modelling in relation to the economic impacts of the UK's exit from the EU and had begun applying GCE modelling to other major structural challenges such as tax and climate change. This allowed the Economics Group to repurpose technical capability rapidly as needed as part of pandemic analysis.

159.2. Building data and data science capacity and capability: To complement more traditional economic techniques, HM Treasury had started to build and deploy data science expertise around the department, with a number of analysts from across different HM Treasury groups using a range of statistical programming software to underpin their analysis. During 2019, these analysts (led by staff in the Economics Group) formalised a strong 'Community of Interest' on programming and data science, sharing best practice and approaches and starting to consider the development of a data platform (that would provide consistent access to tools, standards and best practice), to open up access to data science techniques for more analysts across the department. This allowed Treasury to rapidly deploy data science capability early on in the pandemic and – amongst other things - allowed for management and analysis of the large and real-time data sets that were a core part of Treasury's economic analysis at that time, given challenges and constraints with more traditional data sources (as described in Part B). Work on the data science platform continued during the relevant period in 2020, and I understand that by the end of 2020 the platform was live and being deployed actively in ongoing pandemic analysis. The Economics Group had also, prior to the pandemic, started to look at a how to develop a broader range of economic data, to complement traditional sources in its assessment of the UK economy, especially where such data might fill gaps or be more timely. At Budget 2020, a new Economic Data Innovation Fund was created, to encourage both the private and public sector to develop new data, and more innovative use of data, in support of key economic objectives such as growth and productivity – as a recent example, the Greater Manchester Combined Authority (in partnership with the West Midlands Combined Authority, ONS and MHCLG) was in March

2024 awarded a £300,000 grant from the fund to track the night-time economy.

159.3. Quality assuring professional standards: One important internal initiative that helped ensure the quality of HM Treasury's economic models was the so-called 'Strength in Numbers' network. Sponsored by me as the Director for Economics Group, this aimed to support high-quality modelling in HM Treasury, by: promoting and sharing best practice among those using, building and quality-assuring economic models; providing regular training courses on how to build robust models (mandatory for those working on business-critical models); and ensuring HM Treasury models are in line with wider government professional modelling standards, including those set out in the 'AQuA' book on producing robust, fit-for-purpose analysis and modelling in government. HM Treasury's business-critical models, and the overarching processes for quality assurance of economic models, were also subject to annual audit by the GIAA. This ensured that HM Treasury's most significant economic models were regularly assessed independently, and that model quality assurance was robust.

159.4. Taken together, these initiatives ensured that the quality of Treasury modelling was as robust as possible in the run-up to, and during, the pandemic.

160. Enhancing analytical leadership: More broadly, in the years preceding the pandemic, a number of steps were taken to build and reward analyst capability in HM Treasury, creating career pathways, including to senior analytical leaders at DD and above. Measures included: the introduction of financial uplifts for staff who had advanced analytical capability, as demonstrated by a relevant master's qualifications, and who were actively applying that professional expertise in an analytical role in HM Treasury; funding provision for Treasury staff to pursue postgraduate analytical study and/or attend summer school programmes like those delivered by the LSE; and the creation of a Senior Analytical Leadership Team ("SALT"), chaired by me as Director for Economics Group, and bringing together all SCS-level analysts in HM Treasury, to provide professional analytical leadership within the department, and to uphold professional analytical standards.

161. Enhanced collaboration between analysis and policy: A priority during my tenure as Director for Economics Group was to improve the join up between economic policy

and analysis. In practice, this meant ensuring analysis was not only robust, but was relevant to the policy issues under consideration, was well communicated to and well understood by policy leads, and that policy development was well grounded in the evidence base. Examples of steps taken to achieve this include:

161.1. the establishment of a Productivity Board within HM Treasury, which brought together analysis and policy on productivity and growth in the UK economy. It was co-chaired by me on the analytical side as Director for Economics Group, and Phil Duffy as Director for EGU and policy lead on the growth and productivity agenda;

161.2. the establishment of a Living Standards Board, co-chaired by me as Director for Economics Group on the analytical side, and Lindsey Whyte as Director for PTWP on the policy side;

161.3. stronger join up between the Economics Group and policy colleagues leading on policy packages for Budgets and other fiscal events, including to ensure that economic analysis was directly informing policy development and that indirect economic effects are consistently considered and understood in the run up to large policy announcements and packages.

162.	The fact that relationships between policy and analysis colleagues were already well embedded by the start of the relevant period enabled strong collaboration from the very start of the pandemic.

January and February 2020

163. As noted earlier in paragraph 2, I was Director for Economics Group from April 2017 to October 2020. Although HM Treasury does not hold direct responsibility for pandemic preparedness (which, prior to Covid-19, was led by DHSC), I understand that HM Treasury had in earlier years undertaken analysis to consider the potential economic impact of health-related risks, in the form of a potential pandemic flu scenario, and drawing on analysis undertaken at the time of the 2006 H5N1 Bird Flu outbreak, and the 2009 Swine Flu outbreak **[VM/110 – INQ00088159] [VM/111 – INQ000088134] [VM/112 - INQ000128604]**. This work included reviewing the existing literature and evidence, to assess the potential scale of impact on the UK economy from such an event, and the resulting impacts on key economic variables such as GDP, inflation and

the public finances. I understand the analysis concluded that a pandemic flu scenario would be a negative shock to the economy, with short-term effects to both demand and supply, and a permanent effect on supply; it also highlighted how key uncertainties in the pandemic (such as the severity of illness, the proportion of the workforce affected, the amount of time individuals might be affected, and the behavioural response of consumers) would in turn drive a high degree of uncertainty in the assessment of economic impacts. Although the specific characteristics of all shocks are different (such as the uncertain nature of transmission of health shocks, for example), as well as the economic context in which they occur, the earlier analysis undertaken in relation to a pandemic flu scenario did provide HM Treasury with a helpful analytical framework to rapidly assess the potential economic impacts of Covid-19 as it emerged in early 2020.

164. The timing and nature of HM Treasury's work in January 2020 and February 2020 was guided by the information from DHSC (as the lead department at that time), CCS and other key experts given the nature of the risk - such as the CMO, GCSA and SAGE. HM Treasury did not make its own assessment as to the nature, severity and duration of the pandemic and relied on these experts for the relevant assumptions underpinning the potential risk.

165. Consistent with the wider approach across government, HM Treasury and the Economics Group started work on the potential economic implications of a pandemic towards the end of January 2020, following discussions at COBR and Cabinet which updated on the spread of the coronavirus in China and early cases in the UK.

166. Working closely with colleagues in IG, and drawing on the previous internal analysis of a pandemic flu scenario (mentioned above), the Economics Group submitted HM Treasury advice to the Chancellor on 4 February 2020 **[VM/113 - INQ000088043]**, which noted that, if the coronavirus were contained in China, the primary short-term impact was expected to be on the Chinese economy, with the global and UK economy only modestly affected (mainly through a China slowdown). The advice highlighted the high levels of uncertainty with this assessment, given how little was known about the virus at that time. The advice also noted that if the disease developed into a global pandemic, the economic implications could be considerable. Finally, it was assessed that, while Covid-19 could pose risks to the UK and global financial systems, UK banks should be able to withstand them, although risks would ultimately depend on the virulence of the virus.

167. The Economics Group, and HM Treasury more broadly, continued to step up its analysis of potential impacts in the following days and weeks, including as more information became available from the relevant experts, and in light of further discussions at COBR and Cabinet. Updated advice, produced jointly from Economics Group and IG, went to the Chancellor on 14 February 2020, further examining the likely impact of Covid-19 on the economy and financial stability. The analysis set out the channels through which Covid might affect the UK economy and - using an agreed set of cross-government assumptions for a RWCS based on a pandemic flu outbreak, and given what was known about the virus at the time - included an estimate that the level of UK GDP could be between 0.6 per cent and 1.3 per cent lower by 2021 compared to current expectations at the time. This was shared also with the Cabinet Secretary **[VM/048 - INQ000088044]**.

168. As cases began to increase in late February 2020 and early March 2020, the Economics Group continued to analyse potential economic impacts, including to support preparations by policy colleagues for the Chancellor's Budget scheduled for 11 March 2020. Further advice went to the Chancellor on 26 February 2020 **[VM/114 - INQ000088103]**. This note - which explained that the World Health Organisation had said there was a 'Public Health Emergency of Public Concern' but had not yet declared a global pandemic – provided an update on UK economic and financial impacts since the start of the virus, reiterated HM Treasury's analysis on the potential scale of UK economic impacts (considering both a scenario in which the virus was contained to China, and another in which the pandemic became global), and included material from policy colleagues across HM Treasury on potential policy tools the Chancellor might consider for the March Budget, in response to the emerging crisis.

169. As this timeline demonstrates, the Economics Group started to assess the potential economic impacts from the emerging virus from late January 2020, ramping this up during February 2020, consistent with the evolving picture and assessment of the virus from health and scientific experts. As Director for the Economics Group, I reallocated the necessary resources within Economics Group commensurate with the emerging scale of the crisis. Staff and work across the Economics Group was reprioritised to ensure sufficient focus and capacity on the relevant analysis, with the MCS and ER teams particularly affected. Based on the information available at the time from health and scientific experts, I believe resources within Economics Group were reallocated in an appropriate and timely manner.

170. On wider questions of resource re-allocation across HM Treasury during January and February 2020, including on preparations for the possible economic policy response to the pandemic, others are best placed to comment.

March 2020

171. Given the analytical focus of my portfolio, my work and that of the Economics Group during March 2020 was concentrated on analysis and assessment the impact of the pandemic on the UK economy. I did not at any stage, including in March 2020, have responsibility for economic policy, or the government's economic response to the pandemic; but the analysis being undertaken by the Economics Group was important in informing the policy work being undertaken by colleagues across HM Treasury and government more broadly, on the government's economic policy response.

172. Examples of where Economics Group analysis fed into government policy development during March 2020 includes:

    172.1. Cabinet Office co-ordinated work examining the economic impact of a potential package of NPIs on 5 March 2020 **[VM/115 – INQ000088046]**.

    172.2. The Chancellor's Budget on 11 March 2020 **[VM/089 – INQ000609915]** which included HM Treasury's assessment of the economic impacts of the pandemic as understood at the time, and a package of policy measures announced by the Chancellor to provide economic support.

    172.3. Further economic policy support announced by the Chancellor during March 2020, including for example the CJRS and the deferral of VAT payments on 20 March and the Self-Employment Income Support Scheme ("**SEISS**") on 26 March 2020 **[VM/116 – INQ000655250]**.

    172.4. The Chancellor's briefing note for a COBR discussion on 12 March 2020 considering a potential package of NPIs – subsequently introduced on 16 March 2020, ahead of the full lockdown on 23 March 2020 - which included estimates of the possible labour supply impact of the pandemic (based on DHSC/SAGE assumptions on workforce absences), and the various NPIs under consideration **[VM/027- INQ000184563]**.

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172.5. The Chancellor's speaking note for a bilateral with the Prime Minister on 26 March 2020, including an update on the economic impacts of the pandemic to date, and looking ahead to a future decision point on extending the NPIs **[VM/064 - INQ000088050].**

173. During this period, as the scale of the pandemic became clearer, the Economics Group significantly intensified its work. This is described in detail in Part B, but examples include: a significant ramping up in regular economic monitoring, with update packs sent on a daily basis to the Chancellor, HM Treasury's senior officials and to other government departments, and regular updates to the Prime Minister via input into the Cabinet Office data dashboard; the rapid development of new techniques to analyse the economic impacts of the unprecedented policy choices faced by ministers, including labour supply modelling; intensive engagement with key partners also engaged in analysis of the economic impacts of the pandemic, including the OBR ahead of their EFO publication alongside the Budget on 11 March 2020, and as they developed their thinking ahead of their April reference scenario; embarking on a programme of external engagement with outside experts, including UK think tanks, international institutions, and the academic community; and (as set out in Part F), regular engagement with the health and scientific community, including through SAGE.

174. Although the nature and duration of the pandemic remained uncertain in March 2020, it did become clear that the scale of the shock to the UK economy was likely to be substantive. As noted previously, in their EFO published on 11 March 2020, the OBR concluded that Covid was likely to have a 'significant adverse effect on the economy and public finances, but that neither the size nor duration of this effect was possible to predict with any confidence'.

175. Reflecting this, I rapidly reprioritised and reallocated resource in Economics Group from early March 2020, with work on the pandemic becoming a whole-of-group endeavour. All members of the Economics Group engaged in analysis and modelling on the UK economy reprioritised their work towards the pandemic, significantly increasing our capacity and capability to analyse economic impacts as the crisis unfolded. In addition, I rapidly boosted the capacity of the ER team, by re-allocating the RPI unit into ER to work on pandemic issues, and in so doing creating a double DD-headed ER team, boosting resilience and capacity during what was an intense period; I re-allocated resource in the GESR team towards the pandemic, including to

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support our external engagement efforts, with the DD for GESR leading the coordination of partnership with the RES on academic engagement, supported by others in the GESR team, ensuring sufficient capacity on a critical area; and I rapidly reallocated members of the APU to work on various aspects of pandemic analysis, both in Economics Group and more widely across the department (for example, one Grade 6 from the APU was rapidly deployed to PTWP to boost analytical capacity and capability on the employment support schemes). Despite the challenges in understanding the economic impacts of the pandemic at the time (as detailed in Part B), I believe the right resources were in the right place in Economics Group in March 2020.

176. Others in HM Treasury are best placed to comment on resourcing beyond the Economics Group, but I note the rapid creation in March 2020 of the central CRT in SPB and the rapid reallocation of the central SPB flexible project pool to pandemic priorities; as well as the introduction of additional governance to support the department's efforts, including daily meetings of EMB and the creation of the central CRB to coordinate all aspects of the Treasury's work on the pandemic, including the economic impact and response.

Part F: SAGE Meetings

Overview

177. As noted earlier, HM Treasury did not make its own assessment as to the nature, severity and duration of the pandemic. It relied on experts from DHSC and elsewhere, especially the assessments of the CMO and SAGE.

178. My understanding is that, towards the end of March 2020, the GCSA agreed with HM Treasury's Permanent Secretary Tom Scholar that HM Treasury should attend meetings of SAGE as an observer. I was asked, via the CEA, to attend SAGE from the 31 March 2020 as an observer, in the same way that officials from other government departments, such as the Cabinet Office and No.10, attended as observers. As far as I am aware, ministers including the Chancellor had no involvement in the GCSA's invitation for HM Treasury to observe SAGE meetings.

179. I attended SAGE meetings on a regular basis throughout the relevant period. For the first few meetings, I was joined from HM Treasury by a staff member from Economics Group or CRT, in order that they could take a note. On the few occasions when I was not able to join meetings in the relevant period, I usually sent a representative from the Economics Group.

Attendance

180. As far as I was aware at the time and during the relevant period, the meeting on 31 March 2020 was the first time that a representative from HM Treasury had been invited to and attended SAGE as an observer.

181. HM Treasury ministers were clear from the outset that Covid was first and foremost a health crisis, in which medical advice and guidance would be key. Throughout the relevant period, HM Treasury relied on the advice of health experts for information on the path of the virus and its impacts. Having an HM Treasury observer at the meetings of SAGE was one way to ensure that HM Treasury had the best understanding of health and scientific developments and expert analysis, given the rapidly evolving health picture; and the importance of this for understanding wider economic impacts in the UK and the related economic policy response.

182. I have been asked to address whether an HM Treasury representative should have attended SAGE meetings from an earlier point and whether attendance would have improved the development of strategy for responding to the pandemic. Observing SAGE discussions was only one way in which HM Treasury gained the necessary insights into the path of the virus; so while earlier attendance may have been beneficial, I do not think it would have changed fundamentally the approach taken by HM Treasury during the relevant period, given that HM Treasury was still receiving the necessary health and scientific input. Throughout the relevant period, even when not observing SAGE directly, HM Treasury still had access to SAGE analysis, modelling and insights through the many expert papers produced by SAGE and its sub-groups – such as the SAGE RWCS that underpinned HM Treasury analysis in February 2020 (described in Part B, above), and which informed advice to the Chancellor on the first NPIs and the analysis and policy contained in the Chancellor's Budget on 11 March 2020.

183. As described in Part B, HM Treasury benefitted from a range of other sources on the health and epidemiological picture throughout the relevant period. This included:

SAGE updates given at cross-departmental coordination meetings, such as the COBR meetings early on in the relevant period, and subsequently a range of processes and governance coordinated by the Covid Taskforce at ministerial and official level; active engagement with experts in DHSC and wider government, including bilaterally with the CMO and GCSA; attendance by senior HM Treasury officials at the JBC meetings chaired by the SoS for DHSC, which provided real-time analysis and assessment of infection outbreaks at a community level; and the ONS Covid-19 Infection Survey **[VM/022 – INQ000655389]**, which measured the rate of infections in private households.

184. I am a professional economist by background and do not have scientific or epidemiological training or expertise. As an observer I was, as for other government observers, present at SAGE meetings to listen to the discussions in order to ensure HM Treasury was informed about the latest scientific and epidemiological analysis and assessment; I was not an expert member, nor present in a scientific expert capacity.

185. I had no specific instructions from ministers or officials at HM Treasury regarding my attendance at, or contributions to, SAGE discussions. My role was to observe the meeting and to provide colleagues in HM Treasury with a read out (a summary of key points) afterwards, and to contribute to the meetings when invited to do so. I did not generally make contributions to discussions at SAGE, nor was I generally asked to provide any context on the work of government. During the relevant period, I only recall two occasions where I was invited to speak at a meeting of SAGE. I have no recollection of asking any clarifying questions at SAGE meetings during the relevant period, or of specific matters relevant to the operations of HM Treasury being mentioned except in passing.

186. At the first meeting I observed, on 31 March 2020 **[VM/117 – INQ000655205]**, the Chair (GCSA Patrick Vallance) informed SAGE colleagues that I would be attending as an observer and invited me to introduce myself and explain what work was underway in HM Treasury in relation to the pandemic. In response, I set out the role of HM Treasury in monitoring the economic conjuncture, understanding the potential economic impacts of the pandemic, and developing economic policy support in response to those impacts. At the same meeting, the National Statistician and head of the ONS Ian Diamond suggested that, going forward, SAGE should include economic considerations in its discussions. This suggestion was not supported by other

members and the SAGE meetings that I observed during the relevant period continued to focus on health, scientific and epidemiological issues.

187. Additionally, at the meeting on 9 April 2020, **[VM/118 – INQ000655210]** in the context of an update from the National Statistician about ONS and DHSC work on 'excess deaths', I shared some high-level reflections on internal HM Treasury work on the relationship between recessions and excess deaths, and suggested joining up analysis across ONS, DHSC and HM Treasury. More detail is included below.

188. To my knowledge, it was at all times clear to SAGE members that I was in attendance as an observer from HM Treasury, given the Chair's introduction at the first meeting I attended on 31 March 2020 and given my attendance as an observer was recorded transparently in the published minutes, alongside all officials and observers from government.

Sharing and use of information

189. As noted earlier, the pandemic was at its core a health emergency. HM Treasury did not make its own assessment as to the nature, severity and duration of the pandemic, but relied on experts including from SAGE. Given the nature of this particular crisis, ensuring that HM Treasury officials had a detailed understanding of the health picture and the likely path of the virus was essential in HM Treasury's understanding of potential economic impacts, and in developing the appropriate economic response – particularly given the speed with which the public health position was evolving and the interaction between that, the NPIs and the need for economic policy support to evolve alongside the government's public health strategy.

190. Observing SAGE discussions was an effective way to ensure that HM Treasury was gaining the necessary health and scientific insights in a timely manner. During the relevant period, this enabled HM Treasury to understand SAGE analysis and modelling in real time, rather than waiting for the official minutes and papers, which might take time to issue, and so ensuring that HM Treasury's policy development on the economic response could respond rapidly to the evolving epidemiological outlook. It also allowed HM Treasury to prepare effectively for upcoming cross-government discussions, at ministerial and official level, including where there were key decision points (such as those related to NPIs, for example). By providing prompt read-outs following each SAGE discussion, which were supplemented by the formal minutes when issued, I

helped to ensure that HM Treasury colleagues had the fullest information available on the health and epidemiological picture. Inputs and insights from SAGE were used to inform HM Treasury's advice to ministers throughout the relevant period, alongside the insights gained on the health picture from other fora and processes, as noted above.

191. The Inquiry asks specifically about the use made of information gathered from SAGE meetings in policy decisions made regarding the Eat Out to Help Out scheme. My work was analytical in nature and I was not involved in the development of economic policy schemes, including the Eat Out to Help Out scheme. I am therefore not able to comment on how information from SAGE was used in policy decisions regarding this policy, and others will be best placed to provide a view; I am confident that my readouts of relevant SAGE discussions faithfully recorded the view of the SAGE experts at that time regarding the latest epidemiological data and outlook.

192. In order to ensure that information shared and discussed at SAGE reached the right colleagues in HM Treasury in a timely manner, I regularly provided a summary of the SAGE discussions by email on the day of each meeting, together with copies of the expert papers submitted to SAGE, and/or prepared by SAGE subgroups such as SPI-M, SPI-B and NERVTAG, along with the meeting minutes, once circulated by the SAGE secretariat. Recipients of my read-outs within HM Treasury included colleagues working on key aspects of the pandemic, such as the central CRT in SPB, senior policy colleagues working on aspects of the economic policy response, colleagues in the ER team in the Economics Group, and the Chancellor's private office. These email readouts are exhibited in Annex B below.

193. The SAGE meeting on 29 October 2020 was the last time I attended SAGE as an observer, before I moved to a new role in the National Security Secretariat in the Cabinet Office. James Benford took up the role of Director for Economics Group upon my departure at the end of October 2020, and my understanding is that as part of that he also took over the HM Treasury observer role at SAGE. As part of handing over the role as Director for the Economics Group, I verbally handed over to James Benford on the specifics of HM Treasury's observer role at SAGE, explaining the nature of the meetings in terms of the type of issues discussed, and how and to whom I fed back in HM Treasury; as part of this, I shared with him my recent readouts of SAGE meetings as an example of how I had disseminated the information in HM Treasury, and to whom.

Specific SAGE meetings

194. I have been asked to confirm my input at SAGE on topics under consideration which touched upon economic-related factors, including the potential impact of an overall fall in GDP on excess deaths, the health impacts of a deep and prolonged recession, the impact of lockdown on the wellbeing of those suffering economic hardship, the indirect economic impact of restrictions on those who support the vulnerable, the balancing of epidemiological and economic concerns, and the burden of Covid-19 on ethnic minority communities due to factors such as poverty and occupational exposure.

195. As outlined above, I attended the SAGE meetings in an observer capacity and, generally speaking, and with the exception of the introduction I made at the first meeting I attended on 31 March 2020 and an update I gave on related HM Treasury work on 9 April 2020 (as outlined above), I did not contribute to the discussions, nor was I invited or instructed to provide input at SAGE meetings on these or other matters. The areas highlighted by the Inquiry, though in most cases having an economic dimension, were issues where HM Treasury was generally not the lead department in government, but where HM Treasury colleagues were collaborating closely with their departmental colleagues and where (within the overall context of the pandemic), the Cabinet Office/Covid Taskforce was coordinating activity across government, and ensuring the necessary join up between health experts and other colleagues.

196. For example, DHSC were the lead department on the health impacts resulting from a recession, and HM Treasury was in close and regular contact with DHSC throughout the relevant period, while the ONS were leading joint work with DHSC on estimating the number of excess deaths that might result from different paths of GDP as a result of the pandemic. Analysts in the Economics Group in HM Treasury had undertaken some related analysis, including a review of the relevant literature (which I updated on at the relevant SAGE meeting, as noted above), and so engaged with ONS and DHSC analysts to better understand the work they were doing, and to support with assumptions about the potential path of GDP **[VM/119 – INQ000655211] [VM/120 – INQ000655228]**. DWP was the lead department responsible for analysing and developing and delivering policy related to poverty, welfare, and vulnerable or disadvantaged people. Analysis and policy colleagues from HM Treasury's PTWP worked closely with DWP on these issues throughout the relevant period.

197. On the issue of the differential impacts of Covid-19 on those from ethnic minority backgrounds, this was a cross-cutting issue across government. As described above, HM Treasury was developing its capability to undertake equalities analysis in the relevant period but, given the challenges with such analysis, relied at this time on external analyses, including by the IFS. HM Treasury met with the IFS in July 2020, as part of a programme of external engagement, to discuss their analysis of the equalities impacts of the pandemic, covering age, income and ethnicity, and also held an RES-facilitated session on Covid and ethnicity, with academics from LSE and the University of Essex [**VM/013 - INQ000236570**].

198. The prompt onward circulation of SAGE expert papers and minutes to key colleagues within HM Treasury ensured that the relevant people were aware of the conversations happening at SAGE, and the points of interest from SAGE members. Where an issue was raised at SAGE that I thought colleagues might not be aware of, I included reference to this as appropriate in my summary read-outs; though on the specific issues the Inquiry raises, my understanding at the time was that the relevant HM Treasury officials were already working closely with cross-departmental colleagues.

199. The Inquiry also asks about references in the SAGE 58 minutes of 21 September 2020, to the balancing of epidemiological and economic issues, work which the minutes suggest is taking place under the auspices of the CEA. I did not routinely check the SAGE minutes when issued, given I was present as an observer not a member, and given I generally did not intervene in the meetings. I have no recollection of the specific reference to the CEA at the SAGE meeting of 21 September 2020, and I do not believe it is a correct characterisation. HM Treasury, under the leadership of the CEA, was responsible for undertaking economic analysis related to the pandemic. As described earlier, it was the Covid Taskforce in Cabinet Office who were responsible for synthesising the various different factors in relation to the pandemic, including to bring together the health and scientific advice produced by DHSC and SAGE, the economic analysis produced by HM Treasury and other economic departments such as BEIS, and the broader social and other impacts from a range of relevant departments.

200. A list of relevant SAGE minutes, and my read outs for the meetings I attended are exhibited at Annex B.

Part G: Analysis and Reflections

201. The nature, scale and duration of the pandemic was unprecedented. Although a health crisis in origin, it created one of the largest economic shocks in the UK in recent times. Given HM Treasury's responsibilities for strong and sustainable growth, this placed huge demands on HM Treasury (as the pandemic did on all parts of government, and beyond). My observation and experience during the time I was involved in the pandemic response between January 2020 and October 2020 was that the Economics Group and HM Treasury officials responded rapidly, collaboratively, innovatively, and professionally - delivering the very best advice to ministers with integrity, in line with the Civil Service values and code and relevant professional standards, while like others dealing with very high levels of uncertainty and adjusting to new ways of working given the lockdown requirements. I would like to put on record my thanks to staff in the Economics Group and colleagues I worked with during the relevant period across HM Treasury, government and externally for their hard work, commitment and collaboration.

202. There are of course always lessons to be learned from any experience, and I welcome the opportunity to contribute to the Inquiry's Module 9 and offer my reflections of what went well and where improvements might be made.

HM Treasury role

203. As noted earlier, the impacts of the pandemic on the UK economy were of a scale not previously seen in recent times. Covid was a unique shock, coming from the deliberate suppression by the government of economic activity, in order to curtail the spread of the virus. HM Treasury and the Economics Group undertook and advised ministers on relevant analysis of UK economic impacts from the very earliest stages of discussions in government about events unfolding in China in relation to the virus; and kept pace with more, and more detailed, analysis as the picture and understanding evolved throughout the relevant period.

204. As highlighted in Part E, HM Treasury had participated in contingency planning exercises led by the Cabinet Office in earlier years, given a potential pandemic flu scenario. Although the specific characteristics of all shocks are different (such as the uncertain nature of transmission of health shocks, for example), as well as the economic context in which they occur, the earlier analysis undertaken in relation to a pandemic flu scenario did provide HM Treasury with a helpful analytical framework to rapidly assess the potential economic impacts of Covid-19 as it emerged in early 2020.

Given the different nature of a coronavirus to an influenza, and subsequently more significant impacts (both from the virus itself, and the measures taken by the government to manage it) HM Treasury would have been better prepared had a Covid-style scenario been part of the government's preparations. However, it was outside anyone's contemplation prior to 2020 that a Covid-style scenario was a possibility.

205. HM Treasury, and the Economics Group specifically, had put in place further relevant preparations ahead of the relevant period, that enabled it to respond rapidly and effectively in terms of analysing the economic impacts. This included preparatory work and learning from previous actual and potential economic shocks, including the global financial crisis in 2008-9, and the potential for a no-deal EU exit. There had also been an expansion in the capacity and capability of the Economics Group to monitor economic risks; an expansion in technical modelling capacity and capability (reflecting in part the government's earlier work on economic analysis of EU exit); an increase in the flexibility of resourcing in the Economics Group with the creation and expansion of a specialist analytical projects unit; a number of initiatives to drive high standards in economic modelling and assurance; development of new data and data science capability; a strengthened and more visible analytical leadership across HM Treasury; and strengthened join up between analysis and policy. Amongst other things, these initiatives meant the Economics Group and HM Treasury were better placed to respond to the demands of the pandemic than they would otherwise have been.

206. The development and deployment of novel analytical tools and techniques by HM Treasury and the Economics Group during this unique period means that in future – if the government once again has to respond to a shock of this nature, or consider imposing NPIs or similar - analysts will have invaluable previous evidence and data that was not available during the relevant period, that should enhance future analytical understanding and in turn economic policy making. Keeping detailed records of the extensive analytical material and approaches prepared and deployed during the relevant period, which can be easily retrieved in the event of such a similar shock being realised, will help support ongoing preparations for future potential economic risks.

Culture

207. Throughout the relevant period, my observation and experience was that the culture in HM Treasury was collaborative, innovative, flexible and reflective.

208. HM Treasury is a relatively small and flat department and is typically well-joined up internally. However, during the relevant period, the collaborative spirit across the department, between teams within individual organisational groups (including within Economics Group), between different organisational groups within HM Treasury, and between analysis and policy, strengthened yet further - given the need to coordinate across a whole range of relevant areas, and given the commitment of staff to work together to deliver the best possible advice and analysis to ministers in support of the government's efforts to respond to the pandemic.

209. Throughout the relevant period, HM Treasury was innovative – on data, analysis and modelling, this involved rapidly seeking new sources of data, developing new ways to digest that data, and new ways to analyse that data including through modelling (often using techniques that were still relatively nascent at the time). How HM Treasury did this effectively is set out in more detail below.

210. HM Treasury was flexible – staff were willing to rapidly reprioritise their work and be rapidly reallocated into new roles (including to other parts of the Economics Group, other parts of HM Treasury, and the Cabinet Office) in support of the wider government effort.

211. HM Treasury was reflective – evaluating our approach at regular intervals to ensure that our processes were fit-for-purpose and adapting them as necessary to meet the rapidly changing demands of the pandemic; introducing greater diversity of background and diversity of thought into discussions of economic analysis and assessment; and welcoming scrutiny and challenge. This was achieved in part by expanding the cast list of key meetings to include a wider range of staff from across the department (more easily enabled by on-line rather than in-person meetings where room capacity is limited), more junior members of staff, and those from a wider background, and using tools such as anonymised voting to agree key priorities and next steps, so that all staff felt empowered to play a role. HM Treasury also ensured lessons were being learned in real time – in the summer of 2020, the department undertook a project to look at its capacity and capability on equalities analysis, rapidly scaling up resource and exploring new techniques to build the department's insights on these important issues during the pandemic; while also adjusting the focus and rhythm of ERG meetings to better respond to the emerging context.

212. Maintaining and building on these key cultures in normal as well as crisis times will help HM Treasury to respond effectively to any future crisis.

Capacity and capability

213. HM Treasury has for a long time combined standing resource in team and group organisational structures, with a flexible cross-HM Treasury 'project pool' of staff, to rapidly re-allocate resource to the highest priority areas of work across the department as needed. This team sits in SPB, and is supplemented with the Priority Projects Locum Scheme, where standing staff sign up to undertake temporary projects in another group or team, as priorities require. In the years prior to the pandemic, I had established within the Economics Group an analytical equivalent of the SPB project pool (the APU), as described in more detail in Part E; during the relevant period, this allowed for expert analysts to be rapidly re-allocated to key analytical priorities, in the Economics Group and across the department, alongside the wider re-allocation and re-prioritisation undertaken across the department and the Economics Group. In addition, the overall scale of HM Treasury resourcing was increased in response to the increased demands on the department from the pandemic. In the Economics Group, existing staff were reallocated, creating an expanded and double-DD headed ER team, and dedicated resource to lead the department's external engagement with academics; in summer 2020 the size of the APU was increased, and an additional DD and other staff members below SCS were recruited to build resilience and capacity on labour market and regional analysis. The creation of a new central team in the SPB group, to lead and coordinate the department's work on the pandemic response, was a helpful step. Maintaining and building these flexibilities in HM Treasury's resourcing model, including with respect to analytical staff, will allow in any future crisis for resource to be rapidly re-allocated in light of new priorities

214. In parallel, in the Economics Group, existing analytical capability was re-purposed and further developed within the relevant period towards key pandemic questions. One example of this was in deploying the modelling capability of the then 'Brexit Analysis' team onto new issues, including in time the development of new epi-macro modelling capability, as set out in Part B.

215. More generally, HM Treasury and the Economics Group developed and deployed a wide range of analysis and modelling tools and techniques in the relevant period, using a suite of models to gather insights given the huge uncertainties involved. As well as

drawing on more traditional and pre-existing modelling approaches, such as NiGEM and the large macro-model jointly maintained by HM Treasury and the OBR during this period. Reflecting the unprecedented nature of the shock, HM Treasury also rapidly innovated to develop new modelling tools, including at the start of the period a labour supply model and later an epi-macro model which was a technique just emerging in academic economic circles. The department also procured a firm-level model that allowed for sector and firm-level insights. In addition, as described above, HM Treasury was rapidly developing and deploying new data science capability in the years prior to and during the relevant period, including to ingest the large data sets that HM Treasury were turning to in the face of challenges and delays with more traditional data sources. Maintaining its technical modelling and analytical capability and developing it further as necessary to remain at the cutting edge of the latest academic research and techniques, will allow HM Treasury to rapidly analyse the economic impacts of any future shock or crisis.

216. As noted above, HM Treasury developed a strong collaboration culture during the relevant period, including through the creation of a number of governance boards specifically designed to ensure economic analysis and modelling was well communicated to and well understood by policy colleagues developing the government's economic policy response; and so that analysts could understand the questions policy leads were trying to answer and so best direct their analytical efforts. Continuing to build on this collaboration and showcase strong analysis and policy collaboration will help support and embed the right cultures going forward.

217. In the run-up to, and during, the relevant period, HM Treasury also developed its capacity and capability on risk planning and management, as detailed in Part C. A new DD-headed economic risks team in the Economics Group was created in 2018 tasked specifically with monitoring and supporting preparations relating to economic risks to the UK economy. This was in part to ensure HM Treasury was ready for the potential of a no-deal exit from the EU, but the team was further strengthened during the relevant period, with a number of developments also made to the cross-HM Treasury ERG, which was supported by the ER team, to improve the department's preparation for medium-term risks to the economy. During the relevant period, HM Treasury (through the ER team) joined up more closely Cabinet Office colleagues who lead on the NRR, to ensure that HM Treasury was giving due consideration to risks emanating outside of the economic or financial system (where the relevant lead department will sit elsewhere in government). Continuing to strengthen this collaboration with the

government's wider risk management is important in ensuring HM Treasury has a good understanding the potential economic impact of a wide range of possible risks, wherever those risks originate.

Data

218. During this unique shock, traditional sources of data on economic developments were less available, or insufficiently timely given the rapid pace of developments. HM Treasury and within it the Economics Group played an important role in rapidly sourcing, and working with colleagues across the government and externally, to develop novel and real-time sources of data. As described in Part B, this included close collaboration with the ONS in particular, as well as the BoE, with other government departments (especially DWP and HMRC) to draw on their administrative data to understand economic developments, and with the private sector to gain access to real-time data which had either previously not been available (such as spending and financial transactions data from companies like Revolut) or had not previously been used to monitor economic developments (such as mobility data from Google). HM Treasury digested and analysed this data, consolidated it effectively, and shared it with key colleagues in government, including the Prime Minister and Cabinet, to help inform policy decision-making. Embedding such real-time data sources in HM Treasury's regular analysis, including outside of crisis periods, is a useful way to gain the most comprehensive assessment of the economic conjuncture and outlook as possible.

Structures and processes

219. HM Treasury bolstered effectively its governance and coordination structures during the relevant period, as described in Part B. The rapid establishment of the internal CRB early on, which met many times a week with a broad cast list of HM Treasury officials to coordinate pandemic-related work across the department, was a key mechanism for information sharing, collaboration and scrutiny of departmental work and advice. This Board, and its relevant sub-groups such as the EBCSB, supplemented existing governance across HM Treasury, which was rapidly re-focused towards the pandemic effort – the ERG which I chaired, for example, met more frequently and had more focused deep dives on potential medium-term risks from the pandemic and wider issues. Retaining the flexibility to stand up new structures and governance, and re-orient relevant existing structures, will be important in responding to future potential crises.

220. Across the government system, HM Treasury stepped up its collaboration on economic analysis and assessment. Collaboration was especially strong with the OBR and BoE as key partners in the UK's macroeconomic framework, sharing data and analysis to build collective understanding of economic impacts from this unique and unprecedented economic shock. Both institutions published a number of economic forecasts in the relevant period, providing insights and supporting policy development and decisions; while HM Treasury shared official-level analysis and modelling with both, in support of their own responsibilities. HM Treasury also worked closely together with other departments. On analysis and assessment, collaboration was especially strong with the economic departments such as BEIS, DWP, DCMS, MHCLG and HMRC, given the importance of a shared understanding of the economic picture as part of effective coordination by policy colleagues of relevant economic policies; in support of this a new structure (the EBRS) was established across these departments at Permanent Secretary level, to share analysis and help coordinate the economic policy response. On data too, there was extensive collaboration across relevant departments, and with ONS, to rapidly build new and real-time data. Ensuring that the departmental relationships and ways of working that HM Treasury built during this time continue to endure, is important for effective evidence-based policy making, in normal as well as crisis times.

221. Given nature of this crisis, HM Treasury also worked particularly closely with DHSC and structures put in place by the government to analyse and advise on the scientific and epidemiological picture, such as SAGE. Given the close interaction between health developments and economic developments in this crisis, these interactions were critical for HM Treasury's work, and HM Treasury benefitted from my observer role at SAGE during the relevant period, as well as from other processes where health data was discussed, such as JBC meetings.

222. Coordinated internally by the CRT, HM Treasury was able to feed effectively into Cabinet Office decision-making processes, and this worked especially well following the formal establishment of the Covid Taskforce, which was responsible for coordinating and synthesising information and issues across government, including to draw in economic analysis and insights into ministerial decision making.

223. Questions have been raised as to whether HM Treasury could have shared more data and analysis across government during the relevant period. Decisions on what information is shared outside of the department are ultimately for ministers; given the

nature of the issues, there is always a need to take care with the sharing of market sensitive data.

External engagement

224. Outside of government, HM Treasury stepped up its engagement with external experts to a level not previously undertaken (this is described in more detail in Part B). The insights gained through the two-way dialogue which was rapidly stood up during the relevant period were invaluable in building HM Treasury's understanding of the economic impacts of the pandemic, allowed for scrutiny and challenge of HM Treasury's approach to analysis, and helped HM Treasury to develop further capability in its analysis and modelling. HM Treasury met with UK-based think tanks including the RF and IFS; drew on analysis, forecasts and cross-country comparisons from key international institutions such as the IMF and OECD, as well as discussing with them in more detail their assessment of UK economic developments and the government's policy response to those, in summer and early autumn 2020; and – facilitated by the RES – met with a range of well-established and less well-known academics to discuss a number of relevant analytical questions, including epi-macro modelling.

225. Others are better placed to comment on the nature and pace of this engagement after October 2020, but I understand questions have been raised about whether HM Treasury systematically engaged external experts throughout the pandemic period, and whether HM Treasury shared enough of its own thinking during these sessions. Although HM Treasury did regularly make presentations of its own analysis and approach, and HM Treasury regularly publishes economic analysis and assessment in fiscal event publications such as the Budget and associated documents, there is a legitimate debate to be had about whether more can or should be shared on a more systematic basis in a way that does not risk economic stability further in a crisis-context, and recognising that the publication of HM Treasury analysis remains a matter for the Chancellor. The appointment by the Chancellor of a Council of Economic Advisers in July 2024 is an important way for HM Treasury to strengthen further collaboration with the academic community and seek external scrutiny and challenge. The publication in November 2024 of HM Treasury's Areas of Research Interest is a further important step in enhancing the dialogue with external experts on HM Treasury's key priorities and driving the strongest possible evidence-base for policy making **[VM/121 – INQ000655256]**.

Statement of Truth

I believe that the facts stated in this witness statement are true. I understand that proceedings may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief of its truth.

Personal Data

16 October 2025

Annex A - EBSCB Meeting Papers

Date	COV Number
2020	
April	
07/04/2020	COV01960758, COV00178264, COV00840566, COV00840720, COV00179918
22/04/2020	COV00200547 and COV00187886 [note also COV00187887 and COV00187888]
24/04/2020	COV00206587, COV00200549 and COV00200548
May	
05/05/2020	COV00219992, COV0021993 and COV00842310
19/05/2020	COV00232192 and COV00232193
21/05/2020	COV00234624 and COV00234625
July	
22/07/2020	COV00267225

Annex B - Internal Sage Readouts

SAGE Number	Date	COV Number
2020		
March		
21	31/03/2020	COV00174192
April		
22	02/04/2020	COV00176861
23	07/04/2020	COV00179257
24	09/04/2020	COV00180756

25	14/04/2020	COV00181200
27	21/04/2020	COV00187823
28	23/04/2020	COV00199333
29	28/04/2020	COV00205081
30	30/04/2020	COV02071367
May		
31	01/05/2020	COV00253612
32	01/05/2020	N/A
33	05/05/2020	COV00220923
34?	07/05/2020	COV00273573
35?	12/05/2020	COV00225291
36?	14/05/2020	COV01960978
37	19/05/2020	COV00231566
38	21/05/2020	COV00232267
39	28/05/2020	COV01923291
June		
41	11/06/2020	COV00246127
42	18/06/2020	COV00249794
43	23/06/2020	COV00251617
44	25/06/2020	COV00252685
July		
45	02/07/2020	COV00256070
46	09/07/2020	COV00260957
47	16/07/2020	COV00267424
48	23/07/2020	COV00267424
49	30/07/2020	COV00270835
August		

50	07/08/2020	COV01961318
51	13/08/2020	COV00277119
52	20/08/2020	COV00278381
53	27/08/2020	N/A
September		
54	01/09/2020	N/A
55	03/09/2020	N/A
56	10/09/2020	COV00284252
57	17/09/2020	COV01980634
58	21/09/2020	COV00289567
59	24/09/2020	COV00291982
October		
60	01/10/2020	COV00295067
61	08/10/2020	COV00299501
62	15/10/2020	COV00304365
63	22/10/2020	COV00310589
64	29/10/2020	COV00314353