Anticipated acquisition by Thermo Fisher Scientific Inc. of PPD, Inc.

Decision on relevant merger situation and substantial lessening of competition

ME/6938-21

The CMA's decision on reference under section 33(1) of the Enterprise Act 2002 given on 3 December 2021. Full text of the decision published on 7 February 2022.

Please note that [✂] indicates figures or text which have been deleted or replaced in ranges at the request of the parties or third parties for reasons of commercial confidentiality.

SUMMARY

1. Thermo Fisher Scientific Inc. (**Thermo Fisher**) has agreed to acquire PPD, Inc (**PPD**) (the **Merger**). Thermo Fisher and PPD are together referred to as the **Parties** and with regard to statements about the future, the **Merged Entity**.

2. Thermo Fisher supplies a wide variety of products including a broad range of analytical, research and bioprocessing products. PPD is a clinical research organisation (**CRO**), that supplies a broad range of clinical trial services. In addition, PPD supplies laboratory services to customers, including pharmaceutical and biotech customers. Both Parties' products and services are broadly available to customers around the globe, including in the EEA and the UK.

3. PPD and its competitors use products from suppliers such as Thermo Fisher and Thermo Fisher's competitors as inputs for the services they supply.

4. The CMA considered whether the Merged Entity would be able to use Thermo Fisher's position in particular upstream markets to harm the competitiveness of and foreclose PPD's rivals, leading to a substantial lessening of competition (**SLC**) in the following downstream markets:

(a) The supply of clinical trial services in the EEA+UK.

(b) The supply of laboratory services in the EEA+UK.

5. The CMA found that the Merged Entity may be able to restrict the supply to PPD's rivals of a small number of upstream products but that these products represent a very small proportion of the downstream direct costs incurred by PPD's rivals. Therefore, the CMA found that the Merged Entity would have limited ability to harm the overall competitiveness of its downstream rivals in laboratory and CRO services.

6. The CMA also found that the Merged Entity would not have the incentive to harm the overall competitiveness of its downstream rivals in laboratory and CRO services. This was because:

(a) The potential upstream profit losses to the Merged Entity from foreclosure would be likely to exceed the potential downstream profit gains; and

(b) The Merged Entity would incur other costs from foreclosing PPD's rivals as they could reduce their total purchases from the Merged Entity and foreclosure could damage the Merged Entity's relationship with pharmaceutical companies.

7. The CMA therefore believes the Merger does not give rise to a realistic prospect of an SLC as a result of vertical effects in relation to the supply of laboratory services in the EEA+UK and the supply of clinical trial services in the EEA+UK.

8. The Merger will therefore **not be referred** under section 33(1) of the Enterprise Act 2002 (the **Act**).

ASSESSMENT

Parties

9. Thermo Fisher is a global manufacturer and supplier of a broad range of analytical, research and bioprocessing products, and pharmaceutical contract development and manufacturing services.[1] Thermo Fisher supplies these products to a wide variety of customers including clinical diagnostic laboratories and CROs.[2] The total turnover of Thermo Fisher in 2020

---

[1] Final consolidated merger notice submitted to the CMA by Thermo Fisher and PPD on 22 October 2021 (**FMN**), paragraph 19.
[2] FMN, paragraph 19; CROs manage the stages involved in gaining regulatory approval for and commercialising drugs. These stages include testing drug safety and efficacy in pre-clinical, clinical and post-clinical trial processes. See paragraphs 20-22 for further information.

worldwide was approximately £25.1 billion of which approximately £[✂] was generated in the UK.[3]

10. PPD is a global CRO, providing management of clinical trials for customers through a broad range of services for the entirety of the drug discovery process including pre-clinical, clinical, and post-clinical product development.[4] PPD is also a global supplier of laboratory services, testing, and analysing drugs and a range of samples for biotech and pharmaceutical customers.[5] The total turnover of PPD worldwide in 2020 was approximately £3.7 billion of which approximately £[✂] was generated in the UK.[6]

Transaction

11. On 15 April 2021, the Parties agreed that Thermo Fisher would purchase PPD for approximately £12.6 billion[7] in cash and would assume approximately £2.5 billion[8] of net debt (the **Merger**), currently subject to certain conditions including regulatory approval from the CMA.[9]

12. The Parties submitted that the rationale for the Merger is to enable an integrated offering whereby the Merged Entity could support the entirety of the lifecycle of a drug (ie from drug discovery to drug manufacturing).[10] In addition, the Parties submitted that this integrated offering will lead to improved efficiencies for its customers.[11]

13. The CMA found that the Parties' internal documents were broadly consistent with the Parties' stated rationale.[12] For example, one Thermo Fisher internal document highlights the advantages arising from integrated offerings that have stemmed from [✂] mergers [✂], including the acceleration of delivery timelines [✂].[13]

---

[3] FMN, paragraph 21.
[4] FMN, paragraphs 27-28.
[5] FMN, paragraphs 27-28.
[6] FMN, paragraph 32.
[7] Converted US dollar figures at a rate of US$1.38 to £1 on 20 October 2021 (approximately 3:20 pm).
[8] Converted US dollar figures at a rate of US$1.38 to £1 on 20 October 2021 (approximately 3:20 pm).
[9] The Parties' agreement and plan of merger, 'Thermo Fisher_PPD - CMA Merger Notice Draft_Annex 001.pdf' attached to MN, section 7.01(b). The Parties informed the CMA that the Merger is also subject to merger control review by the competition authorities in the US and the European Commission.
[10] FMN, paragraph 9.
[11] FMN, paragraph 9.
[12] See for example, Thermo Fisher, [✂]; Thermo Fisher, [✂]; PPD, [✂].
[13] Thermo Fisher, [✂].

Jurisdiction

14. Each of Thermo Fisher and PPD is an enterprise. As a result of the Merger, these enterprises will cease to be distinct.

15. PPD's UK turnover exceeds £70 million, so the turnover test in section 23(1)(b) of the Act is satisfied.

16. The CMA therefore believes that it is or may be the case that arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation.

17. The initial period for consideration of the Merger under section 34ZA(3) of the Act started on 18 October 2021, and the statutory 40 working day deadline for a decision is therefore 10 December 2021.

Counterfactual

18. The CMA assesses a merger's impact relative to the situation that would prevail absent the merger (ie the counterfactual). For anticipated mergers, the counterfactual may consist of the prevailing conditions of competition, or conditions of competition that involve stronger or weaker competition between the merger firms than under the prevailing conditions of competition.[14] In determining the appropriate counterfactual, the CMA will generally focus only on potential changes to the prevailing conditions of competition where there are reasons to believe that those changes would make a material difference to its competitive assessment.[15]

19. In this case, there is no evidence supporting a different counterfactual, and the Parties and third parties have not put forward arguments in this respect. Therefore, the CMA believes the prevailing conditions of competition to be the relevant counterfactual.

Background

20. The supply chain in the pharmaceutical and biotech industry involves interactions between a number of different players. The focal players tend to be pharmaceutical and biotech companies that are able to finance the research and commercialisation of novel drugs.[16]

---

[14] *Merger assessment guidelines (CMA129) – 2021 revised guidance,* paragraph 3.2.
[15] *Merger assessment guidelines (CMA129) – 2021 revised guidance,* paragraph 3.9.
[16] For example, see PPD, [✂]. Furthermore, the document lists PPD's top customer sponsors which are exclusively pharmaceutical and biotech customers.

21. Before a drug can be commercialised, it must be tested for safety and efficacy under strict regulations set by health authorities.[17] This testing process typically entails three distinct stages:

(a) Early discovery services - these include animal testing for initial safety assessments before human trials can start in the next step of the process.[18]

(b) Clinical trials[19] last over a considerable period of time and involve a significant amount of patient and drug testing predominantly in laboratories.

(c) Once the drug is deemed safe, it can then be manufactured and sold. The final stage of testing involves a period of continued monitoring of the drug's efficacy and safety as it is prescribed appropriately to the public.[20]

22. Management of these stages and laboratory testing (for both clinical trials and other purposes) can be carried out by the pharmaceutical and biotech companies that develop new drugs, but are often outsourced to CROs such as PPD and its competitors including Labcorp, ICON, IQVIA, Parexel, and Syneos Health.[21] Outsourcing rates are projected to grow considerably in the coming years,[22] and any one pharmaceutical or biotech company may outsource multiple projects to several different CROs and laboratories in parallel. Some larger biotech companies may even have a portfolio of different CRO partners to work with for a single trial.[23]

23. Suppliers such as Thermo Fisher and its competitors supply many of the inputs required by CROs and providers of laboratory services, which form part of Thermo Fisher's wider customer base. Thermo Fisher also supplies a range of products directly to pharmaceutical and biotech companies and, in addition, serves a broad range of other customers such as hospitals, universities, research institutions and companies that require assistance with environmental, industrial quality and process control.[24]

---

[17] For example, see Thermo Fisher, [✂].
[18] Thermo Fisher, [✂].
[19] Thermo Fisher, [✂].
[20] Thermo Fisher, [✂].
[21] See for example, PPD [✂].
[22] See Note of call with Merck KGaA, 22 October 2021, paragraph 20- CROs are 'active in a very fast growing segment'. [✂].
[23] [✂] Thermo Fisher, [✂].
[24] FMN, paragraph 18.

24. Thermo Fisher supplies its vast range of products to customers through its four business segments, namely Life Sciences Solutions, Analytical Instruments, Speciality Diagnostics, and Laboratory Products and Services.[25]

Clinical trial services

25. Clinical trial services[26] can be considered to be an umbrella term for the services provided by full-service CROs in managing all stages of testing the efficacy and safety of drugs and vaccines produced by pharmaceutical and biotech companies, as discussed in paragraph 21 above.

26. PPD provides clinical trials through its CRO division. This division accounted for [✂]% of PPD's worldwide revenues in 2020.[27]

27. PPD's top two CRO customers in the UK in 2020 were [✂] and [✂].[28]

Laboratory services

28. Laboratory services cover a wide variety of services that may be outsourced by pharmaceutical and biotech companies including analysing and testing drugs, measuring disease progression, and testing the efficacy of vaccines.[29] Many companies that supply CRO services also supply laboratory services. However, typically, laboratory services are provided separately from clinical trial services[30] and are used for purposes beyond linked clinical trials.[31]

29. PPD's laboratory division accounted for [✂]% of PPD's worldwide revenues in 2020.[32] Internally, PPD organises its laboratory services into five segments, namely Bioanalysis, Biomarker, Central, Good Manufacturing Practices (GMP), and Vaccine Science.[33] PPD does not have any laboratories in the UK. In Europe, PPD's laboratories are located in Belgium and Ireland, from where PPD serves customers globally, including customers based in the UK. PPD's top laboratory customer in the UK in 2020 was [✂].

30. Laboratories require varying equipment ranging from relatively commoditised products such as storage tubes to specialised testing kits tailored to the exact

---

[25] FMN, paragraph 19.
[26] These services include the following: product development and consulting services, early clinical development services, Phase II to Phase IV clinical trial services, patient recruitment, peri- and post-approval services, and medical communications (Thermo Fisher [✂]. Also see FMN, paragraph 27a).
[27] FMN, paragraph 27a.
[28] FMN, Annex 55.
[29] FMN, paragraph 27b.
[30] Also see paragraphs 41-43 for further explanation of the separation between laboratory services and clinical trial services.
[31] For example, [✂].
[32] FMN, paragraph 27b.
[33] FMN, paragraph 27b.

requirements of the particular laboratory customer. Laboratories also require substances such as reagents for the purposes of testing samples. PPD sources equipment and substances for it laboratories from a range of suppliers, one of them being Thermo Fisher.[34]

Other products and services supplied by the Parties

31. There is a very limited overlap between the Parties in the supply of clinical trial support services.[35] The combined estimated market share of the Parties does not exceed [20-30%] and, notably, the resulting estimated increment is minimal at less than [0-5%] in any of these activities on a worldwide basis.[36] Given the moderate share and very small increment, and the lack of concerns from third parties regarding these services, the CMA believes no competition concerns arise in relation to these activities and has therefore not addressed them further in this decision.

32. The CMA also considered whether the Merged Entity's plan to make a combined offer of Thermo Fisher's drug manufacturing and PPD's clinical trial services could give rise to conglomerate concerns. Drug manufacturing services and clinical trial services are both used by pharmaceutical and biotech customers seeking to commercialise drugs. Once a drug is tested and approved after passing through the clinical trials managed by CROs, a drug manufacturer such as Thermo Fisher is then contracted to manufacture the drug on a commercial scale. Thermo Fisher's estimated share as a drug contract development and manufacturing organisation (**CDMO**), either overall or in any relevant sub-segment, does not exceed [10-20%] either worldwide or in the EEA+UK.[37] PPD's estimated shares in clinical trial services, either overall or in any relevant sub-segment, does not exceed [20-30%] in the EEA+UK.[38] Given the Parties' low estimated market shares in each of their respective segments and a lack of concern from third parties about the combination of these activities, the CMA believes no foreclosure concerns related to conglomerate effects arise as a result of the linking of the Merged Entity's CDMO and CRO businesses. The CMA therefore has not addressed conglomerate effects any further in this decision.

---

[34] FMN, paragraph 191.
[35] The Parties specifically overlap in the following products/services under the so-called category of clinical trial support services: sourcing of clinical trial supplies of comparators and ancillaries and clinical trial supply chain services such as clinical trial packaging (see FMN, paragraphs 76- 115); see paragraphs 46-49 for the CMA's views on whether clinical trial services and clinical trial support services should be considered separately.
[36] FMN, Tables 9, 10, 11 and 12.
[37] FMN, Table 13.
[38] FMN, Annexes 17-18.

Competitive assessment

Vertical effects

33. Vertical effects may arise when a merger involves firms at different levels of the supply chain, for example a merger between an upstream supplier and a downstream customer or a downstream competitor of the supplier's customers.

34. Vertical mergers do not involve a direct loss of competition between the merger firms. Instead, a common concern is that they may result in the foreclosure of current or potential rivals – that the Merged Entity will be able to use its position in one market to harm the competitiveness of its rivals in the other. This would weaken the constraints that the Merged Entity faces and as a result harm competition and therefore customers.[39]

35. In the present case, the CMA has considered whether the Merged Entity could harm the competitiveness of PPD's rivals and lessen competition in the downstream markets where PPD is active by ceasing the supply of Thermo Fisher products or by increasing the price or worsening the quality of these products when they are an input supplied to downstream customers (input foreclosure).

36. In its assessment, the CMA has considered: (a) the frame of reference for assessing competition in the downstream markets where PPD is active; (b) the ability of the Merged Entity to foreclose PPD's competitors; and (c) its incentive to do so.

Frame of reference

37. Market definition is an analytical tool that forms part of the analysis of the competitive effects of a merger and should not be viewed as a separate exercise from the competitive assessment.[40] It involves identifying the most significant competitive alternatives available to customers of the merger firms and includes the sources of competition to the merger firms that are the immediate determinants of the effects of the merger.[41] While market definition can sometimes be a useful tool, it is not an end in itself.[42]

---

[39] *Merger Assessment Guidelines*, paragraph 7.2.
[40] *Merger Assessment Guidelines*, paragraph 9.1
[41] *Merger Assessment Guidelines*, paragraph 9.2
[42] *Merger Assessment Guidelines*, paragraph 9.4.

Product scope

- *The Parties' submissions*

38. In relation to the vertical relationship between Thermo Fisher and PPD and for the purposes of the frame of reference the Parties submitted that PPD is active in:

(a) Laboratory services; and

(b) Clinical trial services.

39. The Parties submitted that:

(a) they did not consider it appropriate to define an overall market encompassing both the provision of clinical trial services and laboratory services.[43]

(b) in relation to laboratory services,

(i) PPD classifies its laboratory services into different categories such as bioanalytical and biomarker laboratories and vaccine laboratories;[44] and

(ii) some overlap in activities exists between the different types of laboratories and each type of laboratory carries out a significant range of different tests.[45]

(c) in relation to clinical trial services,

(i) these are part of the overall running of clinical trials as a CRO (such as PPD) and should be distinguished from clinical trial support services[46], [✂] exclusively for the purposes of the clinical trials it manages and are therefore not provided as standalone services;[47]

(ii) all CROs typically offer a similar range of clinical trial services;[48] and

[43] FMN, paragraph 228.
[44] FMN, paragraph 221.
[45] FMN, paragraph 221.
[46] FMN, paragraph 63a- these include services such as sourcing of comparators and ancillaries and packaging and logistics services.
[47] FMN, paragraphs 63a- 63b.
[48] FMN, paragraph 227.

(iii) accordingly, the appropriate frame of reference is clinical trial/CRO services, with the exclusion of standalone clinical trial support services.[49]

- *CMA assessment*

40. The CMA has considered whether:

(a) clinical trial services and laboratory services form separate product frames of reference;

(b) different categories of laboratory services form separate product frames of reference; and

(c) whether clinical trial services and clinical trial support services should form separate frames of reference.

- *Clinical trial services and laboratory services*

41. In *IMS Health/Quintiles,* the European Commission considered that there was a relevant overall market for CRO services.[50] While the merging parties in *IMS Health/Quintiles* operated laboratory facilities[51], these appear to have been laboratory services used exclusively for the clinical trials that the CROs undertook as opposed to standalone laboratory services for other purposes.

42. The evidence available to the CMA suggests that laboratory services that are not provided for the functions of CROs, but are offered as separate services to pharmaceutical customers[52], biotech customers, and the environmental industry.[53] Furthermore, the Parties' internal documents reviewed by the CMA consider laboratory services separately from CRO services.[54] Even where the CRO provides both CRO and standalone laboratory services, the two offerings are usually not interlinked and are typically provided [✂].[55]

43. For these reasons the CMA considers that CRO services and laboratory services are separate activities.

---

[49] FMN, paragraph 227.
[50] European Commission decision of 12 August 2016, in Case M.8061*IMS Health/Quintiles (**IMS Health/Quintiles**),* paragraph 43.
[51] *IMS Health/Quintiles*, paragraph 41.
[52] Note of call with IQVIA, 16 September 2021, paragraph 1.
[53] Note of call with Eurofins Scientific, 8 September 2021, paragraph 1.
[54] See, for example, Thermo Fisher, [✂] and PPD, [✂] to see how PPD considers market growth in clinical services separately from laboratory services.
[55] FMN, paragraph 121.

- *Laboratory services*

44. The CMA notes that PPD divides its laboratory activities into five separate units according to specialisation.[56] For example, PPD's laboratories specialising in vaccine testing are separate from those that specialise in GMP testing.[57] The PPD internal documents reviewed by the CMA also indicate that while there exists [✂], there are [✂] players in the market that are able to provide the same breadth of laboratory services as PPD (eg ICON, IQVIA (through its Q^2 Solutions division), LabCorp).[58]

45. The CMA's analysis has focused on input foreclosure of PPD's competitors. These primarily comprise competitors like IQVIA and LabCorp which supply the same broad range of services as PPD. Furthermore, the CMA has not seen evidence suggesting that competitive conditions relating to the products that are the subject of the CMA's assessment would materially differ between competitors offering a broad range of services and competitors offering a specific set of laboratory services. Therefore, the CMA has not found it necessary to segment the laboratory services market and has considered the impact of the Merger in the supply of laboratory services as a whole.

- *Clinical trial services and clinical trial support services*

46. The CMA notes that although the European Commission in *IMS Health/Quintiles* indicated that services by CROs covered a broad range of services, clinical trial support services such as packaging and logistics were not identified as part of their offering. Instead, the European Commission specifically made reference to CROs' ability to provide a network of clinicians, expert scientists, clinical pharmacologists and project managers to exemplify the services CROs could offer.[59]

47. The CMA also notes that the Parties' internal documents indicate that clinical trial support services do not form part of CROs' core services.[60] For example, one slide of a PPD internal document describes PPD [✂].[61] The same slide [✂].[62] No reference is made [✂].

---

[56] PPD, [✂].
[57] PPD, [✂].
[58] PPD, [✂].
[59] *IMS Health/Quintiles*, paragraph 41.
[60] See, for instance, Thermo Fisher [✂].
[61] PPD, [✂].
[62] PPD, [✂].

48. Furthermore, consistent with the Parties' internal documents, the CMA notes that there are companies that are not considered to be CROs but provide clinical trial support services. Examples include Thermo Fisher and [✂].[63]

49. For these reasons the CMA considers that clinical trial services should be viewed separately from clinical trial support services.

- *Conclusion on product scope*

50. For the reasons set out above, the CMA has considered the impact of the Merger in the following product frames of reference:

(a) The supply of laboratory services; and

(b) The supply of clinical trial services.

51. Within these frames of reference, the CMA has considered additional product segmentations where relevant.

Geographic scope

- *Laboratory services*

52. The Parties submitted that the geographic scope of the relevant market for laboratory services should be regarded as global, or at least EEA+UK wide for a number of reasons including:[64]

(a) that laboratories regularly serve customers outside of the country they are based in;

(b) there are numerous competitors that offer laboratory services worldwide; and

(c) prices are set on an individual customer basis for all services taking place globally and are not country-specific.

53. The CMA considers that while a laboratory services company can serve customers outside the country or countries where it is based, customers may have a preference to have laboratories located near them or in the different regions where a product will be commercialised. This is consistent with the

---

[63] [✂] response to Thermo Fisher Customer Questionnaire - '[✂] is not itself considered to [be] a CRO, but we do provide some services which overlap with those provided by CROs (e.g. both [✂] and PPD provide packaging, labelling and distribution of clinical trial product and Supply Chain Management (SCM) services. [✂].'
[64] FMN, paragraph 160.

fact that PPD and several of its competitors which compete globally have laboratories located in different countries.

54. The CMA notes that PPD's internal documents confirm that its laboratories are spread across the globe.[65] The CMA also notes that PPD's laboratory services competitors also operate across regions. For example IQVIA's laboratories are located in different global regions where samples can be sent for testing,[66] and Eurofins' laboratories are located across Europe with more being developed in other regions including the Far East.[67] LabCorp's laboratory services business is primarily based in North America, but with laboratories located in the UK and Switzerland as well.[68]

55. While the CMA considers that PPD and some of its competitors broadly compete globally, it recognises that different competitors may compete more or less intensely with one another in different regions, as competitors with laboratories in fewer regional locations may be less attractive or precluded entirely from competing in certain geographies.

56. For these reasons, on a cautious basis, the CMA has considered the impact on the supply of laboratory services on an EEA+UK wide basis.[69]

- *Clinical trial services*

57. The Parties have not made any submissions on the geographic scope of clinical trial services.

58. In *IMS Health/Quintiles* the European Commission considered the geographic market for CRO services to be EEA-wide (at the time including the UK) and did not oppose the merging parties' submissions that CRO service providers:

(a) conduct research on a global basis; and

(b) offer services across multiple countries, including because this allows healthcare companies to accelerate timelines and reach diverse patient population.

59. The CMA did not receive any evidence to suggest a departure from an EEA+UK wide geographic market would be appropriate.

---

[65] For example, see PPD, [✂] PPD has 'a global network of laboratories to support drug development' with labs in China, the US, and Europe.
[66] Note of call with IQVIA, 16 September 2021, paragraph 2.
[67] Note of call with Eurofins, 8 September 2021, paragraph 2.
[68] Note of call with LabCorp, 15 September 2021, paragraphs 2-3.
[69] The CMA considered the UK and EEA together due to their proximity and broadly equivalent regulatory frameworks.

- *Conclusion on geographic scope*

60. For the reasons set out above, on a cautious basis the CMA has considered the impact of the Merger in the EEA+UK.

Conclusion on frame of reference

61. For the reasons set out above, the CMA has considered the impact of the Merger in the following frames of reference:

(a) The supply of laboratory services in the EEA+UK; and

(b) The supply of clinical trial services in the EEA+UK.

Competitive assessment

62. For each frame of reference identified above, the CMA has considered first whether the Merged Entity would have the ability to foreclose competitors and then whether it would have the incentive to do so.

Ability to foreclose

63. As indicated in paragraphs 23 and 24 above, Thermo Fisher supplies a wide range of products to PPD and its competitors for the purposes of clinical trial services and laboratory services.

64. Based on third party submissions and other evidence[70], the CMA identified ten Thermo Fisher products where there may be limited upstream alternatives to the Merged Entity's offering:

(a) Allergy and autoimmunity diagnostic systems;

(b) Next-generation sequencing (**NGS**) solutions;

(c) Storage tubes;

(d) CO2 incubators;

(e) South American foetal bovine serum (**FBS**);

(f) Process liquids;

[70] In addition to products where third parties expressed concerns, the CMA considered, in the specific circumstances of this case, that there might be limited alternatives to Thermo Fisher's products if Thermo Fisher had a large share (above 40%) of supply in the EEA+UK geographic area.

(g) Standard basal media;

(h) Plastics for magnetic bead-based instruments;

(i) Ion chromatography (**IC**) instruments and IC columns;

(j) Vertical gel electrophoresis: precast protein gels and molecular weight standards.

65. In its assessment of ability to foreclose, the CMA has assessed the extent of the constraint from alternatives to Thermo Fisher's products; and whether Thermo Fisher may be able to restrict the supply of each of these input products to PPD's rivals. In doing so, the CMA considered:

(a) evidence from the Parties' submissions;[71]

(b) Thermo Fisher's internal documents; and

(c) feedback from third parties.

66. The CMA has then considered the importance to PPD's rivals of the input products where Thermo Fisher may have the ability to restrict supply.

Allergy and autoimmunity diagnostic systems

67. Allergy and autoimmunity diagnostic systems are devices that carry out clinical testing of allergies and/or autoimmune diseases.[72]

68. Within Thermo Fisher, allergy and autoimmunity diagnostic systems are part of in-vitro diagnostics (**IVD**) systems, which comprise analysers, tests and accessories for the purpose of testing blood, urine, or other samples.[73] In particular, Thermo Fisher's instruments under its Phadia brand are fully automated systems used by laboratories to perform both IVD allergy tests and IVD autoimmune disease tests.[74]

69. Since Thermo Fisher's Phadia instruments can be used for both types of testing,[i] the CMA has discussed allergy and autoimmunity diagnostic systems together in its assessment.

---

[71] This includes the Parties' estimates of Thermo Fisher's share of supply for each individual product. Based on the evidence provided, the CMA considered the Parties' estimates to be appropriate for its assessment.
[72] See Allergy and Autoimmunity Diagnostic Systems | Thermo Fisher Scientific.
[73] FMN, paragraph 920.
[74] FMN, paragraph 925.

70. The Parties submitted that allergy and autoimmune disease testing systems are not an important input for the activity of PPD and its competitors.[75] For example, the Parties submitted [✂].[76] Furthermore, the Parties submitted that [✂].[77]

71. The Parties further submitted that the Merged Entity will have no ability to foreclose PPD's competitors from access to laboratory IVD allergy systems and laboratory IVD autoimmune disease systems because customers could switch to alternative manufacturers. In particular, the Parties submitted that:[78]

(a) Customers of laboratory IVD allergy systems could switch to competitors such as Siemens, Hycor, and MacroArray Diagnostics (MADX); and

(b) Customers of laboratory IVD autoimmune disease systems could switch to competitors, such as Biorad, DiaSorin, Inova (Werfen), and Euroimmun (Perkin Elmer).

72. The Parties estimated that in 2020 Thermo Fisher had a [80-90%] share of supply by value in laboratory IVD allergy systems in the EEA+UK, followed by Siemens ([10-20%]), Hycor ([0-5%]), and MicroArray Diagnostics (MADX) ([0-5%]).[79] In relation to laboratory IVD autoimmune systems, the Parties submitted that in 2020 Euroimmun had [20-30%] share of supply in the EEA+UK, followed by Thermo Fisher ([10-20%]), Inova ([10-20%]), Roche ([5-10%]), Biorad ([5-10%]), Siemens ([5-10%]), Abbott ([0-5%]), Menarini ([0-5%]), and other smaller suppliers.[80]

73. The CMA notes that Thermo Fisher's internal documents list [✂] as key competitors of Thermo Fisher's ImmunoDiagnostics Division (in charge of the allergy and autoimmunity businesses), with [✂] identified as key players in allergy and autoimmunity respectively.[81] Moreover, Thermo Fisher's internal documents identify [✂] as competitors representing valuable acquisition targets for its ImmunoDiagnostics Division.[82]

74. The CMA received a concern from a third party in relation to a particular Thermo Fisher allergy and autoimmunity diagnostic system, with the third party highlighting the special features of the system and anticipating that it could become unavailable post-Merger. This third party was a customer of Thermo Fisher and submitted that it was concerned that Thermo Fisher's

---

[75] FMN, paragraph 972.
[76] FMN, paragraph 976.
[77] FMN, paragraph 927.
[78] FMN, paragraph 971.
[79] FMN, Table 96.
[80] FMN, Table 95.
[81] Thermo Fisher, [✂]; Thermo Fisher, [✂]; Thermo Fisher, [✂]; Thermo Fisher, [✂].
[82] Thermo Fisher, [✂]; Thermo Fisher, [✂]; Thermo Fisher, [✂]; Thermo Fisher, [✂].

Phadia 250 Immunoassay Analysers could become unavailable post-Merger and that this would disrupt its ability to conduct a large number of its clinical trials.[83] This customer explained that the Phadia 250 is an automated analyser with a very extensive capability to investigate a broad range of allergies and autoimmune diseases and is largely regarded as the 'industry standard'.[84] This customer also submitted that many of the tests performed on the Phadia 250 can be performed with an alternative methodology, but such a methodology was manual and switching to it would increase costs and make pricing uncompetitive.[85]

75. Based on Thermo Fisher's strong position in laboratory IVD allergy systems and the third party concern in relation to Phadia 250, the CMA considers that the Merged Entity may be able to restrict the supply to PPD's rivals of allergy and autoimmunity diagnostic systems.

NGS solutions

76. NGS is a technique used to rapidly sequence the genetic information in a biological sample. NGS can be used for whole genome sequencing or for more targeted research in specific areas (eg oncology).[86]

77. The Parties explained that Thermo Fisher is [✂] targeted sequencing, and that, within targeted sequencing, Thermo Fisher's business [✂] targeted oncology panels.[87] Thermo Fisher's offer of NGS solutions includes the Ion Torrent Genexus System (**Genexus**), an integrated cabinet NGS sequencer incorporating automated library, template preparation, sequencing, and reporting.[88]

78. The Parties submitted that no NGS solution supplied by Thermo Fisher is a 'must-have' product for PPD's rivals and the low importance of Thermo Fisher's NGS solutions is confirmed by the fact [✂].[89]

79. The Parties further submitted that Thermo Fisher has only a limited share of the market (around [5-10%] in 2020 in the EEA+UK)[90] and that Illumina is by far the leading supplier of NGS solutions, with its products representing the industry standard, including for targeted sequencing applications.[91] In addition to Illumina, other competing suppliers of NGS solutions include PacBio,

---

[83] [✂], 'CONFIDENTIAL -- Thermo Fisher-PPD -- [✂] Affected products.pdf' dated 27 September 2021.
[84] [✂], 'CONFIDENTIAL -- Thermo Fisher-PPD -- [✂] Affected products.pdf' dated 27 September 2021.
[85] [✂], 'CONFIDENTIAL -- Thermo Fisher-PPD -- [✂] Affected products.pdf' dated 27 September 2021.
[86] FMN, paragraph 1281.
[87] FMN, paragraph 1283.
[88] FMN, paragraph 1296.
[89] FMN, paragraphs 1307 and 1337.
[90] FMN, Annex 34.
[91] FMN, paragraph 1320.

Oxford Nanopore, MGI, and GenapSys and that several companies are developing NGS solutions, including Singular Genomics, Omniome, Ultima, Element, Apton, and Quantapore.[92]

80. Thermo Fisher's internal documents indicate that Thermo Fisher considers its main competitors in the supply of NGS solutions to be [✂] and several others, including [✂] that Thermo Fisher considers have the potential to expand.[93]

81. The CMA received limited feedback from third parties in relation to the supply of NGS solutions. The feedback received was mixed. While one competitor of Thermo Fisher submitted that there were alternative suppliers, one customer submitted that it was concerned that the supply of a particular Thermo Fisher NGS solution with special features would be impacted by the Merger. In particular, this customer submitted that it was concerned that the supply of Thermo Fisher's Genexus could be impacted by the Merger.[94] This customer further submitted that the closest alternatives to Thermo Fisher's Genexus are manufactured by Illumina.[95] However, this customer submitted that switching away from Genexus may not be possible anyway given these alternatives were not automated, had longer run times and required highly trained users to operate them.[96]

82. On a cautious basis (in particular given the feedback received on the customer's concern), the CMA considers that the Merged Entity may be able to restrict the supply to PPD's rivals of NGS solutions and of Genexus in particular.

Storage tubes

83. Storage tubes are a piece of consumable laboratory equipment, shaped as cylindrical containers, that are used to store or keep samples. Storage tubes can be more or less sophisticated depending on their uses or requirement.[97]

84. The Parties submitted that within Thermo Fisher's internal categorisation, the product category of storage tubes primarily relates to cryogenic/freezer storage tubes (**Cryogenic Storage Tubes**), which are small, capped vials/tubes designed to withstand ultra-low temperatures and are used for storage of biological and compound samples in preservation.[98]

---

[92] FMN, paragraph 1322.
[93] FMN, Annex 45, [✂]; Thermo Fisher, [✂]; Thermo Fisher, [✂]; Thermo Fisher, [✂].
[94] [✂], 'CONFIDENTIAL -- Thermo Fisher-PPD -- [✂] Affected products.pdf' dated 27 September 2021.
[95] [✂], 'CONFIDENTIAL -- Thermo Fisher-PPD -- [✂] Affected products.pdf' dated 27 September 2021.
[96] [✂], 'CONFIDENTIAL -- Thermo Fisher-PPD -- [✂] Affected products.pdf' dated 27 September 2021.
[97] FMN, paragraph 1123.
[98] FMN, paragraphs 1124-1125.

85. The Parties submitted that PPD uses Cryogenic Storage Tubes predominantly for its laboratory activities, although incidental usage may also occur for its clinical trial services.[99]

86. The Parties submitted that the Merged Entity will have no ability to foreclose PPD's competitors from access to Cryogenic Storage Tubes, as customers could easily switch to alternative manufacturers (such as Corning, FluidX/Brooks, Greiner, and Micronic) or distributors.[100] The Parties also submitted that in 2020 Thermo Fisher had a [20-30%] share of supply by value in the market for the supply of Cryogenic Storage Tubes in the EEA+UK, followed by FluidX/Brooks ([20-30%]), Corning ([10-20%]), Micronic ([5-10%]), and Greiner ([5-10%]).[101]

87. The CMA notes that in Thermo Fisher's internal documents [✂] is described as a key competitor of Thermo Fisher's Lab Products Division[102], and in particular in relation to Cryogenic Storage Tubes.[103] [✂] is also described as a key competitor of Thermo Fisher's Laboratory Products Divisions.[104]

88. One customer of Thermo Fisher submitted that it was concerned that the supply of Thermo Fisher's storage tubes could be impacted by the Merger. This customer submitted that replacing Thermo Fisher's products in its existing activities would require considerable time and a significant cost.[105]

89. However, no other third party raised concerns in relation to the supply of storage tubes (either generally or in relation to Cryogenic Storage Tubes specifically). Moreover, feedback from Thermo Fisher's customers and a competitor of Thermo Fisher indicates that there are a number of alternative suppliers of storage tubes (including Merck Millipore Sigma, VWR, SLS, Corning, Greiner, Sarstedt, Kisker Biotech, Biowest, Brooks Life Sciences, and some 'regional' providers), and that there are no barriers to switching storage tube suppliers.[106]

90. Based on this evidence, the CMA considers that the Merged Entity would not be able to restrict the supply to PPD's rivals of storage tubes (either generally or in relation to Cryogenic Storage Tubes specifically).

---

[99] FMN, paragraph 1126.
[100] FMN, paragraph 1170.
[101] FMN, Table 109.
[102] Which covers: cold storage, centrifuges, controlled environment, water purification & analysis, research lab plastics and liquid handling; Thermo Fisher, [✂].
[103] Thermo Fisher, [✂].
[104] *Ibid*. The CMA understands that Thermo Fisher's Laboratory Products Divisions include: BioProduction, Biosciences, Genetic Sciences, Clinical NGS, Lab Products, and Lab Chemicals.
[105] [✂], 'CONFIDENTIAL -- Thermo Fisher-PPD -- [✂] Affected products.pdf' dated 27 September 2021.
[106] Only one customer submitted that switching would require re-qualification studies.

CO2 incubators

91. CO2 incubators are basic metal containers that maintain a controlled environment above ambient temperature but below temperatures of laboratory ovens. They are used to propagate or expand cell cultures.[107]

92. The Parties submitted that PPD uses Thermo Fisher's CO2 incubators primarily to maintain cell lines used in its laboratory activities and that they do not represent a critical input for any downstream service offered by PPD or its competitors.[108]

93. The Parties submitted that the Merged Entity will have no ability to foreclose PPD's competitors from access to CO2 incubators because Thermo Fisher's CO2 incubators are not an important input for supplying either clinical trial services or laboratory services and customers could easily switch to alternative manufacturers (such as Panasonic, Eppendorf, Nuaire, Binder, Memmert, and Esco) or distributors.[109]

94. The Parties submitted that in 2020 Thermo Fisher had a [50-60%] share of supply by value in the market for the supply of CO2 incubators in the EEA+UK, followed by Panasonic ([10-20%]), Eppendorf ([5-10%]), Blinder ([5-10%]), Memmert ([0-5%]), NuAire ([0-5%]), Esco ([0-5%]), and others.[110]

95. The CMA notes that in Thermo Fisher's internal documents [✂] are listed among Thermo Fisher's key competitors in relation to CO2 incubators.[111]

96. No third party raised concerns in relation to the supply of CO2 incubators. Feedback from Thermo Fisher's customers and one competitor indicates that there are alternative suppliers of CO2 incubators (including Eppendorf, VWR, Omnilab, Merck Millipore Sigma, SLS, and Binder) and that barriers to switching CO2 supplier are generally low.

97. Based on this evidence, the CMA considers that the Merged Entity would not be able to restrict the supply to PPD's rivals of CO2 incubators.

---

[107] FMN, paragraph 345.
[108] FMN, paragraphs 348 and 396.
[109] FMN, paragraphs 394-396.
[110] FMN, Annex 36.
[111] Thermo Fisher, [✂]; Thermo Fisher, [✂].

South American FBS

98. FBS is the most significant type of cell culture sera. Cell culture sera are liquid blood-based animal products that are used to grow cells in both research and bioproduction applications.

99. Thermo Fisher supplies various types of cell culture sera for research, including South American FBS. PPD purchases animal sera for use in its laboratory operations, primarily as a supplement to enrich cell cultures in product testing and characterisation.[112]

100. The Parties submitted that Thermo Fisher's South American FBS is not an important input to any downstream service offered by PPD's competitors. In particular, in the last five years, PPD has not [✂].[113]

101. The Parties further submitted that the Merged Entity will have no ability to foreclose PPD's competitors from access to South American FBS because customers could easily switch to alternative suppliers such as Danaher-Cytiva, Merck Millipore Sigma, Corning, VWR, and other smaller competitors.[114]

102. The Parties submitted that in 2020 Thermo Fisher had a [40-50%] share of supply by value in the market for the supply of South American FBS in the EEA+UK, followed by Merck Millipore Sigma ([10-20%]), Danaher-Cytiva ([10-20%]), Corning ([0-5%]), VWR ([0-5%]), and others.[115]

103. The CMA notes that in Thermo Fisher's internal documents [✂] all feature among Thermo Fisher's competitors for the supply of animal sera.[116] However, Thermo Fisher's internal documents also indicate that there are [✂].[117]

104. No third party raised concerns in relation to the supply of South American FBS. One of Thermo Fisher's customers identified PAN-Biotech as the closest alternative supplier of South American FBS, and another customer listed Corning and Hyclone.[118] While one of these customers stated that there were no barriers to switching to another South American FBS supplier, the other one explained that they would prefer not to switch supplier for consistency

---

[112] FMN, paragraphs 424-429. Other types of cell culture search supplied by Thermo Fisher include: Australian FBS, New Zealand FBS, US FBS, Canadian FBS, South American FBS, adult bovine sera, porcine sera, and equine sera.
[113] FMN, paragraph 466.
[114] FMN, paragraph 464.
[115] FMN, Annex 36
[116] Thermo Fisher, [✂].
[117] Thermo Fisher, [✂]; Thermo Fisher, [✂].
[118] Another customer identified Merck Millipore Sigma as the closest alternative to Thermo Fisher in relation to the supply of Australian FBS.

and reproducibility purposes. Furthermore, one competitor of Thermo Fisher submitted that the extraction of South American FBS was a difficult process, which made it challenging for suppliers to establish a presence in the market.[119] This competitor further explained that, while there are alternative suppliers, Thermo Fisher is the dominant player with a considerably larger share of the market than other suppliers.[120]

105. Based on this evidence, the CMA considers that the Merged Entity may be able to restrict the supply to PPD's rivals of South American FBS.

Process liquids

106. Process liquids are water-based buffers and saline solutions that belong to Thermo Fisher's wider product category Cell Culture Media. Process liquids are used to hydrate cell culture media and facilitate the cell culture process, including by ensuring that the cell culture environment remains at constant pH.[121]

107. The Parties submitted that PPD used cell culture media in its laboratory activities.[122] The Parties further submitted that Thermo Fisher's process liquids were not, however, an important input for any downstream service offered by PPD's competitors. The Parties submitted that PPD had [✂].[123]

108. The Parties also submitted that the Merged Entity would have no ability to foreclose PPD's competitors from access to process liquids because customers could easily switch to alternative suppliers (such as Merck Millipore Sigma, Corning, Lonza, Danaher-Cytiva and FujiFilm Irvine) or source process liquids through alternative channels including pharmaceutical and biotech companies which could purchase from Thermo Fisher on their behalf.[124]

109. The Parties submitted that in 2020 Thermo Fisher had a [30-40%] share of supply by value in the market for the supply of process liquids in the EEA+UK, followed by Merck Millipore Sigma ([5-10%]), Corning ([5-10%]), Lonza ([5-10%]), Danaher-Cytiva ([0-5%]), FujiFilm Irvine, ([0-5%]) and others.[125]

110. The CMA notes that, in Thermo Fisher's internal documents, [✂] are listed as key competitors in cell culture media. [✂] are also described as competitors

[119] Note of call with [✂], paragraph 8.
[120] Note of call with [✂], paragraph 9.
[121] FMN, paragraphs 469 and 475.
[122] FMN, paragraph 471.
[123] FMN, paragraph 508.
[124] FMN, paragraph 508.
[125] FMN, Annex 36.

with comprehensive product portfolios in cell culture media which they can [✂].[126]

111. No third party raised concerns in relation to the supply of process liquids. Feedback from one customer and one competitor of Thermo Fisher indicates that there are a number of alternative suppliers active in the supply of process liquids.

112. Based on this evidence, the CMA considers that the Merged Entity would not be able to restrict the supply to PPD's rivals of process liquids.

Standard basal media

113. Standard basal media are a subcategory of cell culture media (see paragraph 106) which encompass a variety of media formulations containing, exclusively, the basic nutrients to grow microorganisms and cell lines.[127] Standard basal media typically involve non-proprietary formulations.[128]

114. The Parties submitted that PPD uses cell culture media in its laboratory activities.[129] Thermo Fisher's standard basal media however are not important inputs for any downstream service offered by PPD's competitors. In particular, in the last five years, PPD has not [✂] trials [✂].[130]

115. The Parties further submitted that the Merged Entity will have no ability to foreclose PPD's competitors from access to standard basal media because customers can easily switch to alternative suppliers (such as Merck Millipore Sigma, Corning, Lonza, Danaher-Cytiva, and FujiFilm Irvine).

116. The Parties submitted that in 2020 Thermo Fisher had a [40-50%] share of supply by value in the market for the supply of standard basal media in the EEA+UK, followed by Merck Millipore Sigma ([5-10%]), Corning ([5-10%]), Lonza ([5-10%]), Danaher-Cytiva ([0-5%]), FujiFilm Irvine ([0-5%]), and others.[131]

117. As discussed above (see paragraph 110), Thermo Fisher's internal documents indicate that [✂] are Thermo Fisher's key competitors in cell culture media, which encompass standard basal media products.

---

[126] Thermo Fisher, [✂].
[127] FMN, paragraph 469 and Thermo Fisher website Basal Media | Thermo Fisher Scientific.
[128] FMN, paragraph 474.
[129] FMN, paragraph 471.
[130] FMN, paragraph 509.
[131] FMN, Annex 36.

118. No third party raised concerns in relation to the supply of standard basal media. Feedback from Thermo Fisher's customers and one competitor indicates that there are alternative suppliers of standard basal media, including Pan BioTech, Merck Millipore Sigma, Corning, VWR, SLS, Biozym, Capricorn, Promocell, Upcyte Technologies, and Primazyt. The majority of customers who provided feedback also submitted that there were no significant barriers to switching supplier of standard basal media.

119. Based on this evidence, the CMA considers that the Merged Entity would not be able to restrict the supply to PPD's rivals of standard basal media.

Plastics for magnetic bead-based instruments

120. Plastics for magnetic bead-based instruments are consumables (mainly microplates with wells and tip combs) that are used on a disposable basis with magnetic bead-based instruments, like Thermo Fisher's KingFisher. These instruments allow to extract, isolate and purify nucleic acids (mainly DNA and RNA), proteins and cells from a range of sample types.[132]

121. Thermo Fisher manufactures and sells plastics for use with KingFisher instruments under the KingFisher Thermo Scientific brand, both as standalone products and as part of kits for testing workflows.[133]

122. Given the use of these plastics for COVID-19 PCR tests, the demand of plastics for magnetic bead-based instruments has grown [✂] in 2020.[134]

123. The Parties explained that magnetic bead-based instruments, including Thermo Fisher's KingFisher systems, are open systems (i.e. consumables produced by other manufacturers can be used with KingFisher instruments and vice versa), but that nevertheless, the vast majority of KingFisher plastics are used with KingFisher instruments because KingFisher instrument customers [✂].[135]

124. The Parties submitted that the Merged Entity would have no ability to foreclose PPD's competitors from access to plastics because customers can switch to a variety of manufacturers of plastics for magnetic bead-based instruments (such as Agilent, Beckman Coulter, Corning, Greiner, Eppendorf, and smaller suppliers, like A-Gen, Conrem, and Yongue). In addition, the Parties submitted that there were other manufacturers with the required technological capability (like Merck Millipore Sigma and Danaher-Cytiva)

---

[132] FMN, paragraphs 567-568.
[133] FMN, paragraphs 576 and 578.
[134] FMN, paragraphs 607.
[135] FMN, paragraphs 575 and 608.

which could start producing plastics that are compatible with KingFisher instruments. Ultimately, Thermo Fisher's customers could also switch magnetic bead-based instruments and turn to competitive suppliers of magnetic bead-based instruments and associated plastics (like PerkinElmer (Chemagic), Hamilton, QIAGEN, Roche, Tecan, and Promega), although such a solution would [✂].[136]

125. The Parties submitted that, in 2020, Thermo Fisher had a [40-50%] share of supply by value in the market for the supply of plastics for magnetic bead-based instruments in the EEA+UK, followed by Corning ([20-30%]), Greiner ([10-20%]), Eppendorf ([0-5%]) and many other smaller suppliers (including Wheaton, A-Gen, Conrem, Yongue, Agilent, and BrookFluids). Based on the estimates submitted by the Parties, Thermo Fisher's market share significantly increased, following the surge in demand of plastics driven by the COVID-19 pandemic, moving from about [10-20%] market share in 2019 to [40-50%] in 2020.[137]

126. The CMA notes that, Thermo Fisher was the only supplier with an increased share of the market over this period of increased demand, which suggests that Thermo Fisher's plastics may be significantly differentiated from the products of its competitors.

127. Thermo Fisher's internal documents confirm that revenues from the sale of plastics for magnetic bead-based instruments have increased since [✂] this is largely due to [✂].[138] Although the documents refer to several competitors providing cheaper alternatives to KingFisher plastics (like [✂]), KingFisher plastics are presented as [✂] (including in relation to the [✂]).[139]

128. No third party raised concerns about the supply of plastics for magnetic bead-based instruments. One of Thermo Fisher's customers however submitted that it did not know any alternative supplier and that compatibility of the plastics with KingFisher systems was critical.

129. Based on this evidence, the CMA considers that the Merged Entity may be able to restrict the supply to PPD's rivals of plastics for magnetic bead-based instruments.

[136] FMN, paragraphs 629 to 631.
[137] FMN, Annex 36.
[138] Thermo Fisher, [✂].
[139] Thermo Fisher, [✂].

IC instruments and IC columns

130. Chromatography refers to a method of separating the individual components or solutes within a complex chemical mixture which involves using additional substances called the mobile phase and the stationary phase.[140] There exist different chromatography techniques based on the substance and the physical state of the substance used as the mobile phase (eg gaseous, liquid).

131. Ion chromatography (IC) is a sub-category of Liquid Chromatography.[141] It is used in a variety of industrial sectors, including in the pharmaceutical industry for quality control testing in the drug manufacturing process.[142]

132. Thermo Fisher produces and sells IC instruments and related consumables, of which IC columns are particularly important, under its brand Dionex.[143] IC systems are however open, meaning that components are typically compatible across such that IC columns produced by a given manufacturer can be used with the IC instruments produced by another manufacturer.[144]

133. The Parties submitted that IC instruments and IC columns should be considered as distinct product markets. In its assessment the CMA has considered these products separately while also taking into account any relationships between them where appropriate.

134. The Parties also submitted that:

(a) neither Thermo Fisher's IC instruments nor Thermo Fisher's IC columns were critical inputs to any downstream services offered by PPD's competitors.

(b) in the last five years, PPD had [✂].[145]

(c) the Merged Entity would have no ability to foreclose PPD's competitors:

(i) from access to IC instruments because customers could switch to alternative suppliers (including Metrohm, Shimadzu, Quingdao, Shine, and other smaller competitors) or source them through alternative channels including pharmaceutical and biotech companies which could buy from Thermo Fisher on their behalf. Alternatively,

---

[140] What is Chromatography and How Does It Work? (thermofisher.com)
[141] FMN, paragraphs 654-655.
[142] FMN, paragraphs 671 and 724.
[143] IC columns are containers holding the material in which the IC process takes place when plugged into the IC instrument.
[144] FMN, paragraphs 673 and 773.
[145] FMN, paragraphs 714 and 773.

customers could also move to other technologies as alternatives to IC to obtain the same results. For example, Thermo Fisher's competitors Agilent and Waters provide IC consumables that can run fully IC-like analysis on their High Pressure Liquid Chromatography (HPLC) instruments.[146]

(ii) from access to IC columns because customers can switch to alternative distributors and manufacturers (like Methrohm, Agilent, Shine, Shimadzu, Cecil instruments, Waters, SkyAm, and Antec) and switching does not entail significant costs as IC columns are typically compatible with different instruments.[147]

135. The Parties estimated that in 2020 Thermo Fisher had a [40-50%] share of supply by value in the market for the supply of IC instruments in the EEA+UK, followed by Metrohm ([40-50%]), Shimadzu ([0-5%]), and others. In relation to the supply of IC columns, the Parties submitted that in 2020 Thermo Fisher had [50-60%] of the EEA+UK market, followed by Metrohm ([30-40%]) and other smaller non-identified suppliers.[148]

136. The CMA notes that Thermo Fisher's internal documents indicate that there are a number of competitors active in the broader area of chromatography and liquid chromatography:

(a) One strategy document from 2018 lists [✂] as key competitors, by describing [✂] as [✂].[149]

(b) One strategy document from 2019 adds that [✂] was [✂].[150]

(c) One document from 2021 focused on analytical instruments and chromatography refers to [✂], a [✂] and [✂].[151]

137. Furthermore, [✂] a leader in (gas and) liquid chromatography columns,[152] [✂] for its [✂], and [✂] for its [✂].[153]

138. Third-party feedback submitted to the CMA in relation to the supply of IC instruments and IC columns was mixed:

---

[146] FMN, paragraphs 711-716.
[147] FMN, paragraphs 771-772.
[148] FMN, Annex 36.
[149] Thermo Fisher, [✂].
[150] Thermo Fisher, [✂].
[151] Thermo Fisher, [✂].
[152] Thermo Fisher, [✂].
[153] Thermo Fisher, [✂]. PharmaFluidics is however no longer an independent competitor as it was acquired by Thermo Fisher in August 2021. FMN, paragraph 739.

(a) One competitor and one customer of Thermo Fisher submitted that there were close alternatives available, including from Agilent, Waters Corporation, and Restek;

(b) However, two customers submitted that there was no alternative to Thermo Fisher's products. One of these two customers [✂] further submitted that, [✂], switching supplier would require considerable costs and, were the Merged Entity to restrict the supply of Thermo Fisher's IC instruments and consumables (including IC columns), it would gain a significant competitive advantage in relation to its GMP activities downstream.

139. The CMA also notes that, although IC instruments and IC columns produced by different suppliers may be compatible, the Parties' submissions indicate that Thermo Fisher's customers of IC instruments tend to purchase IC columns from Thermo Fisher rather than switching to alternative manufacturers.[154]

140. Finally, the CMA notes that Metrohm, the second largest supplier after Thermo Fisher and the only one of similar size to Thermo Fisher,[155] [✂] nor was mentioned as an alternative by third parties. On this basis, the extent to which Metrohm represents an alternative to PPD's competitors in clinical trial services and/or laboratory services is unclear.

141. Based on this evidence, the CMA considers that the Merged Entity may be able to restrict the supply to PPD's rivals of both IC instruments and IC columns.

Vertical gel electrophoresis: precast protein gels and molecular weight standards

142. Electrophoresis is a technique used to separate molecules, such as DNA, RNA or proteins based on their size, density, and charge. There are two major types of electrophoresis; capillary electrophoresis and gel electrophoresis. Vertical gel electrophoresis is a type of gel electrophoresis typically used to separate proteins.[156]

143. Precast protein gels and molecular weight standards are two of the products supplied by Thermo Fisher that are used in vertical gel electrophoresis. PPD

[154] FMN, paragraph 754.
[155] Based on the Parties' estimates of share of supply.
[156] FMN, paragraphs 838-839.

primarily uses vertical gel electrophoresis in its laboratory services, and [✂].[157]

144. The Parties submitted that protein gels and molecular weight standards represent two distinct product markets. Nevertheless, due to the products being involved in the same processes and the similarities in the feedback received for both products, these two products are jointly discussed in this section.

145. The Parties submitted that neither Thermo Fisher's precast protein gels nor Thermo Fisher's molecular weight standards are important inputs to any downstream service offered by PPD's competitors. The Parties submitted that PPD had not [✂].[158]

146. The Parties further submitted that the Merged Entity would have no ability to foreclose PPD's competitors from access to precast protein gels and molecular weight standards as customers can easily switch to many other alternative providers, including Biorad, GenScript, Merck Millipore Sigma, Abcam, Lonza, and from distributors.[159]

147. The Parties estimated that in 2020 Thermo Fisher had a [50-60%] share of supply by value in the market for the supply of precast protein gels in the EEA+UK, followed by Biorad ([30-40%]), Merck Millipore Sigma ([0-5%]), Abcam ([0-5%]), and others. In relation to the supply of molecular weight standards, the Parties submitted that in 2020 Thermo Fisher had [40-50%] of the EEA+UK market, followed by Biorad ([30-40%]), Merck Millipore Sigma ([0-5%]), and other smaller non-identified suppliers.[160]

148. The CMA notes that Thermo Fisher's internal documents describe the market for the supply of electrophoresis products as [✂] Thermo Fisher and [✂] having approximately a [90-100%] share and the other suppliers, including [✂], accounting for the remaining [5-10%].[161]

149. Third-party feedback received by the CMA in relation to the supply of both precast protein gels and molecular weight standards was mixed:

(a) Several Thermo Fisher customers submitted that there were alternative suppliers available (including Biorad, Merck Millipore Sigma, and, for precast protein gels, Biotek) and there were no significant barriers to switching. In relation to precast protein gels however, one customer

---

[157] FMN, paragraphs 841 and 843.
[158] FMN, paragraph 899 and Annex 32.
[159] FMN paragraphs 897 and 899.
[160] FMN, Annex 36.
[161] Thermo Fisher, [✂]; Thermo Fisher, [✂].

submitted that switching supplier would require buying a new electrophoresis system.

(b) One competitor of Thermo Fisher submitted that, although Thermo Fisher had a strong position in the supply of both precast protein gels and molecular weight standards, there were a number of competing suppliers available in the market.

(c) However, one customer of Thermo Fisher submitted that, while there were alternative suppliers, none were as good as Thermo Fisher. This customer further submitted that switching supplier would require [✂].

150. Based on this evidence, the CMA considers that Thermo Fisher may be able to restrict the supply to PPD's rivals of both precast protein gels and molecular weight standards.

Importance of the inputs

151. As set out above, the CMA believes Thermo Fisher may be able to restrict the supply to PPD's rivals of six input products.

152. However, these products represent a very small proportion of the downstream direct costs incurred by PPD's rivals.[162] Taken together, they only represent about [less than 1%] of direct costs for laboratory services and an even smaller proportion of direct costs for clinical trial services.[163] Given also that the vast majority of Thermo Fisher's customers which responded to the CMA's questionnaire did not have concerns about the effects on competition of the Merger, the CMA believes that the Merged Entity would have limited ability to harm the overall competitiveness of its downstream rivals in laboratory and CRO services.

Conclusion on ability to foreclose

153. For the reasons set out above, the CMA found that the Merged Entity may be able to restrict the supply to PPD's rivals of the following products:

(a) Allergy and autoimmunity diagnostic systems;

---

[162] Allergy and autoimmunity diagnostic systems; NGS solutions (including Genexus); South American FBS; Plastics for magnetic bead-based instruments; IC instruments and IC columns; and Vertical gel electrophoresis: precast protein gels and molecular weight standards.
[163] CMA's estimates based on data on: size of the EEA+UK laboratory services and clinical trial services Total Addressable Markets (FMN, Annex 17); PPD's gross profit margin for laboratory services and clinical trial services (FMN, Table 7); Thermo Fisher's sales of the identified products to PPD and its competitors (FMN, Annex 30; Parties' response to the RFI dated 15 October 2021).

(b) NGS solutions (including Genexus);

(c) South American FBS;

(d) Plastics for magnetic bead-based instruments;

(e) IC instruments and IC columns;

(f) Vertical gel electrophoresis: precast protein gels and molecular weight standards.

154. However, these products represent a very small proportion of the downstream direct costs incurred by PPD's rivals. Therefore, the CMA found that the Merged Entity would have limited ability to harm the overall competitiveness of its downstream rivals in laboratory and CRO services.

Incentive

155. Given the Merged Entity may have some, albeit limited, ability to harm the overall competitiveness of its downstream rivals in laboratory and CRO services, the CMA has also considered whether the Merged Entity would have the incentive to restrict the supply of these products to its downstream rivals in laboratory and CRO services.

156. The Parties submitted that the Merged Entity would have no incentive to foreclose PPD's competitors post-Merger because it would risk suffering significant losses and the potential gains from a foreclosure strategy would be minimal and uncertain.[164]

157. The CMA has considered whether the Merged Entity would have the incentive to foreclose PPD's rivals by considering:

(a) gain in downstream sales;

(b) loss of upstream sales and relative margins; and

(c) other costs of foreclosure.

Gain in downstream sales

158. The Parties submitted that the potential gains from a foreclosure strategy would be minimal and uncertain.[165] In particular, the Parties submitted that

[164] FMN, paragraph 199.
[165] FMN, paragraph 199.

although Thermo Fisher's market share for certain products may be high,[166] these inputs represent a small part of a CRO's and laboratory's overall costs of providing the various related services, and that as any price increase for the inputs would only lead to a minimal increase in the price of the services offered by PPD's competitors, it is unlikely that the price increase would cause significant switching to PPD.[167]

159. The CMA considers that the potential gain in downstream sales would be greater in situations where the Merged Entity has a more successful downstream offering and if this competes closely with the rivals that may be foreclosed.[168]

160. Accordingly, the CMA has considered the strength of PPD in each of (a) the supply of laboratory services, and (b) the supply of clinical trial services.

- *Laboratory services*

161. Table 1 below shows PPD's estimated shares by value in the market for the supply of laboratory services overall in the EEA+UK, and in each of the following segments: GMP, central, bioanalytical, and vaccines laboratory services.

Table 1: PPD's shares of laboratory services by value – EEA+UK (2020)

Segment	*PPD's share(%)*
GMP	[0-5]
Central	[5-10]
Bioanalytical	[0-5]
Vaccines	[0-5]
Total laboratory services	*[0-5]*

Source: FMN, Annex 17.

162. According to the estimates above, PPD's share of supply is no higher than [5-10%] in any of the laboratory services segments.

163. The Thermo Fisher internal documents reviewed by the CMA suggest that PPD is one of the [✂].[169] However, the documents also suggest that PPD faces several key competitors in all laboratory segments, including [✂].[170]

164. Third party feedback also indicates that PPD faces several main competitors in the supply of laboratory services, including IQVIA, ICON, LabCorp,

---

[166] See section on the ability to foreclose for the market share estimates for each product.
[167] FMN, paragraph 199.
[168] *Merger Assessment Guidelines*, paragraph 7.19(b).
[169] See for example: Thermo Fisher, [✂].
[170] See for example: Thermo Fisher, [✂].

Eurofins, Quest Diagnostics, SGS, Intertek, Foundation Medicine, and Solidus Tech.

165. Based on this evidence, the CMA considers that, although PPD is an important laboratory services supplier and is active across multiple laboratory segments, it faces competition from several key competitors in each of these segments. Therefore, the CMA considers that the Merged Entity would need to foreclose several competitors to potentially gain substantial laboratory services sales.

166. Moreover, as explained at paragraph 152 above, the products for which Thermo Fisher may be able to restrict supply account for a small proportion of the input costs incurred by PPD's competitors making any potential downstream impact on these rivals likely to be small. Therefore, the CMA considers that it is unlikely that input foreclosure would trigger significant diversion of laboratory services sales to the Merged Entity.

167. Overall, the CMA considers that it is unlikely the Merged Entity would gain substantial laboratory services sales were it to engage in input foreclosure.

- *Clinical trial services*

168. Table 2 below shows PPD's estimated shares by value in the market for the supply of clinical trial services overall in the EEA+UK, and in some clinical trial services segments.

Table 2: PPD's shares of clinical trial services by value – EEA+UK (2020)

Segment	*PPD's share(%)*
Phase II to Phase III clinical trial services	[0-5]
Accelerated enrolment solutions	[0-5]
Peri- and post-approval services	[0-5]
Product development and consulting	[0-5]
Medical communications	[0-5]
Early development services	[0-5]
Total clinical trial services	*[0-5]*

Source: FMN, Annex 17.

169. According to the estimates above, PPD's share of supply is no higher than [0-5%] in any of the clinical trial services segments. However, the CMA notes that Thermo Fisher's internal documents suggest that PPD has a [5-10%] share in the supply of clinical trial services globally.[171]

[171] See for example: Thermo Fisher [✂] - the other main suppliers are IQVIA ([10-20%]), Syneos Health ([5-10%]), ICON ([5-10%]), PRA ([5-10%]), LabCorp ([5-10%]), Parexel ([5-10%]), Medpace ([0-5%]), and PSI ([0-5%]).

170. Thermo Fisher's internal documents available to the CMA suggest that PPD is one of the [✂], and that its key competitors include [✂].[172]

171. Third party feedback also indicates that PPD faces several main competitors in the supply of clinical trial services, including IQVIA, ICON, LabCorp, and Syneos Health.

172. Based on this evidence, the CMA considers that, although PPD is an important CRO, it faces several key competitors. Therefore, the CMA considers that the Merged Entity would need to foreclose several competitors to gain substantial clinical trial services sales.

173. Moreover, as explained at paragraph 154183 above, the products for which Thermo Fisher may be able to restrict supply account for a small proportion of the input costs incurred by PPD's competitors, making any potential downstream impact on these rivals likely to be small. Therefore, the CMA considers that it is unlikely that input foreclosure would trigger significant diversion of laboratory services sales to the Merged Entity.

174. Overall, the CMA considers that it is unlikely the Merged Entity would gain substantial clinical trial services sales were it to engage in input foreclosure.

Loss of upstream sales and relative margins

175. The CMA considers that while foreclosure may result in additional sales and profits downstream, it may also result in costs such as a loss of sales and profits upstream.[173]

176. The CMA considers that the amount of upstream sales that the Merged Entity would lose were it to engage in input foreclosure would depend on a number of factors, including: (i) the upstream products that the input foreclosure strategy would involve (and, in particular, the availability of sufficient alternatives to Thermo Fisher products), (ii) the downstream rivals that would be targeted, and (iii) whether the Merged Entity would cease the supply of Thermo Fisher products (ie total foreclosure) or would increase the price or worsen the quality of the inputs supplied to PPD's competitors (ie partial foreclosure).

177. However, the CMA notes that the upstream gross margins are generally larger than the downstream gross margins. In particular, PPD's gross margin

[172] See for example: Thermo Fisher, [✂].
[173] *Merger Assessment Guidelines*, paragraph 7.16.

in the EEA+UK in 2020 was [✂]% for the supply of laboratory services,[174] and [✂]% for the supply of clinical trial services.[175] Thermo Fisher's upstream gross margins in the EEA+UK in 2020 for the products listed at paragraph 153 above were [✂]% for NGS solutions (including Genexus) and [✂]% for molecular weight standards, [✂] of allergy and autoimmunity diagnostic systems ([✂]%) and South American FBS ([✂]%).[176]

178. This indicates that, for a given amount of lost upstream sales, the Merged Entity would, on average, need to attract a materially higher amount of downstream sales for an input foreclosure strategy to be profitable.

179. One competitor of PPD submitted that Thermo Fisher would incur a very small loss from withholding supplies from PPD's rivals, while driving large downstream gains to PPD.[177] However, no other third party out of the 23 that responded to the CMA's investigation raised concerns about the Merged Entity's potential incentive to foreclose. One pharmaceutical company told the CMA that Thermo Fisher is a very large laboratory equipment supplier and would therefore be required to supply to PPD's rivals too, as Thermo Fisher could not rely on PPD's purchases alone given the size of the market. This company further submitted that Thermo Fisher 'has most probably more to lose than to gain' from a foreclosure strategy. Moreover, one competitor of Thermo Fisher told the CMA that, were the Merged Entity to engage in input foreclosure, the incremental business gained from customers switching to PPD would be unlikely to make up for the business lost by Thermo Fisher.[178]

180. The CMA considers that the evidence on likely small downstream sales gains (as explained at paragraphs 165 and 172 above), relative gross margins upstream and downstream, and third party feedback in the round indicates that the potential upstream profit losses from foreclosure would be likely to exceed the potential downstream profit gains.

Other costs of foreclosure

- *The Parties' submissions*

181. The Parties submitted that:[179]

---

[174] FMN, Table 7. The margin ranged between [✂]% and [✂]% depending on the specific laboratory services segment – Parties' response to the RFI dated 15 October 2021.
[175] FMN, Table 7.
[176] The Parties' response to the CMA's request for information dated 15 October 2021.
[177] [✂] and Competitor Overviews (17-Sept-2021) - CMA_vF.pdf dated 17 September 2021.
[178] Note of call with Merck KGaA, 22 October 2021, paragraph 20.
[179] FMN, paragraph 199.

(a) If Thermo Fisher attempted to foreclose PPD's competitors' access to its high-share products, these companies could respond by diverting purchases of the many other products they purchase from Thermo Fisher and in which Thermo Fisher does not have a strong market position. The foreclosure strategy would thus be unprofitable overall.

(b) Foreclosing PPD's competitors would cause Thermo Fisher long term reputational and financial damage, including putting at risk Thermo Fisher's relationship with the pharmaceutical companies that sponsor CROs' work. [✂].

(c) Foreclosure would cut across the core goal of the Merger, that is expanding Thermo Fisher's business with pharmaceutical companies.

- *CMA assessment*

182. The CMA considered whether the Merged Entity would incur other costs were it to engage in an input foreclosure strategy.

183. First, the CMA considered whether the products for which the Merged Entity may be able to restrict supply to PPD's competitors (listed at paragraph 153 above) account for a large share of PPD's competitors' total purchases from Thermo Fisher.

184. The CMA's analysis of Thermo Fisher's 2020 EEA+UK sales data indicates that the products for which Thermo Fisher may be able to restrict supply account for a small proportion of PPD's main competitors' total purchases from Thermo Fisher. For example, the CMA estimated that in 2020:[180]

(a) [✂] purchases of the products listed at paragraph 153 above accounted for around [✂]% of [✂] total purchases from Thermo Fisher;

(b) [✂] purchases of the products listed at paragraph 153 above accounted for around [✂]% of [✂] total purchases from Thermo Fisher;

(c) [✂] purchases of the products listed at paragraph 153 above accounted for around [✂]% of [✂] total purchases from Thermo Fisher;

(d) [✂] purchases of the products listed at paragraph 153 above accounted for around [✂]% of [✂] total purchases from Thermo Fisher; and

[180] CMA analysis of the data included in the Parties' response to the RFI date 15 October 2021.

(e) [✂] purchases of the products listed at paragraph 153 above accounted for around [✂]% of [✂] total purchases from Thermo Fisher.

185. Moreover, one competitor of Thermo Fisher told the CMA that PPD's rivals were substantial buyers of Thermo Fisher's products and were active in a very fast-growing segment, and that therefore Thermo Fisher benefits considerably from carrying on business with them.[181]

186. Based on this evidence, the CMA considers that, were the Merged Entity to restrict the supply of the products for which Thermo Fisher may have limited ability, PPD's rivals could potentially retaliate by reducing their total purchases from Thermo Fisher.

187. Second, the CMA considered whether engaging in input foreclosure may harm Thermo Fisher's relationship with large pharmaceutical and biotech companies. One competitor of PPD submitted that it does not believe that the Merged Entity would foreclose PPD's competitors, as this would have a negative impact on Thermo Fisher's relationship with its key customers, including CROs and their sponsors (eg pharmaceutical companies). One pharmaceutical company told the CMA that it would not be rational for the Merged Entity to foreclose PPD's rivals as this would detrimentally impact Thermo Fisher's relationship with downstream pharmaceutical customers. Another pharmaceutical company submitted that, were the Merged Entity to foreclose PPD's rivals from which it procures clinical trial and laboratory services, it would react by engaging with Thermo Fisher to push back on such approach and potentially escalate the matter with Thermo Fisher's senior management if needed.

188. Based on this evidence, the CMA considers that, were the Merged Entity to attempt to engage in input foreclosure, Thermo Fisher's relationship with pharmaceutical companies may be harmed.

Conclusion on incentive

189. The CMA considers that:

(a) It is unlikely the Merged Entity would gain substantial laboratory services and clinical trial services sales were it to engage in input foreclosure (see paragraphs 158-174 above);

[181] Note of call with Merck KGaA, 22 October 2021, paragraph 20.

(b) the potential upstream profit losses from foreclosure would be likely to exceed the potential downstream profit gains (see paragraphs 175-180 above); and

(c) The Merged Entity would incur other costs were it to engage in an input foreclosure strategy, as PPD's rivals could reduce their total purchases from Thermo Fisher and Thermo Fisher's relationship with pharmaceutical companies could be harmed (see paragraphs 181-188 above).

190. Moreover, as noted at paragraph 179 above, only one third party raised concerns about the Merged Entity's potential incentive to foreclose.

191. For these reasons, the CMA considers the Merged Entity would not have the incentive to foreclose PPD's rivals.

Conclusion on vertical effects

192. For the reasons set out above, the CMA believes that the Merged Entity has limited ability to harm PPD's rivals by restricting the supply a number of products (see paragraph 154 above), and would not have the incentive to do so (see paragraph 189 above). As the CMA considers that there is no incentive to foreclose, the CMA did not consider the effect of foreclosure.

193. Accordingly, the CMA found that the Merger does not give rise to a realistic prospect of an SLC as a result of vertical effects in relation to the supply of laboratory services in the EEA+UK and the supply of clinical trial services in the EEA+UK.

Barriers to entry and expansion

194. Entry, or expansion of existing firms, can mitigate the initial effect of a merger on competition, and in some cases may mean that there is no SLC. In assessing whether entry or expansion might prevent an SLC, the CMA considers whether such entry or expansion would be timely, likely and sufficient.[182]

195. However, the CMA has not had to conclude on barriers to entry or expansion as the Merger does not give rise to competition concerns on any basis.

---

[182] *Merger Assessment Guidelines*, from paragraph 8.40.

Third party views

196. Third party comments have been taken into account where appropriate in the competitive assessment above.

Decision

197. Consequently, the CMA does not believe that it is or may be the case that the Merger may be expected to result in an SLC within a market or markets in the United Kingdom.

198. The Merger will therefore **not be referred** under section 33(1) of the Act.

Sorcha O'Carroll
Director, Mergers
Competition and Markets Authority
3 December 2021

---

[i] The Parties have clarified that Thermo Fisher's Phadia 1000 is only used for allergy testing.